

## Example 1: Duwakot-Nepal

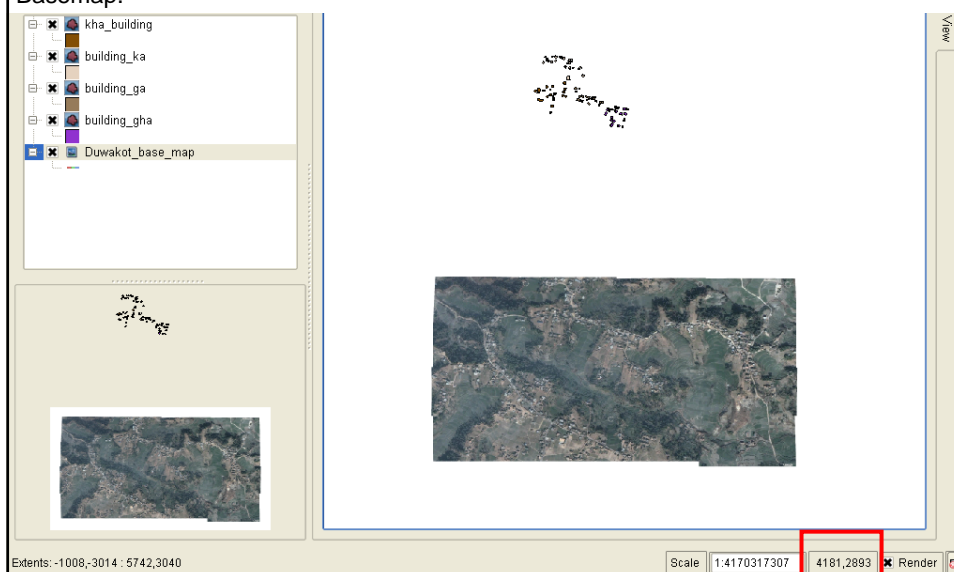
A field survey of the vulnerability of buildings was conducted by the students of the area Changnarayan, Duwakot in Kathmandu Valley, Nepal under the guidance of the researchers of Nepal Engineering Collage (NEC). A georeferenced satellite image for Basemap and the check sheet for the evaluation of buildings and houses were provided to the students. Identification numbers of buildings were noted on the check sheets and on Basemap.

Buildings in Basemap were digitized afterward by the researchers of NEC and saved in four Shape files. Namely the surveyed area was divided in four sub-areas. The information noted on the check sheets were joined in four Worksheets of MicroSoft Excel™.

Then, they are saved in a CD and sent to IISEE.

These data are used in this example.

First, four Shape files and Basemap stored in CD are browsed using QGIS. The coordinates at right bottom shows that these are digitized on Basemap with Pixel coordinates. Namely the .tfw file provided with Basemap was not used for the digitizing task. Besides, the vector objects stored in Shape files are not on the area covered by Basemap.



There are at least two ways to define Pixel coordinates. In one way the origin (0.,0.) is set at the upper left corner, the horizontal axis right, the vertical axis upward. In another way, the origin (0.,0.) is set at the lower left corner.

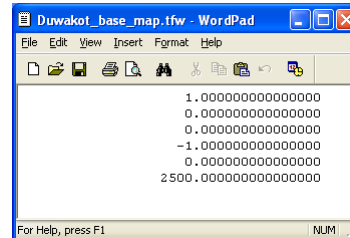
Basemap \*.tif file without associated \*.tfw file is interpreted by QGIS in the former one, whereas it seems that the latter one was used for digitizing task when these Shape files were made.

Second, a temporal \*.tfw file is created using WordPad as shown below. This forces QGIS to follow the latter way mentioned above.

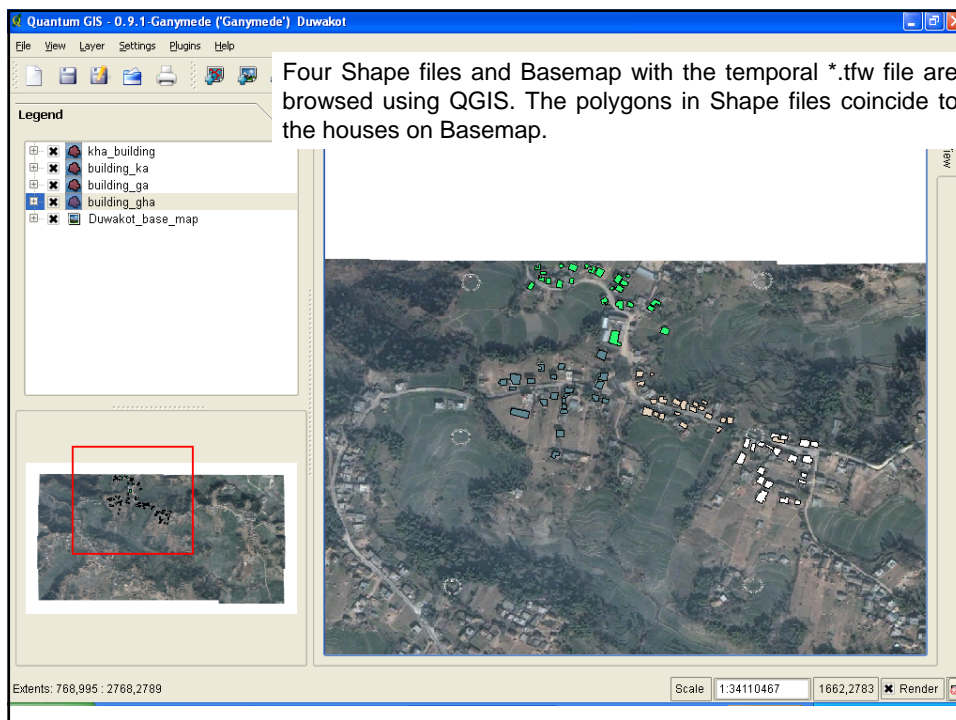
Basemap \*.tif has size 4500X2500 Pixels.

Format of \*.tfw file:

- X-scale (length for a pixel along X-axis)
- X-rotation angle
- Y-rotation angle
- Y-scale (negative sign & length for a pixel along y-axis)
- X-value of the center of the pixel at the top left corner
- Y-value of the center of the pixel at the top left corner

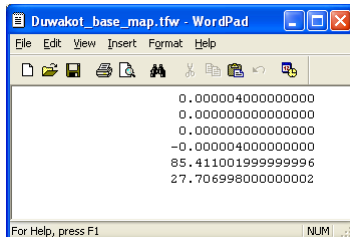


(Decimal point at the 21<sup>st</sup> column.)



### Transform Basemap from pixel coordinate to wgs84.

Duwakot\_base\_map.tif was georeferenced already when it had been created. The corresponding \*.tfw file is available and shown below.



The georeferencing information given there is

Origin:

Longitude: 85.411002 deg.

Latitude: 27.706998 deg.

res: 0.000004 deg. both for longitude and Latitude

Then, the coordinates of the four corners are as shown below. ( ) denotes geographical coordinates, whereas < > shows pixel coordinates.

(85.411, 27.707)  
<0.0,0.0>

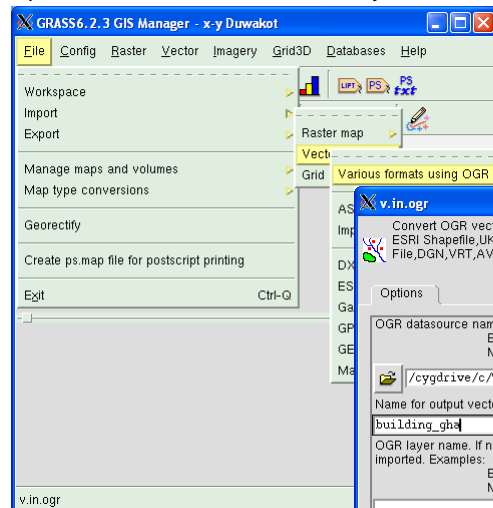
(85.429, 27.707)  
<4500.0,0.0>

(85.411, 27.697)  
<0.0, -2500.0>

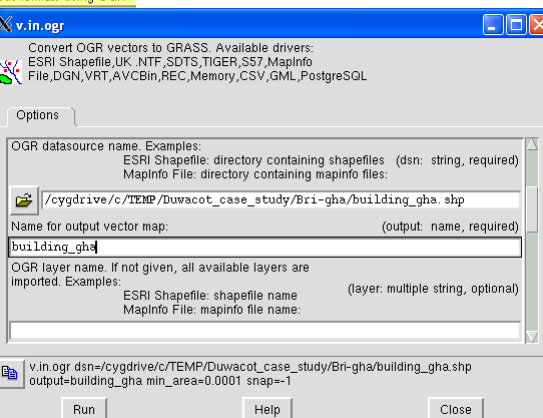
(85.429, 27.697)  
<4500.0, -2500.0>

### Transform the vector maps from pixel coordinate to wgs84.

Open GRASS with LOCATION=x-y, MAPSET=Duwakot.

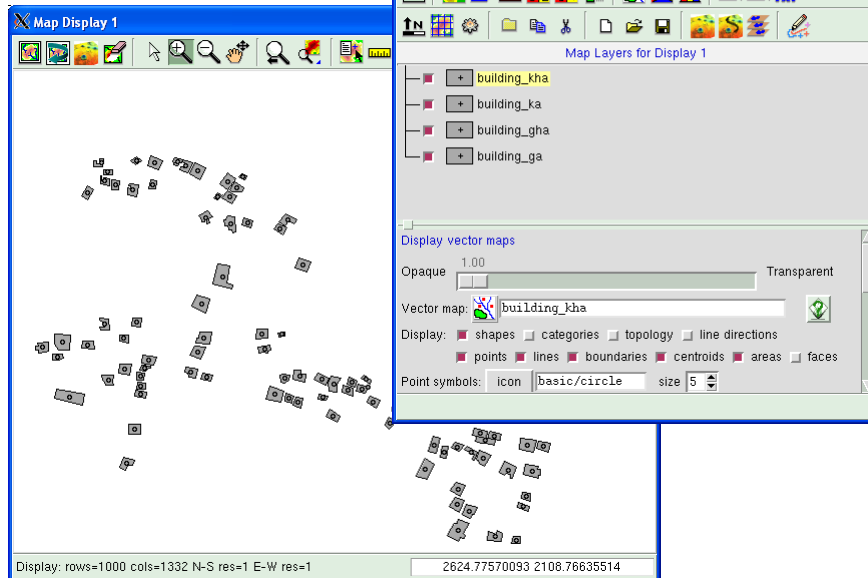


Import a Shape file using "v.in.ogr".



Repeat it for other three shape files.

Confirm the imported vector maps using Map Display.



Create "POINTS" file using WordPad.

The four corners of Basemap have the following coordinates. Values in ( , ) denote the geographical coordinates in wgs84, whereas those in < , > in Pixel coordinates.

(85.411, 27.707)	(85.429, 27.707)
<0.0,0.0>	<4500.0,0.0>
(85.411, 27.697)	(85.429, 27.697)
<0.0, -2500.0>	<4500.0, -2500.0>

"POINTS" file contains these values as shown below. Coordinate transform is performed using them.

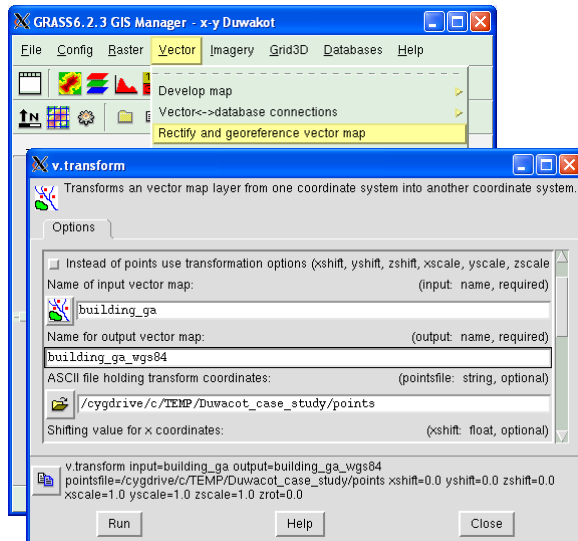
The screenshot shows a WordPad window titled 'POINTS - WordPad'. The text inside the window is as follows:

#	east	image	north	target	north	status
#	east	image	north	target	north	(1=ok)
#	0.000000	2500.000000	85.411000	27.707000	1	
	4500.000000	2500.000000	85.429000	27.707000	1	
	0.000000	0.000000	85.411000	27.697000	1	
	4500.000000	0.000000	85.429000	27.697000	1	

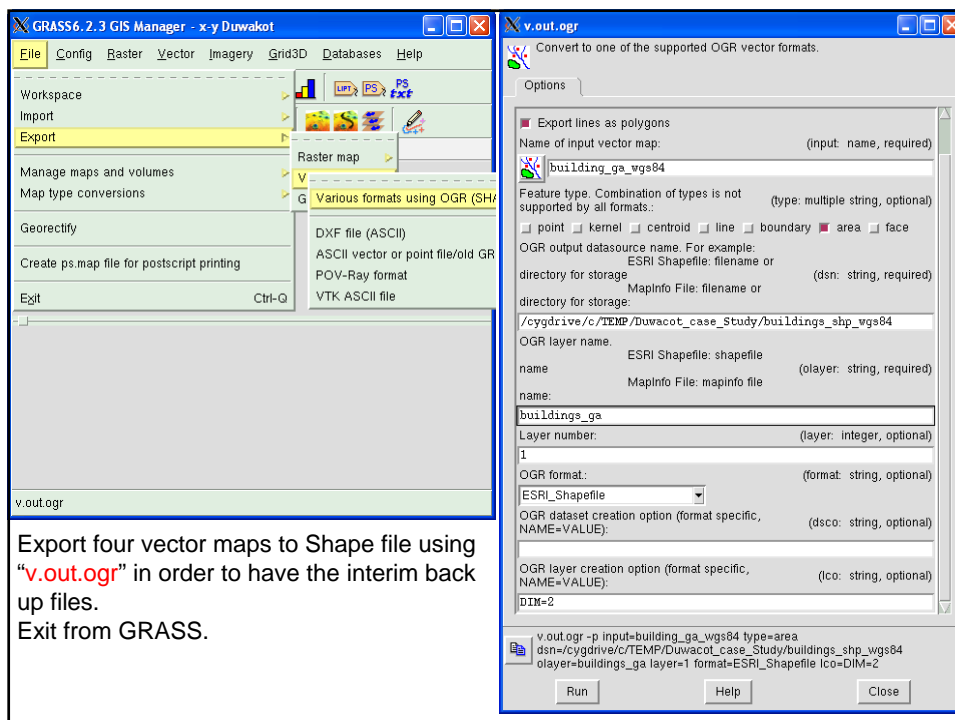
At the bottom of the window, it says 'For Help, press F1' and 'NUM'.

Conduct coordinates transform using “v.transform”.

“POINTS” file created in the previous slide is used for transformation.

