KATHMANDU UNIVRSITY

SCHOOL OF ENGINEERING

DEPARTMENT OF GEOMATICS ENGINEERING

DHULIKHEL, KAVRE

Lab Report Of Mini Project On

Find Shortest route of Starting point

(Home location) to Destination point (KU)

SUBMITTED BY:

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Roll no. : 63

Group: GE-21 ‘B’

Subject: SDMS (GEOM) 318

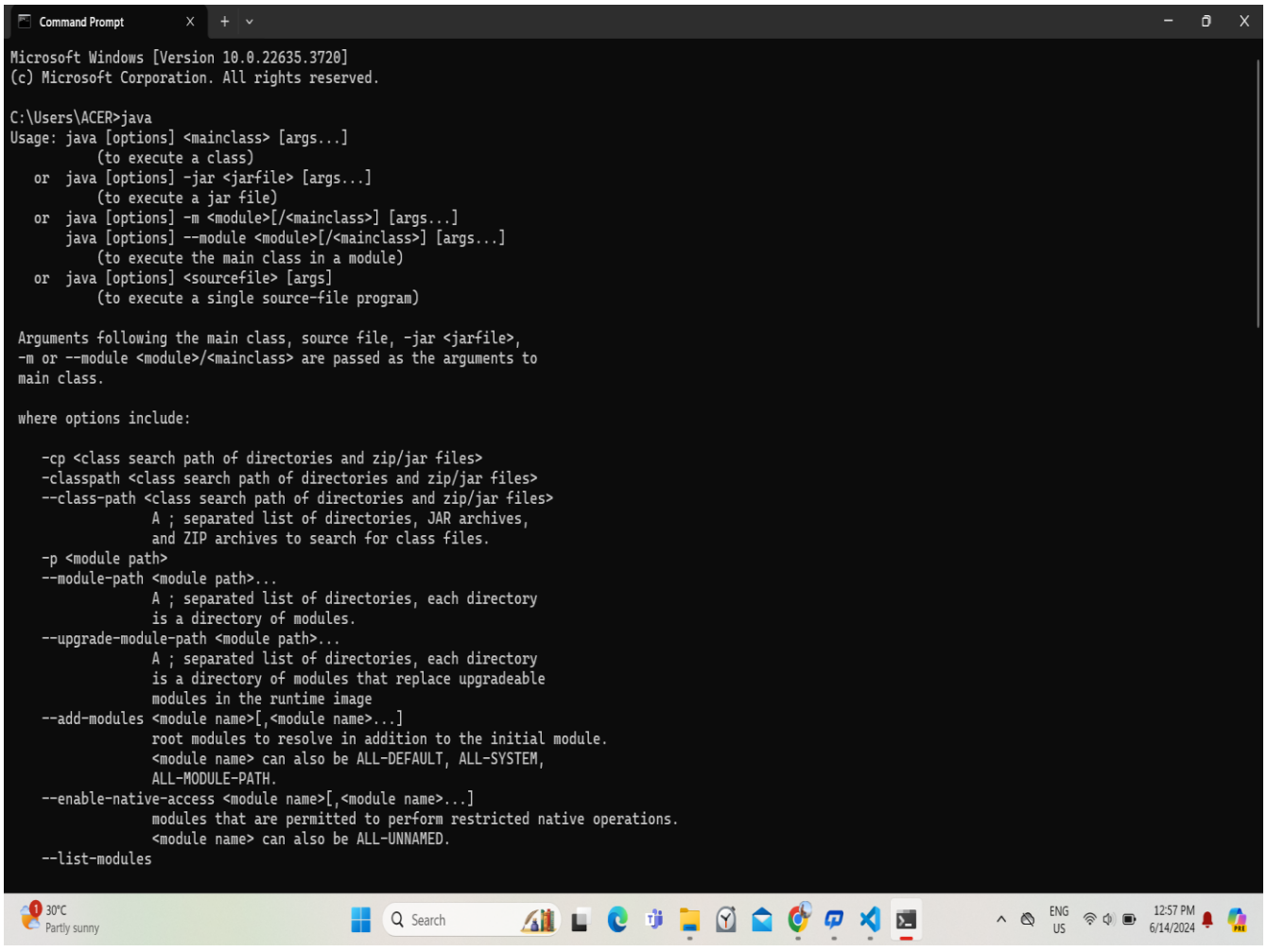
SUBMITTED TO:

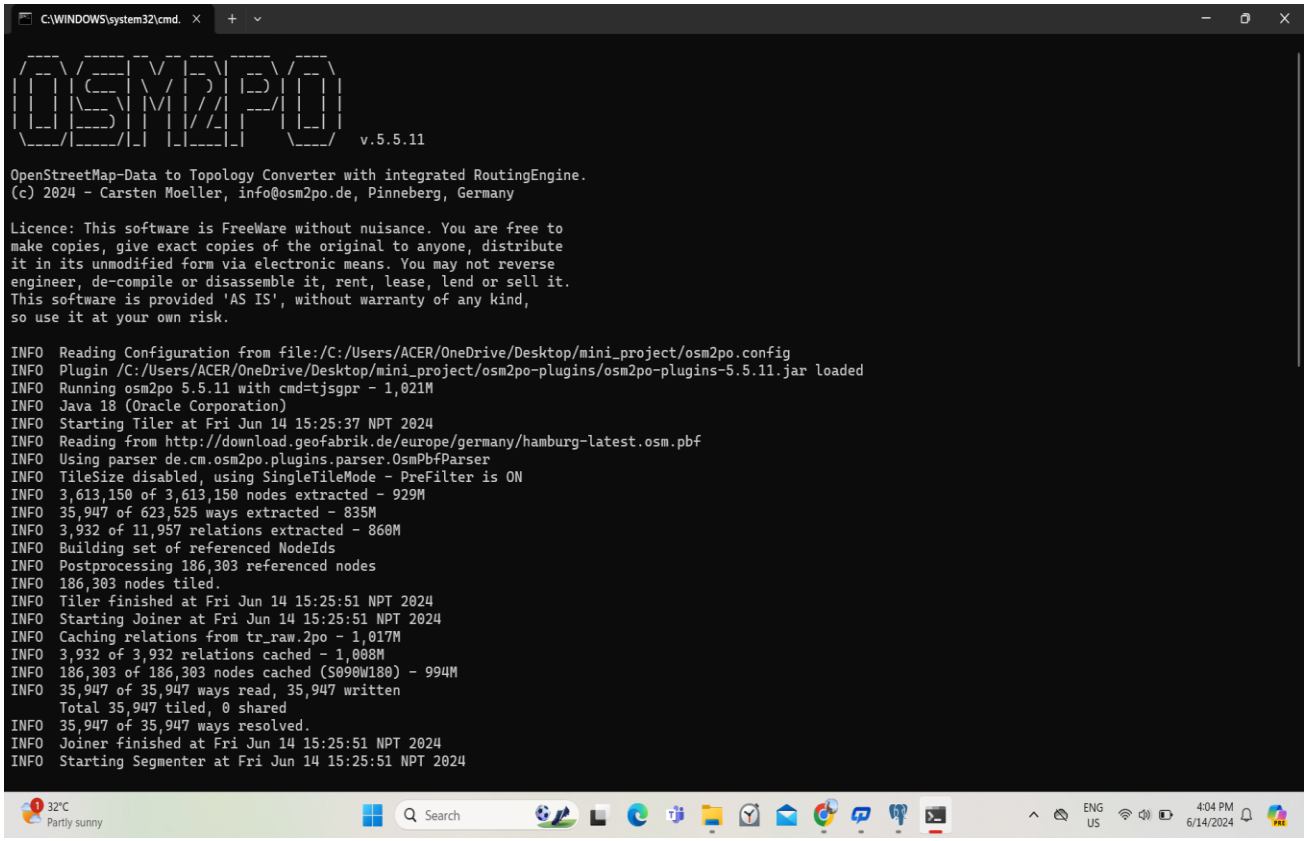
Er. Ajay Kumar Thapa

Date of Submission: 06/14/2024

For this project we need some application are as postgresSQL, postgis , pgRouting, QGIS, Osm2pro and Java. Processing: Pre-processing osm data in osm2po: Working:Open the command prompt (cmd) or terminal. Navigate to the directory where you extracted osm2po You can customize the configuration by editing the osm2po.config file. Adjust settings related to routing, vehicle types, and other parameters. For example, you can specify which types of roads to include or exclude.If you want to use the pre-processed data with a database (e.g., PostgreSQL with pgRouting), you can import it using the following command: psql-U your_db_ user-d your_db_ name-f osm2po/ your_osm_data_file.2po Replace your_db_user and your_db_name with your actual database credentials. Now you can use the pre-processed data for routing.

The navigate convert to file using of the location of the OSM data and the file that contain the extension of java. So we combined the both these we obtained the Nepal data of dbf format the open in pgadmin is shown in given below:




C:\WINDOWS\system32\cmd.
v.5.5.11
OpenStreetMap-Data to Topology Converter with integrated RoutingEngine.
(c) 2024 - Carsten Moeller, info@osm2po.de, Pinneberg, Germany
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