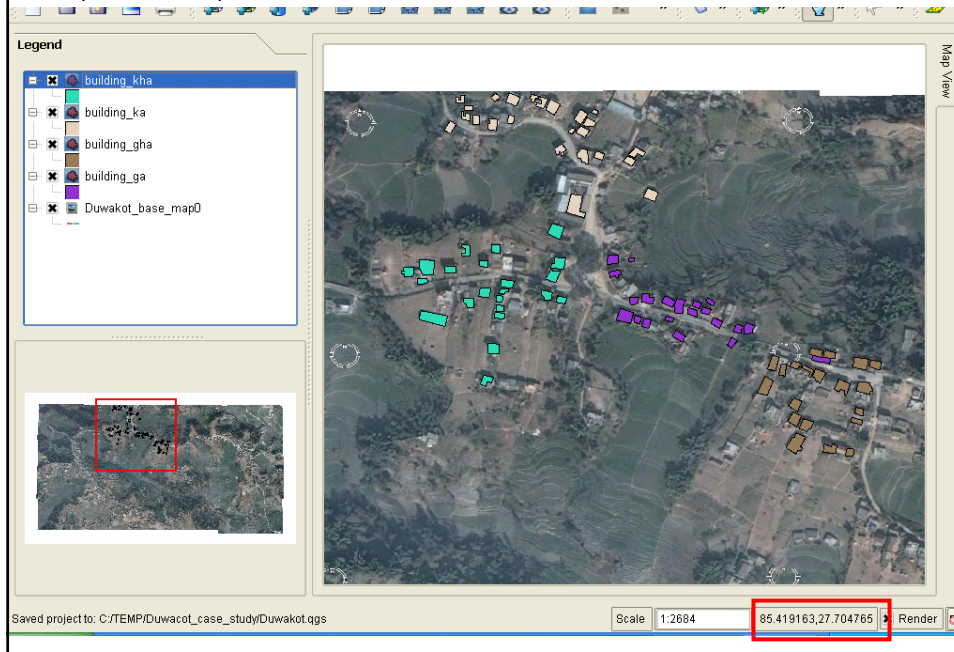


Repeat it for other three vector maps.

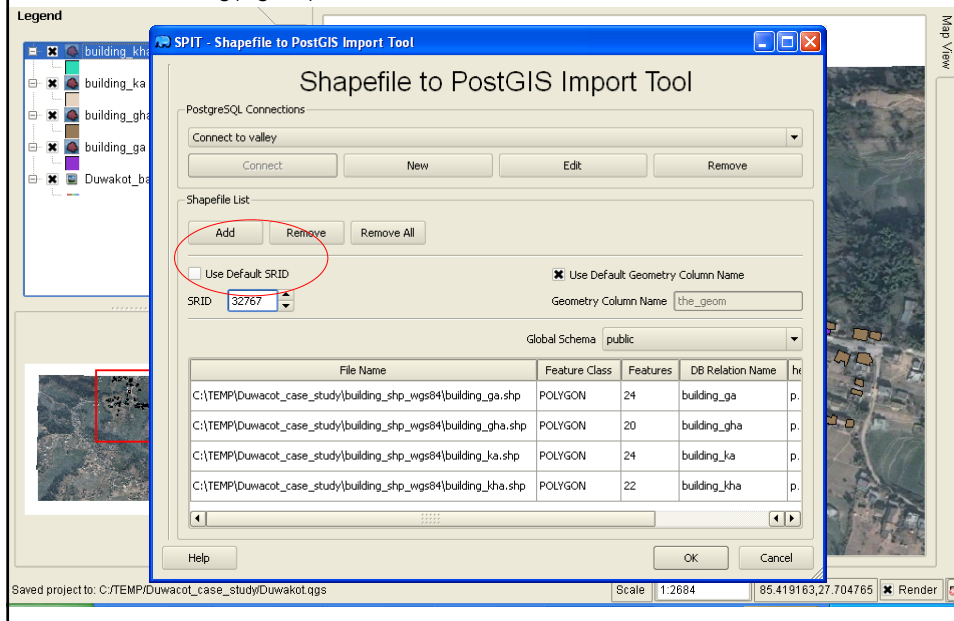


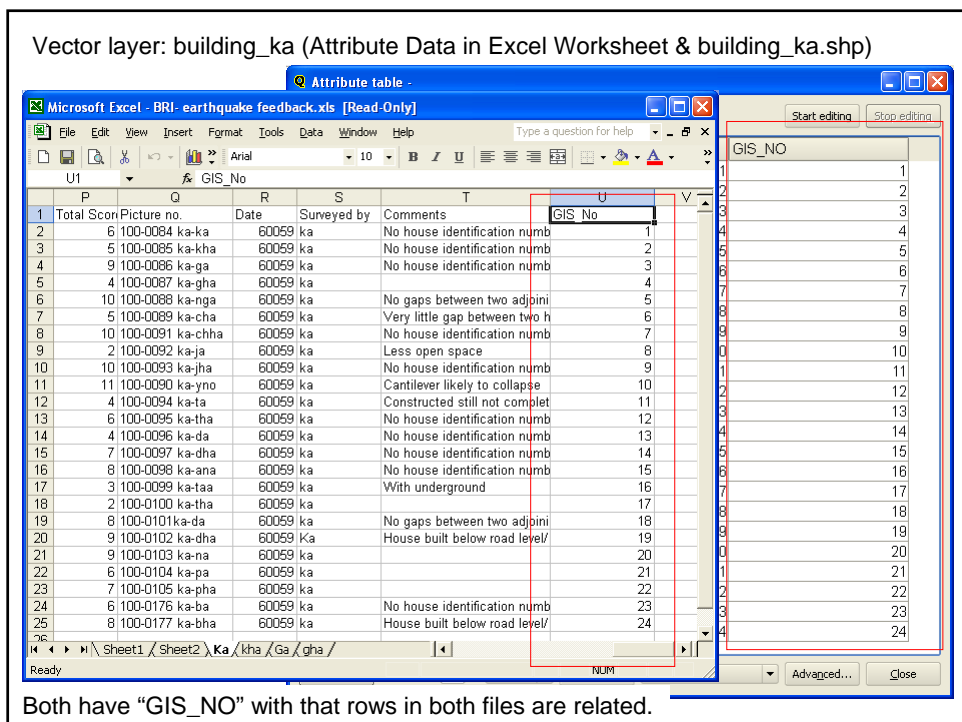
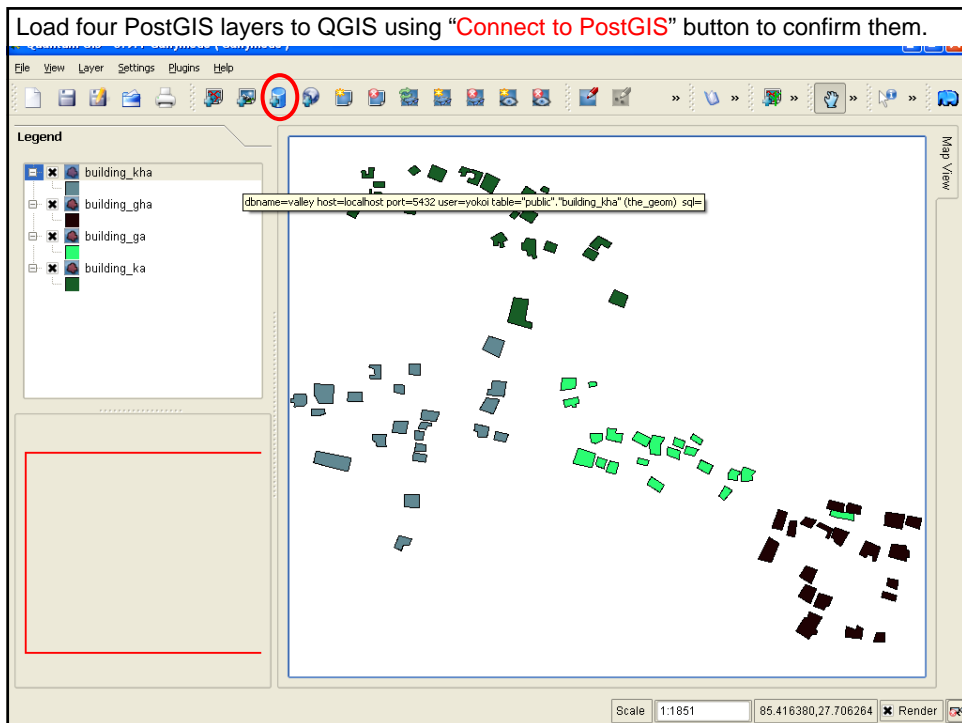
Export four vector maps to Shape file using “v.out.ogr” in order to have the interim back up files.  
Exit from GRASS.

Load four Shape files in wgs84 together with Basemap in wgs84 on QGIS to confirm their spacial correspondence. Remove them after confirmation.

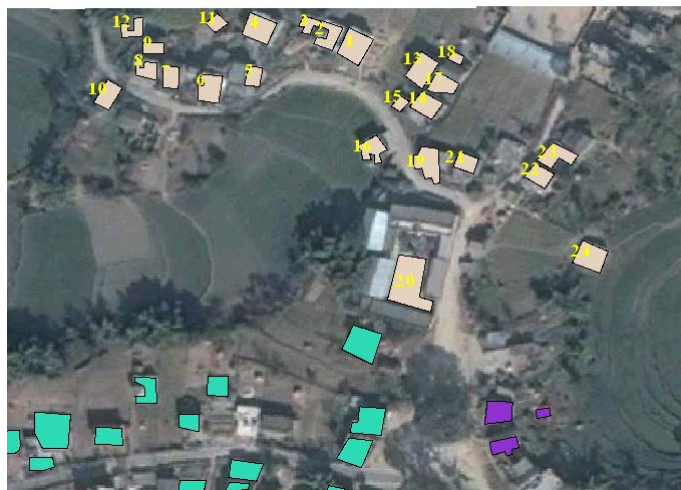


Import four Shape files in wgs84 together to Database “valley” of PostgreSQL using “SPIT” plugin of QGIS. Don’t use the default SRID but 32767 that is same as SRID of LOCATION=lat-long(wgs84) of GRASS









“building\_ka” layer

Microsoft Excel - att\_ka.csv

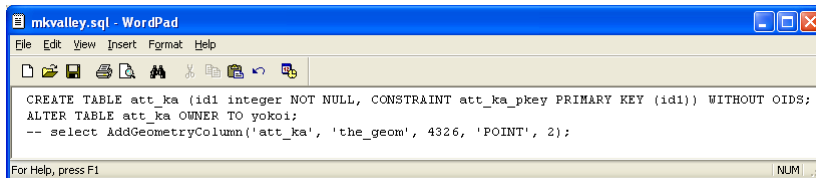
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
id1	Serial_No	GIS_ID	Total_Sco	House_low	Age_of_hc	Occupants	House_usi	House_Ty	Height	Shape	Elevation	Openings	Cracks	Repair_Mt	Roof	Falling_Ha	Comments	
1	1	15	1	6	Maresh KI	7	4	Personal	VCB	2 store	Rectangul	Asymmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	No house identific
2	2	16	2	5	Narayan Pi	5	12	Rent	VMB	2 store	Square	Symmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	No house identific
3	3	22	3	9	Narayan Pi	60	5	Personal	VCB	2 store	Square	Symmetri	<30%	Minor crac	Good stak	Thatch roc	Cantilever	No house identific
4	4	23	4	4	Mani Neup	12	5	Personal	VCB	2 store	Square	Symmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	Falling hazards
5	5	24	5	10	Mani Neup	24		Others	VEM	3 store an	Square	Symmetri	<30%	No cracks	Good stak	CGI roofin	Cantilever	No gaps between two
6	6	8	6	5	Radhika Ni	7	9	Rent	VCB	2 store	Square	Asymmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	Very little gap between
7	7	9	7	10	Annapurna	53	8	Personal	VEU	3 store an	Square	Symmetri	<30%	No cracks	Good stak	CGI roofin	Cantilever	No house identific
8	8	10	8	2	Akur Prasi	3	4	Personal	VCB	1 store	Square	Symmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	Less open space
9	9	11	9	10	Ram Krishi	30	4	Personal	VEU	3 store an	Square	Symmetri	<30%	Minor crac	Lacking M	CGI roofin	Cantilever	No house identific
10	10	12	10	11	Ganesh Ni	75	5	Personal	VEU	2 store	Square	Symmetri	<30%	Minor crac	Poor main	Thatch roc	Cantilever	Cantilever likely to co
11	11	13	11	4	Pradhumo	9	4	Personal	PCB	3 store an	Square	Asymmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	Constructed still not c
12	12	14	12	6	Santosh Ni	13	6	Personal	VMB	2 store	Square	Asymmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	No house identific
13	13	17	13	4	Ram Chani	8	7	Personal	VCB	2 store	Square	Symmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	No house identific
14	14	18	14	7	Ravi Rimal	20	3	Personal	VEM	2 store	Square	Symmetri	<30%	No cracks	Good stak	CGI roofing		No house identific
15	15	19	15	8	Ram Chani	6		Cowshed	VEU	1 store	Square	Symmetri	<30%	No cracks	Floor main	CGI roofin	Cantilever	No house identific
16	16	20	16	3	Maji Rajni	6	1	Personal	PCB	2 store	Square	Symmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	Vith underground
17	17	21	17	2	Umesh Nei	5	5	Personal	PCB	1 store	Square	Symmetrical		No cracks	Good stak	Slab castei	Falling hazards	
18	18	2	18	8	Hari Prasa	18	8	Personal	VCM	2 store	Rectangul	Asymmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	No gaps between two
19	19	1	19	9	Bal Bahadi	73	2	Personal	VEU	2 store	Square	Symmetri	<30%	No cracks	Good stak	CGI roofin	Cantilever	House built below roa
20	20	3	20	3	Changunar	58	480	Communt	VMM	2 store	Others	Asymmetri	<30%	No cracks	Good stak	CGI roofin	Cantilever	
21	21	4	21	6	Dev Maya	20	7	Personal	VMB	1 store	Rectangul	Symmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	
22	22	5	22	7	Hem Kuma	30	7	Personal	VEU	2 store	square	Symmetri	<30%	No cracks	Good stak	CGI roofin	Cantilever	
23	23	6	23	6	Goverden I	3	3	Personal	VMB	2 store	Square	Asymmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	No house identific
24	24	7	24	8	Atmaram P	15	6	Personal	VMB	3 store an	Square	Asymmetri	<30%	No cracks	Good stak	Slab castei	Cantilever	House built below roa

csv file “att\_ka.csv” modified from the given Excel Worksheet “ka”.



Create a table to store the attributes imported from csv file.

Edit the sql batch file “mkvalley.sql” as follows.

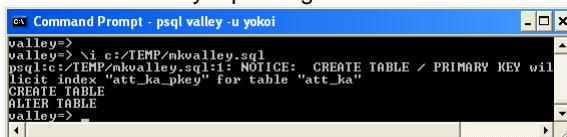


```
CREATE TABLE att_ka (id1 integer NOT NULL, CONSTRAINT att_ka_pkey PRIMARY KEY (id1)) WITHOUT OIDS;
ALTER TABLE att_ka OWNER TO yokoi;
-- select AddGeometryColumn('att_ka', 'the_geom', 4326, 'POINT', 2);
```

Double “-” at the beginning of the third lines denote “This line is a comment”. This line is ignored at executing the sql batch file.

Open “Command Prompt” of PostgreSQL for the database “valley”, user “yokoi” and its password.

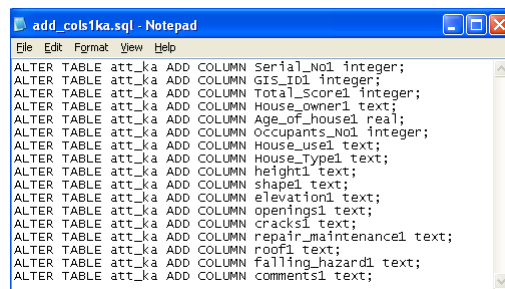
Execute “mkvalley.sql” using “¥i” command.



```
valley>
valley> \i c:/TEMP/mkvalley.sql
psql:c:/TEMP/mkvalley.sql:1: NOTICE: CREATE TABLE / PRIMARY KEY will
create index "att_ka_pkey" for table "att_ka"
CREATE TABLE
ALTER TABLE
valley>
```

Note:It is possible to achieve the same result by executing PostgreSQL commands in “mkvalley.sql” one by one by manual typing or copy & paste from “mkvalley.sql”.

Store the attributes into the created table.

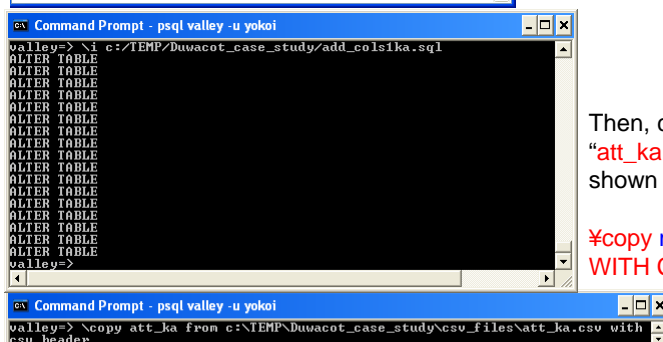


```
ALTER TABLE att_ka ADD COLUMN Serial_No1 integer;
ALTER TABLE att_ka ADD COLUMN GIS_ID1 integer;
ALTER TABLE att_ka ADD COLUMN Total_Score1 integer;
ALTER TABLE att_ka ADD COLUMN House_owner1 text;
ALTER TABLE att_ka ADD COLUMN Age_of_house1 real;
ALTER TABLE att_ka ADD COLUMN Occupants_No1 integer;
ALTER TABLE att_ka ADD COLUMN House_use1 text;
ALTER TABLE att_ka ADD COLUMN House_Type1 text;
ALTER TABLE att_ka ADD COLUMN height1 text;
ALTER TABLE att_ka ADD COLUMN shape1 text;
ALTER TABLE att_ka ADD COLUMN elevation1 text;
ALTER TABLE att_ka ADD COLUMN openings1 text;
ALTER TABLE att_ka ADD COLUMN cracks1 text;
ALTER TABLE att_ka ADD COLUMN repair_maintenance1 text;
ALTER TABLE att_ka ADD COLUMN roof1 text;
ALTER TABLE att_ka ADD COLUMN falling_hazard1 text;
ALTER TABLE att_ka ADD COLUMN comments1 text;
```

Edit the sql batch file “add\_cols1ka.sql” using WordPad as shown in the top figure.

Execute it using “¥i” command as shown in the middle figure.

¥i mysqlfile



```
valley> \i c:/TEMP/Duvacot_case_study/add_cols1ka.sql
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
ALTER TABLE
valley>

valley> \copy att_ka from c:/TEMP/Duvacot_case_study/csv_files/att_ka.csv with
csv header
```

Then, copy the attributes from “att\_ka.csv” file to table as shown in the bottom figure.

¥copy mytable FROM mycsvfile WITH CSV HEADER



Confirm the columns of the table  
 “building\_ka”.

❏ mytable

Note that the primary key is set at “gid”.

```

Command Prompt - psql valley -U yokoi
valley=> \d building_ka
Table "public.building_ka"
Column          | Type          | Modifiers
gid              | integer       | not null
cat              | integer
gis_no           | double precision
the_geom         | geometry
serial_no       | integer
gis_id           | integer
total_score      | integer
house_owner     | text
age_of_house    | real
occupants_no    | integer
house_use       | text
house_type      | text
height          | text
shape           | text
elevation       | text
openings        | text
cracks          | text
repair_maintenance | text
roof            | text
falling_hazard  | text
comments        | text
Indexes:
    "building_ka_pkey" PRIMARY KEY, btree (gid)
Check constraints:
    "enforce_dime_the_geom" CHECK (<dims(the_geom) = 2>
    "enforce_geotype_the_geom" CHECK (<geometrytype(the_geom) = 'POLYGON'::text OR the_geom IS NULL)
    "enforce_srid_the_geom" CHECK (<srid(the_geom) = 32767>
valley=>
  
```

Copy the corresponding attribute values from “att\_ka” to “building\_ka”.

Edit the sql batch file “values\_ka.sql” using WordPad as shown below.

```

values_ka.sql - Notepad
File Edit Format View Help
UPDATE ONLY building_ka SET Serial_no = Serial_no1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET GIS_ID = GIS_ID1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET Total_Score = Total_Score1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET House_owner = House_owner1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET Age_of_house = Age_of_house1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET Occupants_No = Occupants_No1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET House_use = House_use1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET House_type = House_Type1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET height = height1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET shape = shape1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET elevation = elevation1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET openings = openings1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET cracks = cracks1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET repair_maintenance = repair_maintenance1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET roof = roof1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET falling_hazard = falling_hazard1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
UPDATE ONLY building_ka SET comments = comments1 FROM att_ka WHERE building_ka.gis_no = att_ka.gis_id1;
  
```

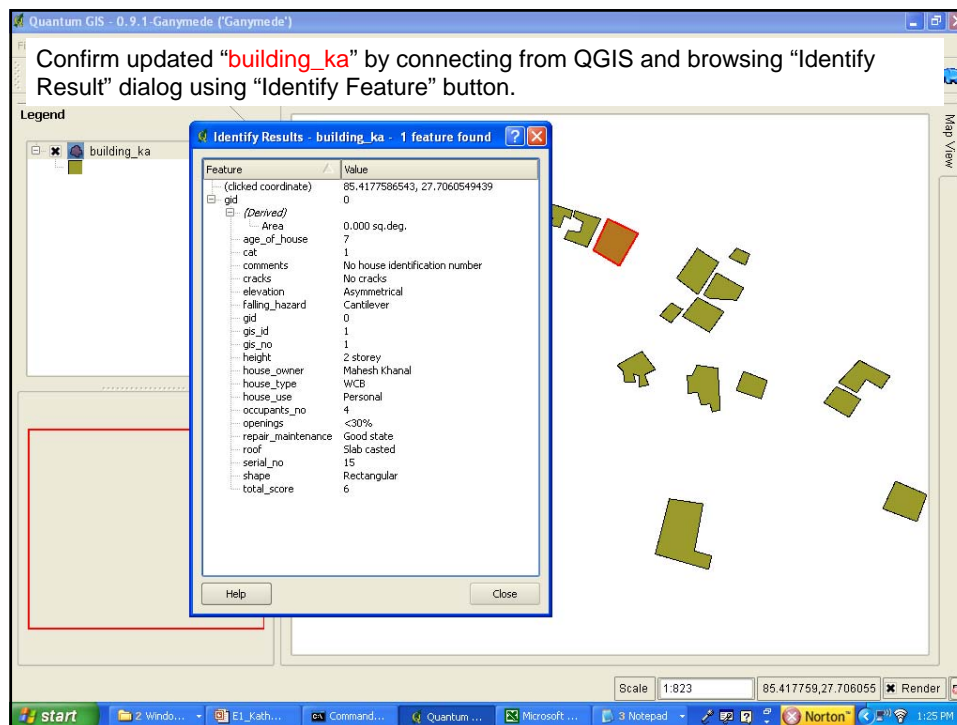
Execute it using “❏” command as shown below.

❏ mysqlfile

```

Command Prompt - psql valley -u yokoi
valley=> \i c:/TEMP/Duvacot_case_study/values_ka.sql
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
UPDATE 24
valley=>
  
```

Now, “building\_ka”  
 has attributes and  
 geometry together.



Change PRIMARY KEY.  
Primary key is set to "**gid**" and changed to "**serial\_no**" here.

```

Command Prompt - psql valley -U yokoi
valley=> alter table only building_ka drop constraint building_ka_pkey;
ALTER TABLE
valley=> alter table building_ka add constraint building_ka_pkey primary key (se
rial_no);
NOTICE: ALTER TABLE / ADD PRIMARY KEY will create implicit index "building_ka_p
key" for table "building_ka"
ALTER TABLE

Command Prompt - psql valley -U yokoi
valley=> alter table building_ka drop column gid;
ALTER TABLE
valley=> alter table building_ka drop column cat;
ALTER TABLE
valley=> alter table building_ka drop column gis_no;
ALTER TABLE
valley=> \d building_ka
Table "public.building_ka"
Column      | Type          | Modifiers
-----
the_geom    | geometry      | not null
serial_no   | integer       |
gis_id      | integer       |
total_score | integer       |
house_owner | text          |
age_of_house | real          |
occupants_no | integer       |
house_use   | text          |
house_type  | text          |
height      | text          |
shape       | text          |
elevation   | text          |
openings    | text          |
cracks      | text          |
repair_maintenance | text          |
roof        | text          |
falling_hazard | text          |
comments    | text          |
Indexes:
    "building_ka_pkey" PRIMARY KEY, btree (serial_no)
Check constraints:
    "enforce_dims_the_geom" CHECK (ndims(the_geom) = 2)
    "enforce_geotype_the_geom" CHECK (geometrytype(the_geom) = 'POLYGON'::text OR
the_geom IS NULL)
    "enforce_srid_the_geom" CHECK (srid(the_geom) = 32767)
valley=>

```

Drop the constraint PRIMARY KEY once and set it again to "**serial\_no**".

Drop the columns "**gid**", "**cat**" and "**gis\_no**" that are not used later.

Then, confirm "**building\_ka**" again.

Export to Shape file for interim back up using "pgsql2shp".

Quit from "Command Prompt" of PostgreSQL using "¥q".

```
Command Prompt
valley=> \q
C:\Program Files\PostgreSQL\8.2\bin>pgsql2shp valley building_kha -f c:/TEMP/duva
cot case study/building_shp wgs84/building_kha_att.shp -u yoko1 -P yoko1
Initializing... Warning, field total_score renamed to TOTAL_SCORE
Warning, field house_owner renamed to HOUSE_OWNER
Warning, field age_of_house renamed to AGE_OF_HOU
Warning, field occupants_no renamed to OCCUPANTS
Warning, field repair_maintenance renamed to REPAIR_MAI
Warning, field falling_hazard renamed to FALLING_HA
Done (Postgis major version: 1).
Output shape: Polygon
Dumping: XX [24 rows].
C:\Program Files\PostgreSQL\8.2\bin>
```

**Pgsq2shp mydatabase mytable -f myshpfile -u myusername -P mypassword**

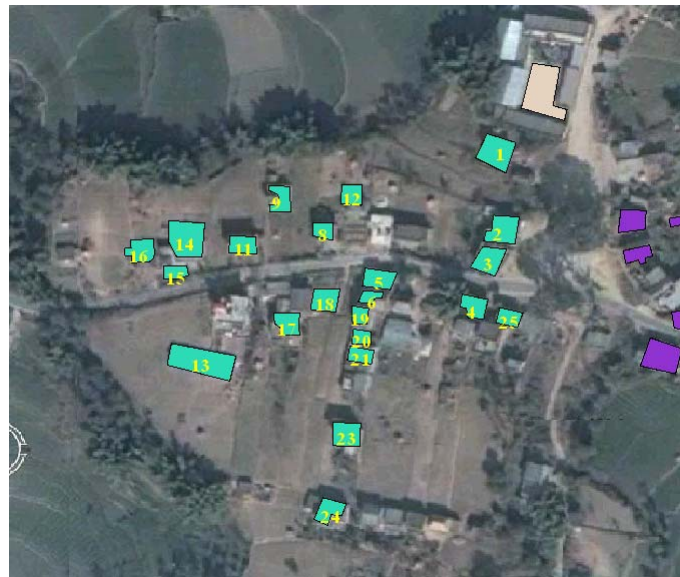
Note that long column names are shorten automatically.

Vector layer: building\_kha (Attribute Data in Excel Worksheet & building\_kha.shp)

Attribute table -

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Elevation	10	6	4	4	6	8	12	11	9	11	6	3	8	3	9	3	7	3	5	9	2	10	11	7	6
Opening	<30%	<30%	no	<30%	no	no	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	<30%	
Cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks	No cracks
Repair/N	Poor main	Good state	Good state	Good state	Good state	Good state	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	Lacking M	
Roof	CGI roofing	Slab caste	Slab caste	Slab caste	Slab caste	Slab caste	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	CGI roofing	
Falling h	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	Cantilever	
Total Score	10	6	4	4	6	8	12	11	9	11	6	3	8	3	9	3	7	3	5	9	2	10	11	7	
Picture	100-0113	100-0121	100-0122	100-0123	100-0124	100-0125	100-0126	100-0127	100-0128	100-0129	100-0130	100-0131	100-0132	100-0133	100-0134	100-0135	100-0136	100-0137	100-0138	100-0139	100-0140	100-0141	100-0142	100-0143	

For this vector layer, Shape file has 22 "GIS\_NO", whereas Excel worksheet does not have column entitled in it but does have the Q-th column without name that has 22 rows. Both of them skip "7", "10" and "22". Therefore, it seems probable that these can be used as ID to relate the geometry in Shape file and the attributes in Excel Worksheet.



"building\_kha" layer

Microsoft Excel - att\_kha.csv

File Edit View Insert Format Tools Data Window Help

Type a question for help

A1 id1

id1	Serial_No	GIS_ID	Total_Sco	House_low	Age_of_hc	Occupants	House_us	House_Ty	Height	Shape	Elevation	Openings	Cracks	Repair_M	Roof	Falling_Ha	Comments
1	25	8	10	Keshav Pr	18	5	Personal	VEB	2 store	Rectangul	Asymmetri	<30%	No cracks	Poor main	CGI roofing	Cantilever	
2	26	19	6	Narayan Ni	9	7	Office/Per	VCB	2 store	Rectangul	Asymmetri	<30%	No cracks	Good stat	Slab castei	Cantilever	
3	27	20	4	Bharat Pra	4	4	Personal	VCB	1 store	Rectangul	Symmetri	null	No cracks	Good stat	Slab castei	Cantilever	
4	28	21	4	Hari Prasa	4	4	Personal	VCB	2 store	Rectangul	Asymmetri	<30%	No cracks	Good stat	Slab castei	Cantilever	
5	29	22	6	Kedar Praa	15	3	Personal	VCB	2 store	Rectangul	Asymmetri	null	No cracks	Good stat	Slab castei	Cantilever	
6	30	24	8	Bhawani N	38	5	Personal	VCBM	2 store	Rectangul	Symmetri	<30%	No cracks	Good stat	CGI roofing	Cantilever	
7	31	17	12	Achuyuta H	30	10	Personal	VECB	2 store	Rectangul	Asymmetri	<30%	Minor cra	Lacking M	Slab castei	Cantilever	Falling hazards
8	32	25	11	Subhadra H	30	4	Personal	VEUM	2 store	Rectangul	Asymmetri	<30%	No cracks	Lacking M	CGI roofing	Cantilever	
9	33	18	9	Ram Sarai	95	6	Personal	VEU	2 store	Rectangul	Symmetri	<30%	No cracks	Lacking M	CGI roofing	Cantilever	At the road side
10	34	11	11	Nani Maju	22	1	Personal	VEU	2 store	Square	Symmetri	<30%	No cracks	Lacking M	Tile	Cantilever	Risky because at road
11	35	13	6	Ram Babu	4	6	Personal	FP	3 store an	Rectangul	Asymmetri	null	No cracks	Good stat	Slab castei	Cantilever	House at road side
12	36	15	3	Hari Krishn	7	4	Personal	VCB	1 store	null	Symmetri	null	No cracks	Good stat	Slab castei	Cantilever	House at road side
13	37	14	8	Sudan Nieu	18	3	Personal	VEB	3 store an	Square	Symmetri	<30%	No cracks	Lacking M	CGI roofing	Cantilever	House at road side
14	38	9	3	Nani Maju	3	6	Personal	VCB	1 store	Square	Symmetri	null	No cracks	Good stat	Slab castei	Cantilever	
15	39	16	9	Shiva Hari	40	5	Personal	VEU	2 store	Square	Symmetri	<30%	Minor cra	Lacking M	CGI roofing	Cantilever	
16	40	1	7	Upendra Pi	22	5	Personal	VCB	2 store	Rectangul	Asymmetri	<30%	No cracks	Good stat	CGI roofing	Cantilever	House in cluster
17	41	3	3	Nara Nath	9	5	Personal	P	2 store	Square	Symmetri	null	No cracks	Good stat	Slab castei	Cantilever	House at road side
18	42	4	5	Ambika De	10	4	Personal	VCMB	2 store	Square	Symmetri	<30%	No cracks	Good stat	CGI roofing	Cantilever	
19	43	5	3	Ram Prasi	9	3	Office/Per	VCB	2 store	Square	Symmetri	<30%	No cracks	Good stat	Slab castei	Cantilever	House at road side
20	44	6	9	Ram Prasi	55	3	Personal	VEU	2 store	Square	Symmetri	<30%	Minor cra	Lacking M	CGI roofing	Cantilever	
21	45	2	10	Chandra Si	95	8	Personal	VEU	2 store	Square	Symmetri	<30%	Minor cra	Lacking M	Thatch roc	Cantilever	
22	46	12	11	Malla Baki	1	6	Personal	VCB	2 store	Rectangul	Asymmetri	<30%	No cracks	Good stat	Slab castei	Cantilever	Backside 3 story (und
23	47	10	7	Santi Dahi	15	6	Personal	VMM	2 store	Square	Symmetri	<30%	No cracks	Good stat	CGI roofing		
24	48	18	8	Uhruba Kh	18	8	Personal	VB	3 store an	Square	Asymmetri	>30%	No cracks	Good stat	Slab castei	Cantilever	
25	49	20	5	Ramchand	20	5	Personal	VCB	2 store	Square	Symmetri	<30%	No cracks	Good stat	CGI roofing	Cantilever	
26	50	40	12	Mohan Kh	40	5	Personal	VEU	2 store	null	Symmetri	>30%	Minor cra	Lacking M	Tile	Cantilever	Risk of earthquake

Ready NUM

csv file "att\_kha.csv" modified from the given Excel Worksheet "kha".  
The column name "GIS\_ID" is added to the Q-th column without name in the three slides before.

Create a table to store the attributes imported from csv file.

Edit the sql batch file "mkvalley.sql" as follows.

mkvalley.sql - WordPad

File Edit View Insert Format Help

```
CREATE TABLE att_kha (id1 integer NOT NULL, CONSTRAINT att_kha_pkey PRIMARY KEY (id1)) WITHOUT OIDS;
ALTER TABLE att_kha OWNER TO yokoi;
-- select AddGeometryColumn('att_kha', 'the_geom', 4326, 'POINT', 2);
```

For Help, press F1 NUM

Double "--" at the beginning of the third lines denote "This line is a comment". This line is ignored at executing the sql batch file.

Open "Command Prompt" of PostgreSQL for the database "valley", user "yokoi" and its password.

Execute "mkvalley.sql" using "&i" command.

Command Prompt - psql valley -u yokoi

```
valley> \i c:/TEMP/mkvalley.sql
psql:c:/TEMP/mkvalley.sql:1: NOTICE: CREATE TABLE / PRIMARY KEY will create implicit index "att_kha_pkey" for table "att_kha"
CREATE TABLE
ALTER TABLE
valley>
```

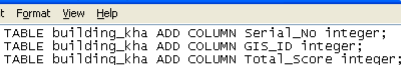
Note:It is possible to achieve the same result by executing PostgreSQL commands in "mkvalley.sql" one by one by manual typing or copy & paste from "mkvalley.sql".





“building\_kha” has geometry and ID only.

Execute it using “¥i” command as shown in the middle figure.



The screenshot shows a Notepad window titled 'add\_cols2kha.sql - Notepad'. The menu bar includes 'File', 'Edit', 'Format', 'View', and 'Help'. The text area contains 14 lines of SQL commands, each starting with 'ALTER TABLE building\_kha ADD COLUMN' followed by a column name and its data type. The columns being added are: serial\_no (integer), GIS\_ID (integer), Total\_Score (integer), House\_owner (text), Age\_of\_house (real), occupants\_No (integer), House\_use (text), House\_type (text), height (text), shape (text), elevation (text), openings (text), cracks (text), repair\_maintenance (text), roof (text), falling\_hazard (text), and comments (text).

```

ALTER TABLE building_kha ADD COLUMN serial_no integer;
ALTER TABLE building_kha ADD COLUMN GIS_ID integer;
ALTER TABLE building_kha ADD COLUMN Total_Score integer;
ALTER TABLE building_kha ADD COLUMN House_owner text;
ALTER TABLE building_kha ADD COLUMN Age_of_house real;
ALTER TABLE building_kha ADD COLUMN occupants_No integer;
ALTER TABLE building_kha ADD COLUMN House_use text;
ALTER TABLE building_kha ADD COLUMN House_type text;
ALTER TABLE building_kha ADD COLUMN height text;
ALTER TABLE building_kha ADD COLUMN shape text;
ALTER TABLE building_kha ADD COLUMN elevation text;
ALTER TABLE building_kha ADD COLUMN openings text;
ALTER TABLE building_kha ADD COLUMN cracks text;
ALTER TABLE building_kha ADD COLUMN repair_maintenance text;
ALTER TABLE building_kha ADD COLUMN roof text;
ALTER TABLE building_kha ADD COLUMN falling_hazard text;
ALTER TABLE building_kha ADD COLUMN comments text;

```

[illegible]

¥d mytable

```

C:\Program Files\MySQL\MySQL Server 5.5> mysql -u root -p
mysql> use valley;
mysql> create table building_kha (
  gid int(11) not null,
  cat int(11) not null,
  id int(11) not null,
  the_geom geometry,
  serial_no int(11) not null,
  gis_id int(11) not null,
  total_score int(11) not null,
  house_owner text,
  age_of_house real,
  occupants_no int(11) not null,
  house_use text,
  house_type text,
  height text,
  shape text,
  elevation text,
  openings text,
  cracks text,
  repair_maintenance text,
  roof text,
  falling_hazard text,
  comments text
) engine=InnoDB;
mysql>
mysql> show table status;
+-----+
| Table |
+-----+
| Column | Type | Modifiers |
+-----+
| gid | integer | not null |
| cat | integer | |
| id | integer | |
| the_geom | geometry | |
| serial_no | integer | |
| gis_id | integer | |
| total_score | integer | |
| house_owner | text | |
| age_of_house | real | |
| occupants_no | integer | |
| house_use | text | |
| house_type | text | |
| height | text | |
| shape | text | |
| elevation | text | |
| openings | text | |
| cracks | text | |
| repair_maintenance | text | |
| roof | text | |
| falling_hazard | text | |
| comments | text | |
+-----+
mysql> show indexes;
+-----+
| "building_kha_pkey" PRIMARY KEY, btree (gid)
+-----+
mysql> check constraints;
"enforce_dime_the_geom" CHECK (ndims(the_geom) = 2)
"enforce_geotype_the_geom" CHECK (geometrytype(the_geom) = 'POLYGON':text 0
R the_geom IS NULL)
"enforce_srid_the_geom" CHECK (srid(the_geom) = 32767)
mysql>

```

Copy the corresponding attribute values from “att\_kha” to “building\_kha”.

Edit the sql batch file “values\_kha.sql” using WordPad as shown below.

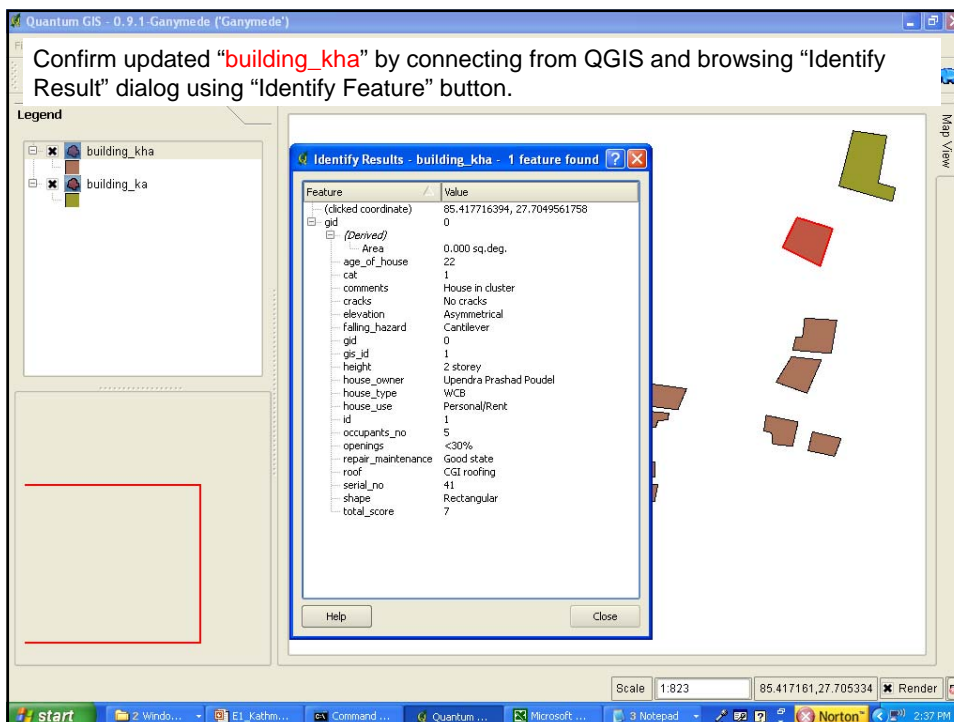
```
values_kha.sql - Notepad
File Edit Format View Help
UPDATE ONLY building_kha SET Serial_no = Serial_no1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET GIS_ID = GIS_ID1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET Total_Score = Total_Score1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET House_owner = House_owner1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET Age_of_house = Age_of_house1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET Occupants_No = Occupants_No1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET House_use = House_use1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET House_Type = House_Type1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET height = height1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET shape = shape1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET elevation = elevation1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET openings = openings1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET cracks = cracks1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET repair_maintenance = repair_maintenance1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET roof = roof1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET falling_hazard = falling_hazard1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
UPDATE ONLY building_kha SET comments = comments1 FROM att_kha WHERE building_kha.id = att_kha.gis_id1;
```

Execute it using “¥i” command as shown below.

¥i mysqlfile

```
Command Prompt - psql valley -U yokoi
valley> \i c:/TEMP/Duwacot_case_study/values_kha.sql
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
valley>
```

Now, “building\_kha” has attributes and geometry together.



### Change PRIMARY KEY.

Primary key is set to "gid" and changed to "serial\_no" here.

```

Command Prompt - psql valley -U yokoi
valley> alter table only building_kha drop constraint building_kha_pkey;
ALTER TABLE
valley> alter table building_kha add constraint building_kha_pkey primary key (
serial_no);
NOTICE: ALTER TABLE / ADD PRIMARY KEY will create implicit index "building_kha_
pkey" for table "building_kha"
ALTER TABLE
valley>

Command Prompt - psql valley -U yokoi
valley> alter table building_kha drop column gid;
ALTER TABLE
valley> alter table building_kha drop column cat;
ALTER TABLE
valley> alter table building_kha drop column id;
ALTER TABLE
valley> \d building_kha
Table "public.building_kha"
Column          | Type          | Modifiers
-----
the_geom         | geometry      |
serial_no        | integer       | not null
gis_id           | integer       |
total_score      | integer       |
house_owner      | text          |
age_of_house     | real          |
occupants_no     | integer       |
house_use        | text          |
house_type       | text          |
height           | text          |
shape            | text          |
elevation        | text          |
openings         | text          |
cracks           | text          |
repair_maintenance | text         |
roof             | text          |
falling_hazard   | text          |
comments         | text          |
Indexes:
    "building_kha_pkey" PRIMARY KEY, btree (serial_no)
Check constraints:
    "enforce_dims_the_geom" CHECK (ndims(the_geom) = 2)
    "enforce_geotype_the_geom" CHECK (geometrytype(the_geom) = 'POLYGON'::text OR
the_geom IS NULL)
    "enforce_srid_the_geom" CHECK (srid(the_geom) = 32767)
valley> _

```

Drop the constraint  
PRIMARY KEY once  
and set it again to  
"serial\_no".

Drop the columns "gid",  
"cat" and "gis\_no" that  
are not used later.

Then, confirm  
"building\_kha" again.

Export to Shape file for interim back up using "pgsql2shp".

Quit from "Command Prompt" of PostgreSQL using "¥q".

```

Command Prompt
Dumping: XX [24 rows].
C:\Program Files\PostgreSQL\8.2\bin>pgsql2shp valley building_kha -f c:/TEMP/duw
acot.case.study/building.shp vgs84/building_kha_att.shp -u yokoi -P yokoi
Initializing... Warning, field total_score renamed to TOTAL_SCORE
Warning, field house_owner renamed to HOUSE_OWNER
Warning, field age_of_house renamed to AGE_OF_HOU
Warning, field occupants_no renamed to OCCUPANTS
Warning, field repair_maintenance renamed to REPAIR_MAI
Warning, field falling_hazard renamed to FALLING_HAZ
Done (Postgis major version: 1).
Output shape: Polygon
Dumping: XX [22 rows].
C:\Program Files\PostgreSQL\8.2\bin>

```

**Pgsq2shp mydatabase mytable -f myshpfile -u myusername -P mypassword**

Note that long column names are shorten automatically.

Vector layer: building\_ga (Attribute Data in Excel Worksheet & building\_ga.shp)

Microsoft Excel - BRI- earthquake feedback.xls [Read-Only]

Attribute table -

S.No	House ID No.	House owner	GIS_No	No. of occup
1	65	107 Jaya Ram Neupane	1	
2	64	189 kha	2	
3	48	Gyan Prashad Neupane	3	
4	49	68 Ashok Sharma Neupane	4	
5	63	106 Gopal Prashad Neupane	5	
6	62	16-13-6 ka	6	
7	50	67 Bhola Nath Sharma	7	
8	61	63 Tirtha Ram Neupane	8	
9	60	62 Rameshwar Neupane	9	
10	59	61 Sarita Neupane	10	
11	58	60 Sambhu Prashad Khanal	11	
12	52	65 Purna Bahadur Thapa	12	
13	53	64 Ram Sharan Neupane	13	
14	57	58 Chandeshwar Neupane	14	
15	66	Chandeshwar neupane	15	
16	56	Subhadra Khanal	16	
17	54	57 Shari Raj Khanal	17	
18	55	57 Shari Raj Khanal	18	
19	67	54 Gokarna Neupane	19	
20	68	56 Nama Raj Neupane	20	
21	51	Mani Ram Thapa	21	
22	91	45 Keshav KC		
23	92	21 Ram Krishna Pradhan		

GIS\_NO AGE\_OF

Search select

For this vector layer, both of Shape file and Excel worksheet have the column entitled "GIS\_NO". The former has 24 rows but "11", "17" and "18" are duplicated and then in total 21 rows. The latter has 21 rows. Therefore, it seems probable that these "GIS\_ID" relates the geometry in Shape file and the attributes in Excel Worksheet.

Command Prompt - psql valley -U yokoi

```
valley=> select gid,cat,id,gis_no,age_of_the from building_ga;
```

gid	cat	id	gis_no	age_of_the
0	1	0	1	18
1	2	0	2	39
2	3	0	3	1
3	4	0	4	7
4	5	0	5	6
5	6	0	6	9
6	7	0	7	14
7	8	0	8	2
8	9	0	9	10
9	10	0	10	6
10	11	0	11	10
11	11	0	11	10
12	12	0	12	30
13	13	0	13	27
14	14	0	14	26
15	15	0	15	7
16	16	0	16	8
17	17	0	17	19
18	20	0	20	50
19	21	0	21	20
20	17	0	17	23
21	18	0	18	12
22	17	0	17	23
23	18	0	18	12

<24 rows>

valley=>



“building\_ga” layer. GIS\_NO is shown together. “11”, “17” and “18” are duplicated.

The duplicated rows are deleted from “building\_ga”. The selection of one of the duplicated rows to be deleted is “Try and Error” checking the result of delete using QGIS.

Delete the row “gid”=10 (“GIS\_NO”=11)

`delete from building_ga where gid=10;`

Delete the rows “gid”=22, 23 (“GIS\_NO”=17, 18)

`delete from building_ga where gid>21;`

```

Command Prompt - psql valley -U yokoi
valley=> delete from building_ga where gid=10;
DELETE 1
valley=> delete from building_ga where gid>21;
DELETE 2
valley=> select gid,cat,id,gis_no,age_of_the from building_ga;
gid | cat | id |  |  |
-----+-----+-----+-----+-----+
0 | 1 | 0 | 1 | 18
1 | 2 | 0 | 2 | 39
2 | 3 | 0 | 3 | 1
3 | 4 | 0 | 4 | 7
4 | 5 | 0 | 5 | 6
5 | 6 | 0 | 6 | 9
6 | 7 | 0 | 7 | 14
7 | 8 | 0 | 8 | 2
8 | 9 | 0 | 9 | 10
9 | 10 | 0 | 10 | 6
11 | 11 | 0 | 11 | 10
12 | 12 | 0 | 12 | 30
13 | 13 | 0 | 13 | 27
14 | 14 | 0 | 14 | 26
15 | 15 | 0 | 15 | 7
16 | 16 | 0 | 16 | 8
17 | 19 | 0 | 19 | 19
18 | 20 | 0 | 20 | 50
19 | 21 | 0 | 21 | 20
20 | 17 | 0 | 17 | 23
21 | 18 | 0 | 18 | 12
<21 rows>
valley=>

```



Microsoft Excel - att_ga.csv																			
Type a question for help																			
A1																			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	Id1	Serial_No	GIS_ID	Total_Soo	House_ow	Age_of_hc	Occupants	House_us	House_Tg	Height	Shape	Elevation	Openings	Cracks	Repair_Mt	Roof	Falling_Ha	Comments	
2	1	95	1	9	Jaga Ram Neupane		4	Personal	VEB	2 storey	Square	Symmetrical	<30%	No cracks	Poor main	CGI roofing			
3	2	64	2	9	Chaat Nath Neupane		7	Personal	VEU	2 storey	Square	Symmetrical	no	Minor crack	Lacking M.	CGI roofing	Cantilever		
4	3	48	3	2	Gyan Prashad Neupane		5	Personal	PCB	1 storey	Square	Symmetrical		No cracks	Good state	Slab caste	Cantilever	No house identificat	
5	4	49	4	3	Ashok Sharma Neupa		6	Personal	PCB	2 storey	Square	Symmetrical		No cracks	Good state	Slab caste			
6	5	63	5	3	Gopal Prashad Neupa		7	Personal	PCB	2 storey	Square	Symmetrical		No cracks	Good state	Slab caste			
7	6	62	6	3	Papa Raj Neupane		9	Personal	PCB	2 storey	Square	Symmetrical		No cracks	Good state	Slab caste	Falling hazards		
8	7	50	7	4	Bhola Nath Sharma		5	Personal	VEM	2 storey	Rectangul	Symmetri	no	No cracks	Good state	CGI roofing	Cantilever	Less open space/Nar	
9	8	61	8	2	Tirtha Ram Neupane		3	Personal	PCB	1 storey	Square	Symmetrical		No cracks	Good state	Slab caste			
10	9	60	9	11	Rameshchwor Neupane		8	Personal	VMM	3 storey an	Square	Asymmetri	no	No cracks	Poor main	Slab caste	Falling hazards		
11	10	59	10	5	Santa Neupane		8	Personal	PVCB	2 storey	Square	Symmetrical		No cracks	Good state	Slab caste			
12	11	58	11	9	Sambhu Prashad Khar		2	Personal	VEM	3 storey an	Square	Symmetrical	no	No cracks	Good state	CGI roofing	Cantilever		
13	12	52	12	11	Purna Bahadur Thapa		7	Personal	VEU	2 storey	Square	Symmetri	no	Minor crack	Lacking M.	Tile	Cantilever		
14	13	53	13	8	Ram Sharan Neupane		6	Personal	VMM	3 storey an	square	Symmetri	no	No cracks	Good state	CGI roofing	Cantilever	Narrow road	
15	14	57	14	9	Chandeshwor Neupane		5	Personal	VEU	2 storey	Square	Symmetri	no	No cracks	Good state	Tile	Cantilever		
16	15	66	15	8	Chandeshwor neupane		5	Personal	VMB	3 storey an	Rectangul	Asymmetri	no	No cracks	Good state	Slab caste		No house identificat	
17	16	56	16	4	Subhadas Khanal		2	Personal	VEU	1 storey	Square	Symmetri	no	Minor crack	Lacking M.	CGI roofing	Cantilever	No house identificat	
18	17	54	17	8	Shari Raj Khanal		6	Personal	VEM	3 storey an	square	Symmetri	no	No cracks	Good state	CGI roofing	Cantilever		
19	18	55	18	7	Shari Raj Khanal		0	Personal	VEU	1 storey	square	Symmetri	no	No cracks	Good state	Thatch roc	Cantilever		
20	19	67	19	4	Gokarna Neupane		9	Personal	VCB	2 storey	Square	Symmetri	no	No cracks	Good state	Slab caste			
21	20	68	20	10	Nama Raj Neupane		6	Personal	VEU	2 storey	Square	Symmetri	no	No cracks	Poor main	Thatch roof			
22	21	51	21	8	Mani Ram Thapa		1	Personal	VEU	2 storey	Square	Symmetri	no	No cracks	Good state	Thatch roc	Cantilever	No house identificat	
23	22	31	22	6	Keshav KC		6	Personal	VEBM	2 storey	Square	Symmetri	<30%	No cracks	Good state	CGI roofing		House at road side	
24	23	32	23	6	Ram Krishna Pradhan		5	Personal	VMB	3 storey an	Square	Symmetri	<30%	No cracks	Good state	Slab caste	Cantilever	Electrical pole near th	
25	24	33	24	5	Prem Bahadur Gvachhi		7	Personal	PCB	2 storey	Square	Asymmetri	<30%	No cracks	Good state	Tile	Falling hazards		
26	25	34	25	2	Rabin Raj Giri		4	Personal	PCB	1 storey	Square	Symmetrical		No cracks	Good state	Slab caste	Falling hazards		
27	26	36	26	3	Ishwor Prashad Neupa		6	Personal	PCB	2 storey	Square	Symmetri	<30%	No cracks	Good state	Slab caste			
att_ga/																			

csv file "att\_ga.csv" modified from the given Excel Worksheet "ga".  
 The rows of the column entitled "GIS\_ID" that have not values can not be used. Then, "serial\_no"="92", "93", "94", "96" are not available.

Create a table to store the attributes imported from csv file.

Edit the sql batch file "mkvalley.sql" as follows.

```

mkvalley.sql - Notepad
File Edit Format View Help
CREATE TABLE att_ga (id1 integer NOT NULL, CONSTRAINT att_ga_pkey PRIMARY KEY (id1)) WITHOUT
oids;
ALTER TABLE att_ga OWNER TO yoko;
-- select AddGeometryColumn('att_kha', 'the_geom', 4326, 'POINT', 2);

```

Double "--" at the beginning of the third lines denote "This line is a comment". This line is ignored at executing the sql batch file.

Open "Command Prompt" of PostgreSQL for the database "valley", user "yoko" and its password.

Execute "mkvalley.sql" using "\i" command.

```

C:\> Command Prompt - psq valley -U yoko
valley> \i c:/TEMP/mkvalley.sql
psql:c:/TEMP/mkvalley.sql:1: NOTICE: CREATE TABLE / PRIMARY KEY will create imp
licit index "att_ga_pkey" for table "att_ga"
CREATE TABLE
ALTER TABLE
valley>

```

Note: It is possible to achieve the same result by executing PostgreSQL commands in "mkvalley.sql" one by one by manual typing or copy & paste from "mkvalley.sql".





“building\_ga” has geometry and ID only.

Edit the sql batch file  
“**add\_cols2ga.sql**” using WordPad  
as shown in the top figure.

¥i mysqlfile

[illegible]

¥d mytable

```

valley> \d building_ga
Table "public.building_ga"
Column          | Type          | Modifiers
-----|-----|-----
gid              | integer       | not null
cat              | integer
id               | integer
gis_no           | integer
age_of_the       | integer
the_geom         | geometry
serial_no        | integer
gis_id           | integer
total_score      | integer
house_owner      | text
age_of_house     | real
occupants_no     | integer
house_use        | text
house_type       | text
height           | text
shape            | text
elevation        | text
openings         | text
cracks           | text
repair_maintenance | text
roof             | text
falling_hazard   | text
comments         | text
Indexes:
    "building_ga_pkey" PRIMARY KEY, htree (gid)
Check constraints:
    "enforce_dims_the_geom" CHECK (ndims(the_geom) = 2)
    "enforce_geotype_the_geom" CHECK (geometrytype(the_geom) = 'POLYGON':text)
R the_geom IS NULL)
    "enforce_srid_the_geom" CHECK (srid(the_geom) = 32767)

valley>

```

Copy the corresponding attribute values from “att\_ga” to “building\_ga”.

Edit the sql batch file “values\_ga.sql” using WordPad as shown below.

```

UPDATE ONLY building_ga SET Serial_no = Serial_no1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET GIS_ID = GIS_ID1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET Total_score = Total_score1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET House_owner = House_owner1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET Age_of_house = Age_of_house1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET Occupants_no = Occupants_no1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET House_use = House_use1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET House_type = House_type1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET height = height1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET shape = shape1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET elevation = elevation1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET openings = openings1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET cracks = cracks1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET repair_maintenance = repair_maintenance1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET roof = roof1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET falling_hazard = falling_hazard1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
UPDATE ONLY building_ga SET comments = comments1 FROM att_ga WHERE building_ga.gis_no = att_ga.gis_id1;
  
```

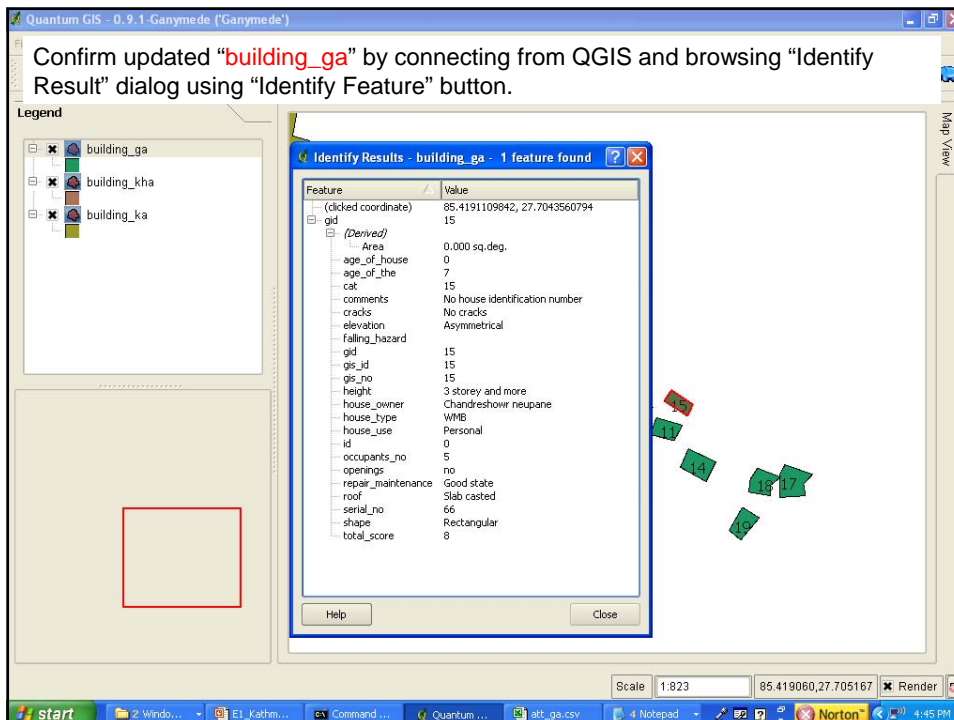
Execute it using “\i” command as shown below.

psqlfile

```

valley-> \i c:/TEMP/Duwacot_case_study/values_ga.sql
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
UPDATE 22
valley->
  
```

Now, “building\_ga” has attributes and geometry together.



### Change PRIMARY KEY.

Primary key is set to "gid" and changed to "serial\_no" here.

```

Command Prompt - psql valley -U yokoi
valley=> alter table only building_ga drop constraint building_ga_pkey;
ALTER TABLE
valley=> alter table building_ga add constraint building_ga_pkey primary key (se
rial_no);
NOTICE: ALTER TABLE / ADD PRIMARY KEY will create implicit index "building_ga_p
key" for table "building_ga"
ALTER TABLE
valley=> _

Command Prompt - psql valley -U yokoi
valley=> alter table building_ga drop column gid;
ALTER TABLE
valley=> alter table building_ga drop column cat;
ALTER TABLE
valley=> alter table building_ga drop column gis_no;
ALTER TABLE
valley=> alter table building_ga drop column age_of_the;
ALTER TABLE
valley=> \d building_ga
Table "public.building_ga"
  Column      |      Type      | Modifiers
-----+-----+-----
 id           | integer        |
 the_geom     | geometry       |
 serial_no    | integer        | not null
 gis_id       | integer        |
 total_score  | integer        |
 house_owner  | text           |
 age_of_house | real           |
 occupants_no | integer        |
 house_use    | text           |
 house_type   | text           |
 height       | text           |
 shape        | text           |
 elevation    | text           |
 openings     | text           |
 cracks       | text           |
 repair_maintenance | text       |
 roof         | text           |
 falling_hazard | text         |
 comments     | text           |
Indexes:
    "building_ga_pkey" PRIMARY KEY, btree (serial_no)
Check constraints:
    "enforce_dims_the_geom" CHECK (ndims(the_geom) = 2)
    "enforce_geotype_the_geom" CHECK (geometrytype(the_geom) = 'POLYGON'::text OR
the_geom IS NULL)
    "enforce_srid_the_geom" CHECK (srid(the_geom) = 32767)
valley=> _

```

Drop the constraint  
PRIMARY KEY once  
and set it again to  
"serial\_no".

Drop the columns "gid",  
"cat" and "gis\_no" that  
are not used later.

Then, confirm  
"building\_ga" again.

Oops! Column "id" must  
be delete.

Export to Shape file for interim back up using "pgsql2shp".

Quit from "Command Prompt" of PostgreSQL using "¥q".

```

Command Prompt
Dumping: XX [22 rows].
C:\Program Files\PostgreSQL\8.2\bin>pgsql2shp valley building_ga -f c:/TEMP/duva
cor case study/building.shp wgs84/building_ga att.shp -u yokoi -P yokoi
Initializing... Warning: field total_score renamed to TOTAL_SCORE
Warning: field house_owner renamed to HOUSE_OWNER
Warning: field age_of_house renamed to AGE_OF_HOU
Warning: field occupants_no renamed to OCCUPANTS
Warning: field repair_maintenance renamed to REPAIR_MAI
Warning: field falling_hazard renamed to FALLING_HA
Done (Postgis major version: 1).
Output shape: Polygon
Dumping: XX [21 rows].
C:\Program Files\PostgreSQL\8.2\bin>_

```

**Pgsql2shp mydatabase mytable -f myshpfile -u myusername -P mypassword**

Note that long column names are shorten automatically.

# Vector layer: building\_gha (Attribute Data in Excel Worksheet & building\_gha.shp)

Microsoft Excel - BRI- earthquake feedback.xls [Read-Only]

Attribute table -

Shape	Elevation	Opening	Cracks	Repair/N	Roof	Falling h	Total Sec	Picture n	Date	GIS_NO
1	Square	Symmetric<30%	No cracks	Good state	Slab casted		2	100-0170	6/6/2064	1
2	Square	Symmetric<30%	No cracks	Good state	Slab casted		4	100-0156	6/6/2064	2
3	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	9	100-0152	6/6/2064	3
4	Rectangular	Symmetric<30%	No cracks	Good state	Tile	Cantilever	9	100-0155	6/6/2064	4
5	Square	Symmetric<30%	No cracks	Good state	Slab casted		3	100-0153	6/6/2064	5
6	Square	Symmetric<30%	No cracks	Good state	Slab casted		4	100-0154	6/6/2064	6
7	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	3	100-0151	6/6/2064	7
8	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	3	100-0157	6/6/2064	8
9	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	6	19 (100-01	6/6/2064	9
10	Rectangular	Asymmetric<30%	No cracks	Good state	Slab casted	Cantilever	5	2 (100-016	6/6/2064	10
11	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	4	1 (100-016	6/6/2064	11
12	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	11	3 (100-016	6/6/2064	12
13	Square	Symmetric<30%	Minor crack	Lacking M	Tile	Cantilever	7	3 (100-015	6/6/2064	13
14	Square	Symmetric<30%	No cracks	Poor maint	CGI roofing	Cantilever	7	5 (100-015	6/6/2064	14
15	Square	Asymmetric<30%	No cracks	Good state	Slab casted	Cantilever	10	6 (100-016	6/6/2064	15
16	Square	Symmetric<30%	Minor crack	Lacking M	Thatch roof	Cantilever	10	7 (100-016	6/6/2064	16
17	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	5	8 (100-016	6/6/2064	17
18	Rectangular	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	8	10 (100-01	6/6/2064	18
19	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	7		6/6/2064	19
20	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	4		6/6/2064	20
21	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	9		6/6/2064	
22	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	9		6/6/2064	
23	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever	3		6/6/2064	
24	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever			6/6/2064	
25	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever			6/6/2064	
26	Square	Symmetric<30%	No cracks	Good state	Slab casted	Cantilever			6/6/2064	
27										

Ready NUM

For this vector layer, both of Shape file and Excel worksheet have the column entitled "GIS\_NO". The former has 20 rows but the latter's "GIS\_NO" column is empty completely.

Unfortunately, there is any hint to find the relation of these two. The column entitled "Picture No." has 20 data whereas others have 26.

Therefore, it is assumed that the row number of Excel Worksheet minus 1 might coincide to "GIS\_NO" of Shape file.



“building\_gha” layer. GIS\_NO is shown together.

Microsoft Excel - att\_gha.csv

FileEditViewInsertFormatToolsDataWindowHelp

Type a question for help

C1GIS\_ID

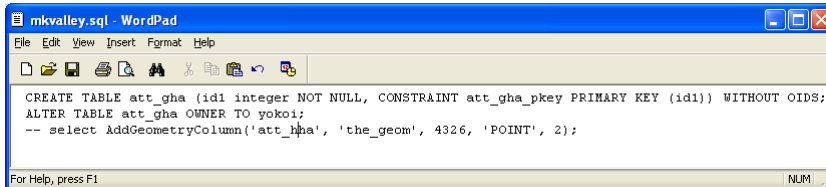
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	id1	Serial_No	GIS_ID	Total_Sco	House_low	Age_of_hc	Occupants	House_us	House_Ty	Height	Shape	Elevation	Openings	Cracks	Repair_Mt	Roof	Falling_Ha	Comments	
2	1	69	1	2	Naba Raj N	2	6	Personal	PCB	1 storey	Square	Symmetric	<30%	No cracks	Good stat	Slab castei	null		
3	2	70	2	4	Kishore Sa	1	70	School	PCB	3 storey an	Square	Symmetric	<30%	No cracks	Good stat	Slab castei	Cantilever		
4	3	71	3	9	Jagan Nath	30	14	Personal	VEB	2 storey	Rectangul	Symmetric	<30%	No cracks	Good stat	Tile	Cantilever	No gaps between two	
5	4	72	4	9	Shree Prasi	24	9	Personal	VEU	2 storey	Square	Symmetric	<30%	No cracks	Good stat	Tile	Cantilever		
6	5	73	5	3	Madhab Pri	6	2	Personal	VCB	1 storey	Square	Symmetric	<30%	No cracks	Good stat	Slab castei	null		
7	6	74	6	3	Kiran Prasi	5	9	Personal	VCB	1 storey	Square	Symmetric	<30%	No cracks	Good stat	Slab castei	null		
8	7	75	7	4	Rishi Ram	4	7	Personal	VCB	1 storey	Rectangul	Symmetric	<30%	No cracks	Good stat	Slab castei	Cantilever		
9	8	76	8	3	Ram Prasi	6	6	Personal	VCB	1 storey	Square	Symmetric	<30%	No cracks	Good stat	Slab castei	Cantilever		
10	9	77	9	3	Durga Neup	3	4	Personal	VCB	1 storey	Square	Symmetric	<30%	No cracks	Good stat	Slab castei	Cantilever	Adjoining building lik	
11	10	78	10	6	Raju Neupane			Personal	PCB	3 storey an	Rectangul	Asymmetri	<30%	No cracks	Good stat	Slab castei	Cantilever		
12	11	79	11	5	Raju Neup	5	4	Personal	VCB	1 storey	Square	Symmetric	<30%	No cracks	Good stat	Slab castei	Cantilever		
13	12	80	12	4	Sharada Ni	13	4	Personal	VCB	2 storey	Square	Symmetric	<30%	No cracks	Good stat	Slab castei	Cantilever	Staircase outside	
14	13	81	13	11	Sharada Ni	4	5	Rent	VEU	2 storey	Square	Symmetric	<30%	Minor crac	Lacking M. Tile	Cantilever	Bamboo bush near hc		
15	14	82	14	7	Panga Nat	22	6	Personal	VEB	2 storey	Square	Symmetric	<30%	No cracks	Poor main	CGI roofin	Cantilever	Adjoining building	
16	15	83	15	7	Bishnu Pri	5	6	Personal	VCB	3 storey an	Square	Asymmetri	<30%	No cracks	Good stat	Slab castei	Cantilever		
17	16	84	16	10	Radha Dev	60	6	Personal	VEU	2 storey	Square	Symmetric	<30%	Minor crac	Lacking M. Thatch roc	Cantilever	Adjoining building and		
18	17	85	17	10	Keshav Pri	20	8	Personal	VEU	2 storey	Rectangul	Symmetric	<30%	No cracks	Lacking M. CGI roofin	Cantilever	House at road side, el		
19	18	86	18	5	Prakash Ni	6	5	Personal	VCB	2 storey	Square	Symmetric	>30%	No cracks	Good stat	Slab castei	Cantilever		
20	19	87	19	5	Narajan Pri	7	20	Rent	PCB	3 storey an	Square	Symmetric	>30%	No cracks	Good stat	Slab castei	Cantilever		
21	20	88	20	8	Biksha Mai	16	4	Personal	VEU	2 storey	Square	Symmetric	<30%	No cracks	Good stat	Thatch roc	Cantilever		
22	21	89		7	Nirajan Pri	10	7	Personal	VEU	2 storey	Square	Symmetric	<30%	No cracks	Good stat	CGI roofin	Cantilever	Risk of collapsing adj	
23	22	97		4	Sibaram Ni	0.5	4	Personal	VCB	2 storey	Square	Symmetric	<30%	No cracks	Good stat	Slab castei	null		
24	23	98		9	Shyam Bal	28	6	Personal	VEU	2 storey	Square	Symmetric	<30%	No cracks	Good stat	Tile	Cantilever	Adjoining cowshed lik	
25	24	99		9	Ram Krishna	9	5	Personal	VEU	3 storey an	Square	Symmetric	>30%	No cracks	Good stat	CGI roofin	null		
26	25	100		3	Chandra P	11	3	Personal	VEB	1 storey	Square	Symmetric	<30%	No cracks	Good stat	Slab castei	Cantilever	House at road side	
27																			

att\_gha/NUM

csv file “att\_gha.csv” modified from the given Excel Worksheet “gha”.  
The column entitled “GIS\_ID” is added and filled based on the assumption mentioned in the two slides before.  
The rows of the column entitled “GIS\_ID” that have not values can not be used. Then, “serial\_no”=“95”, “97”, “98”, “99”, “100” are not available.

Create a table to store the attributes imported from csv file.

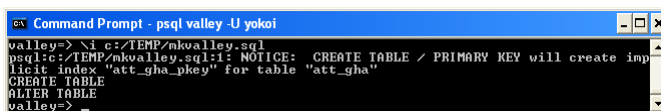
Edit the sql batch file “mkvalley.sql” as follows.



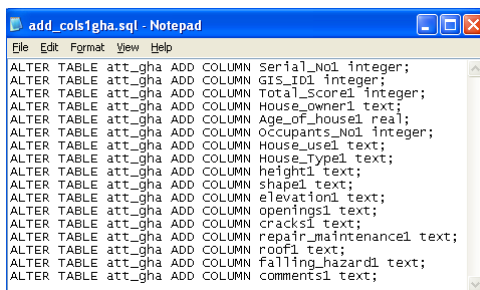
Double “-” at the beginning of the third lines denote “This line is a comment”. This line is ignored at executing the sql batch file.

Open “Command Prompt” of PostgreSQL for the database “valley”, user “yokoi” and its password.

Execute “mkvalley.sql” using “¥” command.



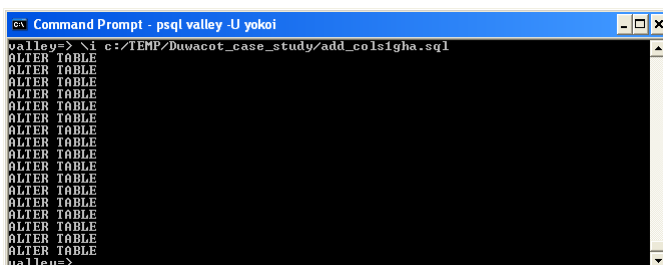
Note:It is possible to achieve the same result by executing PostgreSQL commands in “mkvalley.sql” one by one by manual typing or copy & paste from “mkvalley.sql”.



Edit the sql batch file “add\_cols1gha.sql” using WordPad as shown in the top figure.

Execute it using “¥” command as shown in the middle figure.

¥ mysqlfile





Confirm the table “att\_gha”.

```

ex Command Prompt - psql valley -U ykoi
valley=> \d att_gha
      Table "public.att_gha"
  Column      |      Type      | Modifiers
-----+-----+-----
idid          | integer        | not null
serial_no1    | integer
ghs_id1       | integer
total_score1  | integer
house_owner1  | text
age_of_house1| real
occupants_no1| integer
house_usel    | text
house_type1   | text
height1       | text
shape1        | text
elevation1    | text
openings1     | text
cracks1       | text
repair_maintenancel | text
roof1         | text
falling_hazard1 | text
comments1     | text
Indexes:
    "att_gha_pkey" PRIMARY KEY, btree (idid)
valley=>

```

Then, copy the attributes from “**att\_gha.csv**” file to table as shown in the bottom figure.

```
¥copy mytable FROM mycsvfile WITH CSV HEADER
```

```
valley> copy att_gha from c:\TEMP\Duwacot_case_study\csv_files\att_gha.csv with
csv header
valley>
```

Add columns to the table of the Shape file to store the attributes.

**“building\_gha”** has geometry and ID only.

The screenshot shows a Notepad window titled 'add\_cols2gha.sql - Notepad'. The text inside is a SQL script for creating a table named 'tbls2gha'. The script consists of 15 lines, each starting with 'ALTER TABLE tbls2gha' followed by 'ADD COLUMN' and a column name with its data type. The columns and their data types are: Serial\_No (integer), GIS\_ID (integer), Total\_Score (integer), House\_owner (text), Age\_of\_house (real), occupants\_No (integer), House\_use (text), House\_type (text), height (text), shape (text), elevation (text), openings (text), cracks (text), repair\_maintenance (text), roof (text), falling\_hazard (text), and comments (text).

```

ALTER TABLE tbls2gha ADD COLUMN Serial_No integer;
ALTER TABLE tbls2gha ADD COLUMN GIS_ID integer;
ALTER TABLE tbls2gha ADD COLUMN Total_Score integer;
ALTER TABLE tbls2gha ADD COLUMN House_owner text;
ALTER TABLE tbls2gha ADD COLUMN Age_of_house real;
ALTER TABLE tbls2gha ADD COLUMN occupants_No integer;
ALTER TABLE tbls2gha ADD COLUMN House_use text;
ALTER TABLE tbls2gha ADD COLUMN House_type text;
ALTER TABLE tbls2gha ADD COLUMN height text;
ALTER TABLE tbls2gha ADD COLUMN shape text;
ALTER TABLE tbls2gha ADD COLUMN elevation text;
ALTER TABLE tbls2gha ADD COLUMN openings text;
ALTER TABLE tbls2gha ADD COLUMN cracks text;
ALTER TABLE tbls2gha ADD COLUMN repair_maintenance text;
ALTER TABLE tbls2gha ADD COLUMN roof text;
ALTER TABLE tbls2gha ADD COLUMN falling_hazard text;
ALTER TABLE tbls2gha ADD COLUMN comments text;

```

Edit the sql batch file  
“**add\_cols2gha.sql**” using WordPad  
as shown in the top figure.

Execute it using “¥i” command as shown in the middle figure.

¥i mysqlfile

[illegible]

Confirm the columns of the table “building\_gha”.

❏ mytable

Note that the primary key is set at “gid” and srid(the\_geom) is set “-1”. The latter means that the information of coordinates used at georeferencing is not attached to the table yet.

```

c:\ Command Prompt - psql valley -U yokoi
valley=> \d building_gha
Table "public.building_gha"
Column          | Type          | Modifiers
gid              | integer       | not null
cat              | integer
gis_no           | integer
the_geom         | geometry
serial_no        | integer
gis_id           | integer
total_score      | integer
house_owner      | text
age_of_house     | real
occupants_no     | integer
house_use        | text
house_type       | text
height           | text
shape            | text
elevation        | text
openings         | text
cracks           | text
repair_maintenance | text
roof             | text
falling_hazard   | text
comments         | text
Indexes:
    "building_gha_pkey" PRIMARY KEY, btree (gid)
Check constraints:
    "enforce_dims_the_geom" CHECK (ndims(the_geom) = 2)
    "enforce_geotype_the_geom" CHECK (geometrytype(the_geom) = 'POLYGON'::text OR the_geom IS NULL)
    "enforce_srid_the_geom" CHECK (srid(the_geom) = 32767)
valley=>

```

Copy the corresponding attribute values from “att\_ga” to “building\_ga”.

Edit the sql batch file “values\_gha.sql” using WordPad as shown below.

```

values_gha.sql - Notepad
File Edit Format View Help
UPDATE ONLY building_gha SET Serial_no = Serial_no1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET GIS_ID = GIS_ID1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET Total_Score = Total_Score1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET House_owner = House_owner1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET Age_of_house = Age_of_house1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET Occupants_No = Occupants_No1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET House_use = House_use1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET House_Type = House_Type1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET height = height1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET shape = shape1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET elevation = elevation1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET openings = openings1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET cracks = cracks1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET repair_maintenance = repair_maintenance1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET roof = roof1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET falling_hazard = falling_hazard1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;
UPDATE ONLY building_gha SET comments = comments1 FROM att_ga WHERE building_gha.gis_no = att_ga.gis_id1;

```

Execute it using “❏” command as shown below.

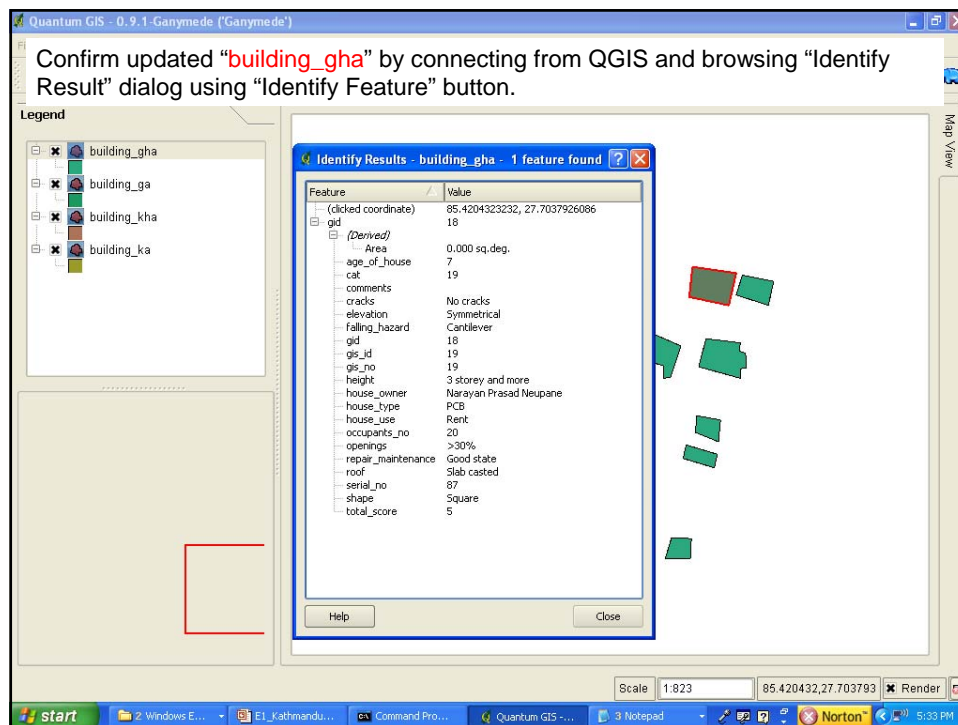
❏ mysqlfile

```

c:\ Command Prompt - psql valley -U yokoi
valley=> \i c:/TEMP/Duvacot_case_study/values_gha.sql
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
UPDATE 20
valley=>

```

Now, “building\_gha” has attributes and geometry together.



### Change PRIMARY KEY.

Primary key is set to "gid" and changed to "serial\_no" here.

```

valley-> alter table only building_gha drop constraint building_gha_pkey;
ALTER TABLE
valley-> alter table building_gha add constraint building_gha_pkey primary key (
serial_no);
NOTICE: ALTER TABLE / ADD PRIMARY KEY will create implicit index "building_gha_
pkey" for table "building_gha"
ALTER TABLE
valley->

```

Drop the constraint  
PRIMARY KEY once  
and set it again to  
"serial\_no".

```

valley-> alter table building_gha drop column gid;
ALTER TABLE
valley-> alter table building_gha drop column cat;
ALTER TABLE
valley-> alter table building_gha drop column gis_no;
ALTER TABLE
valley-> \d building_gha
Table "public.building_gha"
Column          | Type          | Modifiers
-----
serial_no       | integer       | not null
gis_id          | integer
total_score     | integer
house_owner     | text
age_of_house    | real
occupants_no    | integer
house_use       | text
house_type      | text
height          | text
shape           | text
elevation       | text
openings        | text
cracks          | text
repair_maintenance | text
roof            | text
falling_hazard  | text
comments        | text
Indexes:
    "building_gha_pkey" PRIMARY KEY, btree (serial_no)
Check constraints:
    "enforce_dims_the_geom" CHECK (ndims(the_geom) = 2)
    "enforce_geotype_the_geom" CHECK (geometrytype(the_geom) = 'POLYGON'::text OR
the_geom IS NULL)
    "enforce_srid_the_geom" CHECK (srid(the_geom) = 32767)
valley->

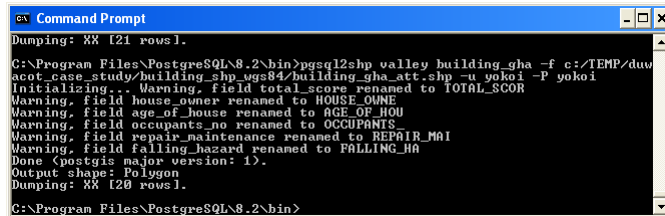
```

Drop the columns "gid",  
"cat" and "gis\_no" that  
are not used later.

Then, confirm  
"building\_gha" again.

Export to Shape file for interim back up using “pgsql2shp”.

Quit from “Command Prompt” of PostgreSQL using “¥q”.

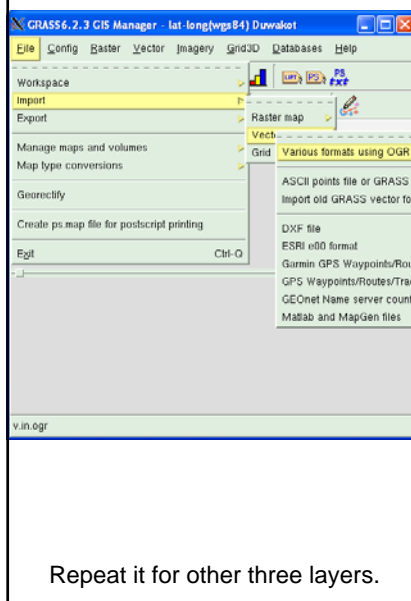


**Pgsql2shp mydatabase mytable -f myshpfile -u myusername -P mypassword**

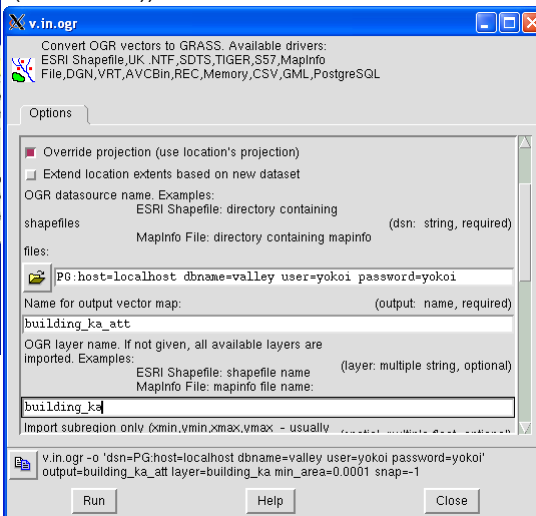
Note that long column names are shorten automatically.

Open GRASS with LOCATION=lat-long(wgs84), MAPSET=Duwakot.

Import table “**building\_ka**” from PostgreSQL to GRASS using “v.in.ogr”.

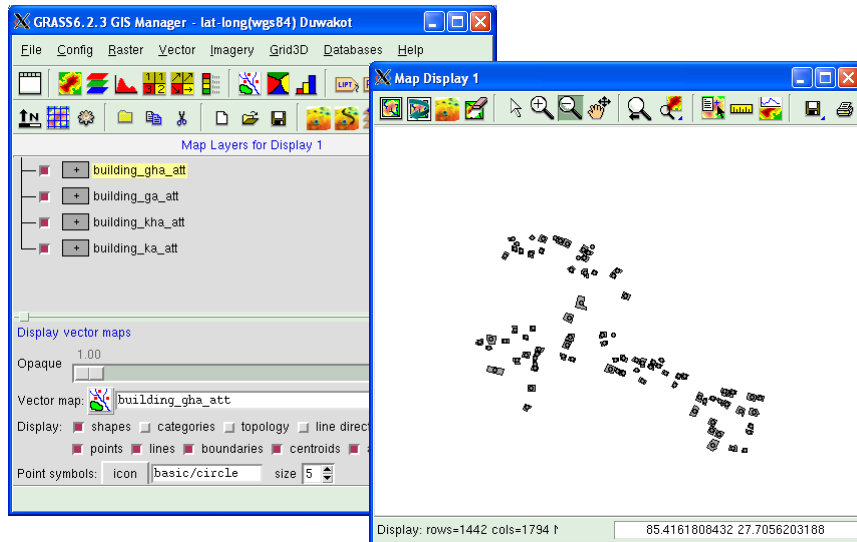


Option “-o” means that the coordinate system of the current LOCATION (for this example, wgs84 (srid=32767)) is used.

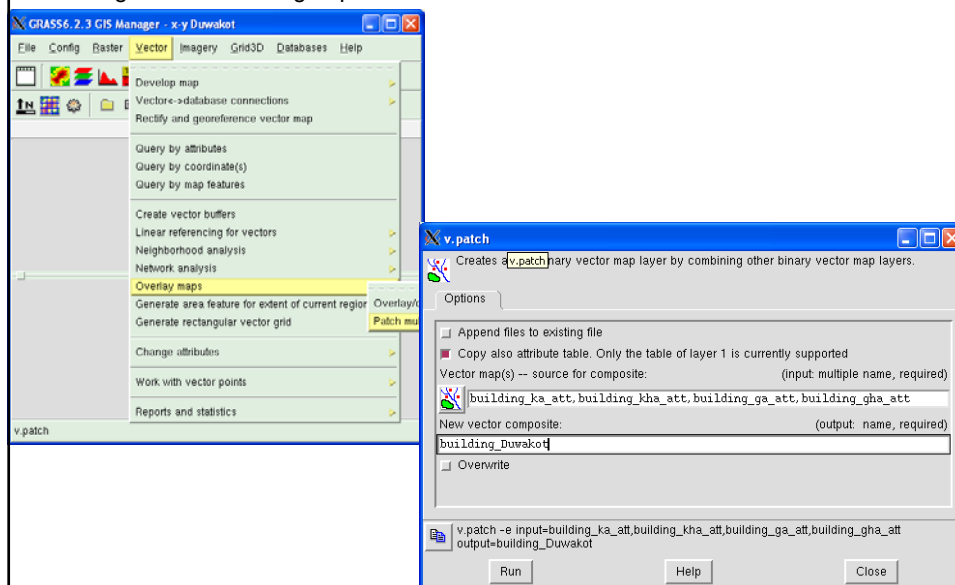


Repeat it for other three layers.

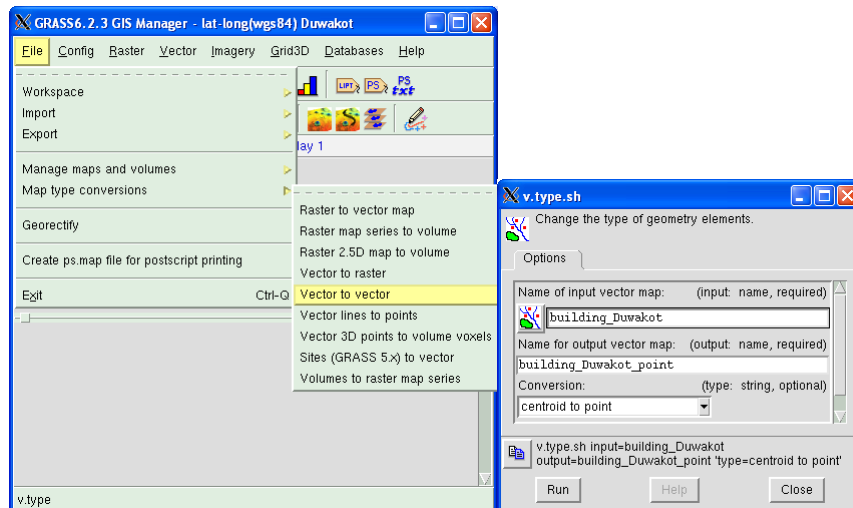
Confirm four imported vector maps using “Map Display”.



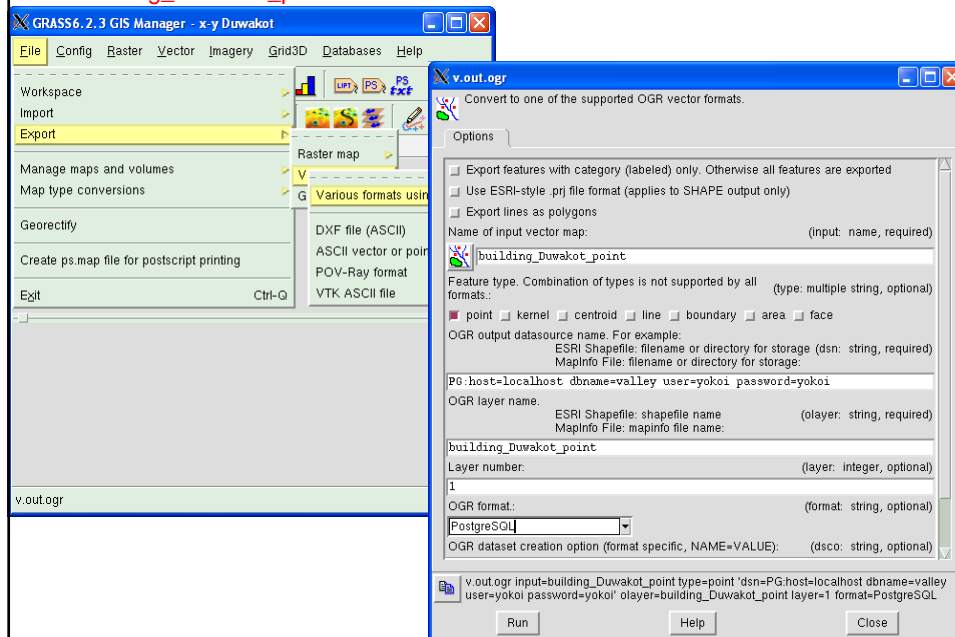
Combine four vector maps to one “building\_Duwakot” using “v.patch”.



Extract the centroids from “building\_Duwakot” and change the type to “POINT” and store them in “building\_Duwakot\_point”.



Export vector map “building\_Duwakot\_point” from GRASS to PostGIS layer “building\_Duwakot\_point”.



Confirm the imported table "building\_Duwakot\_point".

```

Command Prompt - psql valley -U yokoi
valley=> \d building_duwakot_point
Table "public.building_duwakot_point"
Column      |      Type      | Modifiers
-----
ogc_fid      | integer         | not null default nextval('building_duwakot_p
oint_ogc_fid_seq'::regclass)
wkb_geometry | geometry        |
cat          | integer         |
serial_no    | integer         |
gis_id       | integer         |
total_scor   | integer         |
house_owne   | character varying |
age_of_hou   | double precision |
occupants_   | integer         |
house_use    | character varying |
house_type   | character varying |
height       | character varying |
shape        | character varying |
elevation    | character varying |
openings     | character varying |
cracks       | character varying |
repair_mai   | character varying |
roof         | character varying |
falling_ha   | character varying |
comments     | character varying |
Check constraints:
    "enforce_dims_wkb_geometry" CHECK (ndims(wkb_geometry) = 2)
    "enforce_geotype_wkb_geometry" CHECK (geometrytype(wkb_geometry) = 'POINT'::
text OR wkb_geometry IS NULL)
    "enforce_srid_wkb_geometry" CHECK (srid(wkb_geometry) = 32767)

```

Note that Primary Key is not set, the geometry is stored in the column "wkb\_geometry" and srid(wkb\_geometry) is set at 32767.

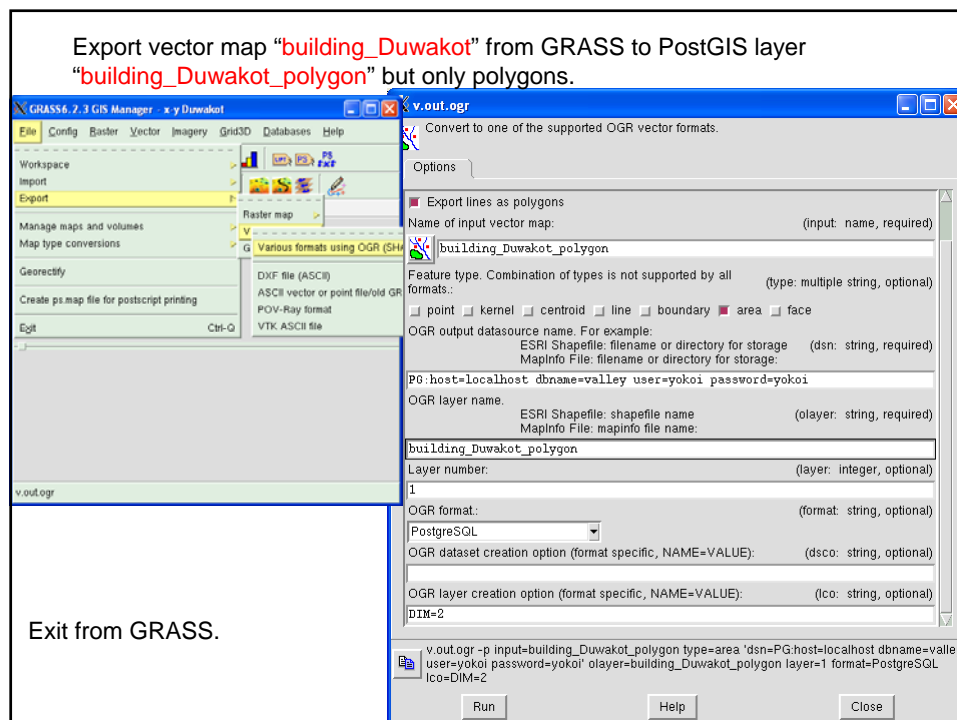
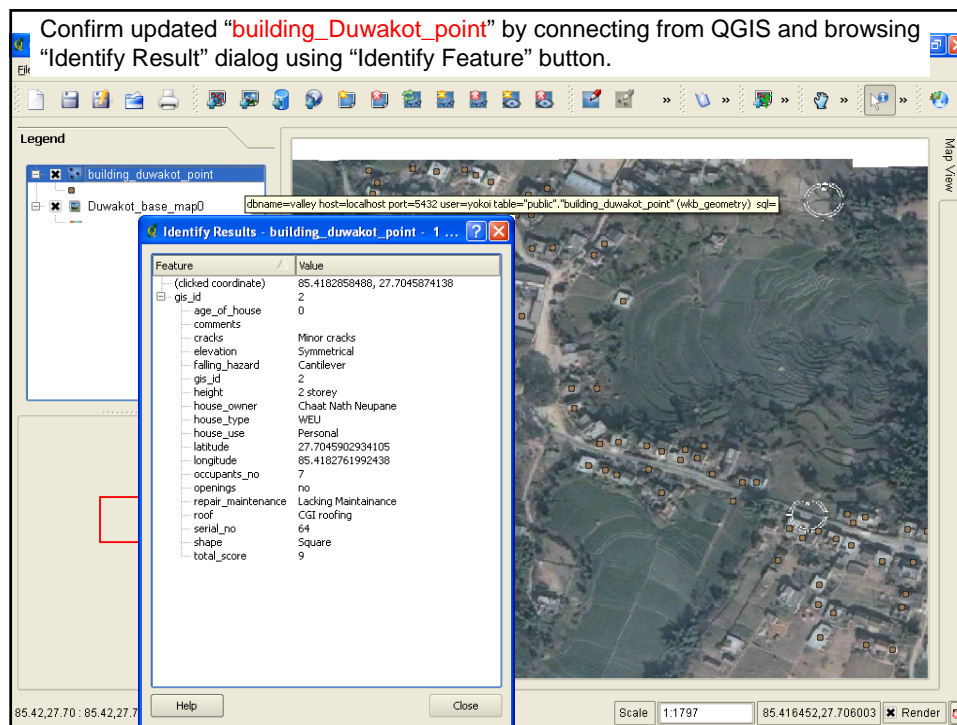
Add Primary Key constraint to the column "serial\_no".  
Then, confirm the table "building\_Duwakot\_point" again.

```

Command Prompt - psql valley -U yokoi
valley=> alter table building_duwakot_point add constraint building_duwakot_poin
t_pkey PRIMARY KEY (serial_no);
NOTICE: ALTER TABLE / ADD PRIMARY KEY will create implicit index "building_duwa
kot_point_pkey" for table "building_duwakot_point"
ALTER TABLE
valley=> \d building_duwakot_point
Table "public.building_duwakot_point"
Column      |      Type      | Modifiers
-----
ogc_fid      | integer         | not null default nextval('building_duwakot_p
oint_ogc_fid_seq'::regclass)
wkb_geometry | geometry        |
cat          | integer         |
serial_no    | integer         | not null
gis_id       | integer         |
total_scor   | integer         |
house_owne   | character varying |
age_of_hou   | double precision |
occupants_   | integer         |
house_use    | character varying |
house_type   | character varying |
height       | character varying |
shape        | character varying |
elevation    | character varying |
openings     | character varying |
cracks       | character varying |
repair_mai   | character varying |
roof         | character varying |
falling_ha   | character varying |
comments     | character varying |
Indexes:
    "building_duwakot_point_pkey" PRIMARY KEY, btree (serial_no)
Check constraints:
    "enforce_dims_wkb_geometry" CHECK (ndims(wkb_geometry) = 2)
    "enforce_geotype_wkb_geometry" CHECK (geometrytype(wkb_geometry) = 'POINT'::
text OR wkb_geometry IS NULL)
    "enforce_srid_wkb_geometry" CHECK (srid(wkb_geometry) = 32767)
valley=>

```

Note that Primary Key is set at "serial\_no".





Add Primary Key constraint to the column “**ogc\_fid**”.  
Then, confirm the table “**building\_Duwakot\_polygon**” again.

```

valley=> alter table building_Duwakot_polygon add constraint building_Duwakot_po
lygon_pkey PRIMARY KEY (ogc_fid);
NOTICE: ALTER TABLE / ADD PRIMARY KEY will create implicit index "building_duva
kot_polygon_pkey" for table "building_duwakot_polygon"
ALTER TABLE
valley=> \d building_duwakot_polygon
               Table "public.building_duwakot_polygon"
    Column      |      Type      | Modifiers
-----+-----+-----
ogc_fid         | integer        | not null default nextval('building_duwakot_p
olygon_ogc_fid_seq'::regclass)
wkb_geometry    | geometry       |
cat             | integer        |
serial_no       | integer        |
gis_id          | integer        |
total_scor      | integer        |
house_owns      | character varying |
age_of_hou      | double precision |
occupants_      | integer        |
house_use       | character varying |
house_type      | character varying |
height          | character varying |
shape           | character varying |
elevation       | character varying |
openings        | character varying |
cracks          | character varying |
repair_mai      | character varying |
roof            | character varying |
falling_ha      | character varying |
comments        | character varying |
Indexes:
    "building_duwakot_polygon_pkey" PRIMARY KEY, btree (ogc_fid)
Check constraints:
    "enforce_dims_wkb_geometry" CHECK (ndims(wkb_geometry) = 2)
    "enforce_geotype_wkb_geometry" CHECK (geometrytype(wkb_geometry) = 'POLYGON'
::text OR wkb_geometry IS NULL),
    "enforce_srid_wkb_geometry" CHECK (srid(wkb_geometry) = 32767)
valley=>

```

Note: As “serial\_no” has duplicated data, it can not be Primary Key.

Find the duplicated data of “serial\_no” using  
**select ogc\_fid,serial\_no from building\_Duwakot\_polygon;**

```

valley=> select ogc_fid,serial_no from building_Duwakot_polygon;
ogc_fid | serial_no
-----+-----
59      | 57
60      | 66
61      | 56
62      | 67
63      | 68
64      | 51
65      | 61
66      | 54
67      |
68      | 54
69      | 55
70      | 69
71      | 70
72      | 71
73      | 72
74      | 73
75      | 74
76      | 75

```

Duplication is found at ogc\_fid=66 and 68. Besides, null data is found at ogc\_fid=67.

Then, remove these rows as follows.

```

valley=> delete from building_duwakot_polygon where ogc_fid = 67;
DELETE 1
valley=> delete from building_duwakot_polygon where ogc_fid = 68;
DELETE 1
valley=>

```

Command Prompt - psql valley -U yokoi

```

valley=> alter table building_Duwakot_polygon drop constraint building_Duwakot_p
polygon_pkey;
ALTER TABLE
valley=> alter table building_Duwakot_polygon add constraint building_Duwakot_po
lygon_pkey PRIMARY KEY (serial_no);
NOTICE: ALTER TABLE / ADD PRIMARY KEY will create implicit index "building_duwa
kot_polygon_pkey" for table "building_duwakot_polygon"
ALTER TABLE
valley=> \d building_duwakot_polygon

```

Column	Type	Table "public.building_duwakot_polygon" Modifiers
ogc_fid	integer	not null default nextval('building_duwakot_p
olygon_ogc_fid_seq	integer	
wkb_geometry	geometry	
cat	integer	
serial_no	integer	not null
gis_id	integer	
total_scor	integer	
house_owne	character varying	
age_of_hou	double precision	
occupants_	integer	
house_use	character varying	
house_type	character varying	
height	character varying	
shape	character varying	
elevation	character varying	
openings	character varying	
cracks	character varying	
repair_mai	character varying	
roof	character varying	
falling_ha	character varying	
comments	character varying	

Indexes:

```

"building_duwakot_polygon_pkey" PRIMARY KEY, btree (serial_no)

```

Check constraints:

```

"enforce_dims_wkb_geometry" CHECK (ndims(wkb_geometry) = 2)
"enforce_geotype_wkb_geometry" CHECK (geometrytype(wkb_geometry) = 'POLYGON'
::text OR wkb_geometry IS NULL)
"enforce_srid_wkb_geometry" CHECK (srid(wkb_geometry) = 32767)

```

valley=> \_

Drop constraint Primary Key that was set at "ogc\_fid".  
Then, add constraint Primary Key to "serial\_no".  
Confirm that Primary Key is set at "serial\_no".

On QGIS "building\_Duwakot\_point" is loaded. Open "Attribute Table" using "Open Table" button.

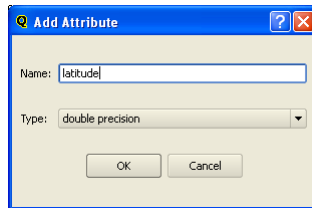
Legend

building\_duwakot\_point

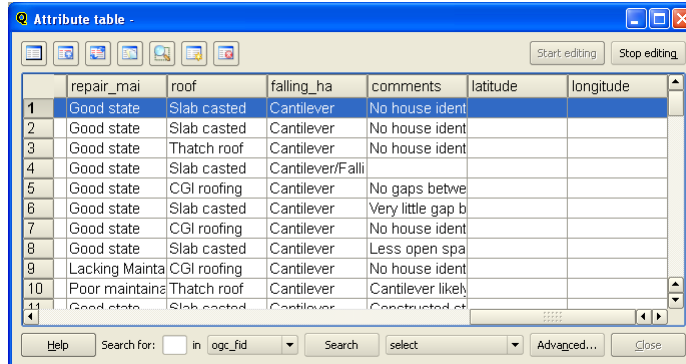
Attribute table -

	serial_no	gis_id	total_scor	house_owne	age_of_hou	occupants_
1	2	15	1	6 Mahesh Khana	7	4
2	3	16	2	5 Narayan Prasa	5	12
3	4	22	3	9 Narayan Prasa	80	5
4	5	23	4	4 Mani Neupane	12	5
5	6	24	5	10 Mani Neupane	24	0
6	7	8	6	5 Radhika Neupa	7	9
7	8	9	7	10 Annapurna Neu	53	8
8	9	10	8	2 Akur Prasad N	3	4
9	10	11	9	10 Ram Krishna N	30	4
10	11	12	10	11 Ganesh Neupa	75	5
11	12	13	11	4 Pradhumna Ne	8	4
12	13	14	12	6 Santosh Neupa	13	6
13	14	17	13	4 Ram Chandra	8	7
14	15	18	14	7 Ravi Rimal	20	3
15	16	19	15	8 Ram Chandra	6	0
16	17	20	16	3 Maya Ranjit	6	1
17	18	21	17	2 Umesh Neupar	5	5

Extent: 85.4104,27.7026 : 85.4206,27.7063 Scale: 1:1797 85.417012,27.703203 Render



Add new columns “latitude” and “longitude” using “Start Editing” and “New Column” button. Then save the change using “Stop Editing” and “Save” button. Then, “Close” of “Attribute Table”.



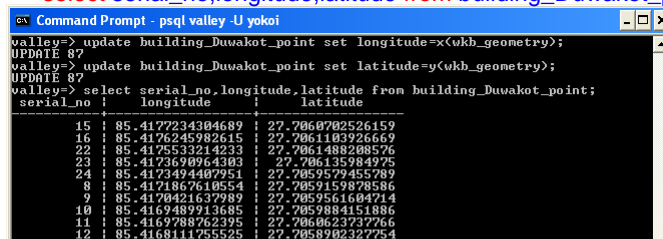
Extract the values of longitude and latitude from “wkb\_geometry” column.

`update building_Duwakot_point set longitude=x(wkb_geometry);`

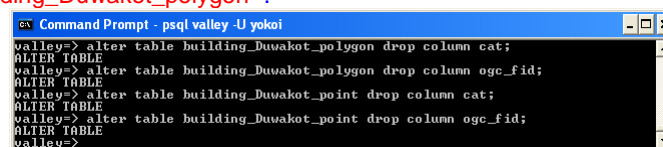
`update building_Duwakot_point set latitude=y(wkb_geometry);`

Then confirm the update using

`select serial_no,longitude,latitude from building_Duwakot_point;`



Drop unnecessary columns from “building\_Duwakot\_point” and “building\_Duwakot\_polygon” .



```

Command Prompt - psql valley -U yokoi
valley=> \d building_Duwakot_point
Table "public.building_duwakot_point"
Column      |      Type      | Modifiers
-----
wkb_geometry | geometry        |
serial_no   | integer         | not null
gis_id      | integer         |
total_scor  | integer         |
house_owne  | character varying |
age_of_hou  | double precision |
occupants_  | integer         |
house_use   | character varying |
house_type  | character varying |
height      | character varying |
shape       | character varying |
elevation   | character varying |
openings    | character varying |
cracks      | character varying |
repair_mai  | character varying |
roof        | character varying |
falling_ha  | character varying |
comments    | character varying |
latitude    | double precision |
longitude   | double precision |
Indexes:
    "building_duwakot_pkey" PRIMARY KEY, btree (serial_no)
Check constraints:
    "enforce_dims_wkb_geometry" CHECK (ndims(wkb_geometry) = 2)
    "enforce_geotype_wkb_geometry" CHECK (geometrytype(wkb_geometry) = 'POINT'::text OR wkb_geometry IS NULL)
    "enforce_srid_wkb_geometry" CHECK (srid(wkb_geometry) = 32767)
valley=>

```

Confirm the table.

```

Command Prompt - psql valley -U yokoi
valley=> alter table building_Duwakot_point rename house_owne to house_owner;
ALTER TABLE
valley=> alter table building_Duwakot_point rename age_of_hou to age_of_house;
ALTER TABLE
valley=> alter table building_Duwakot_point rename occupants_ to occupants_no;
ALTER TABLE
valley=> alter table building_Duwakot_point rename repair_mai to repair_maintenance;
ALTER TABLE
valley=> alter table building_Duwakot_point rename total_scor to total_score;
ALTER TABLE
valley=> alter table building_Duwakot_point rename falling_ha to falling_hazard;
ALTER TABLE
valley=>

```

Rename the shorten column names of "building\_Duwakot\_point".

```

Command Prompt - psql valley -U yokoi
valley=> alter table building_Duwakot_point rename total_scor to total_score;
ALTER TABLE
valley=> alter table building_Duwakot_point rename falling_ha to falling_hazard;
ALTER TABLE
valley=> alter table building_Duwakot_polygon rename house_owne to house_owner;
ALTER TABLE
valley=> alter table building_Duwakot_polygon rename age_of_hou to age_of_house;
ALTER TABLE
valley=> alter table building_Duwakot_polygon rename occupants_ to occupants_no;
ALTER TABLE
valley=> alter table building_Duwakot_polygon rename repair_mai to repair_maintenance;
ALTER TABLE
valley=> alter table building_Duwakot_polygon rename total_scor to total_score;
ALTER TABLE
valley=> alter table building_Duwakot_polygon rename falling_ha to falling_hazard;
ALTER TABLE
valley=>

```

Rename the shorten column names of "building\_Duwakot\_polygon".

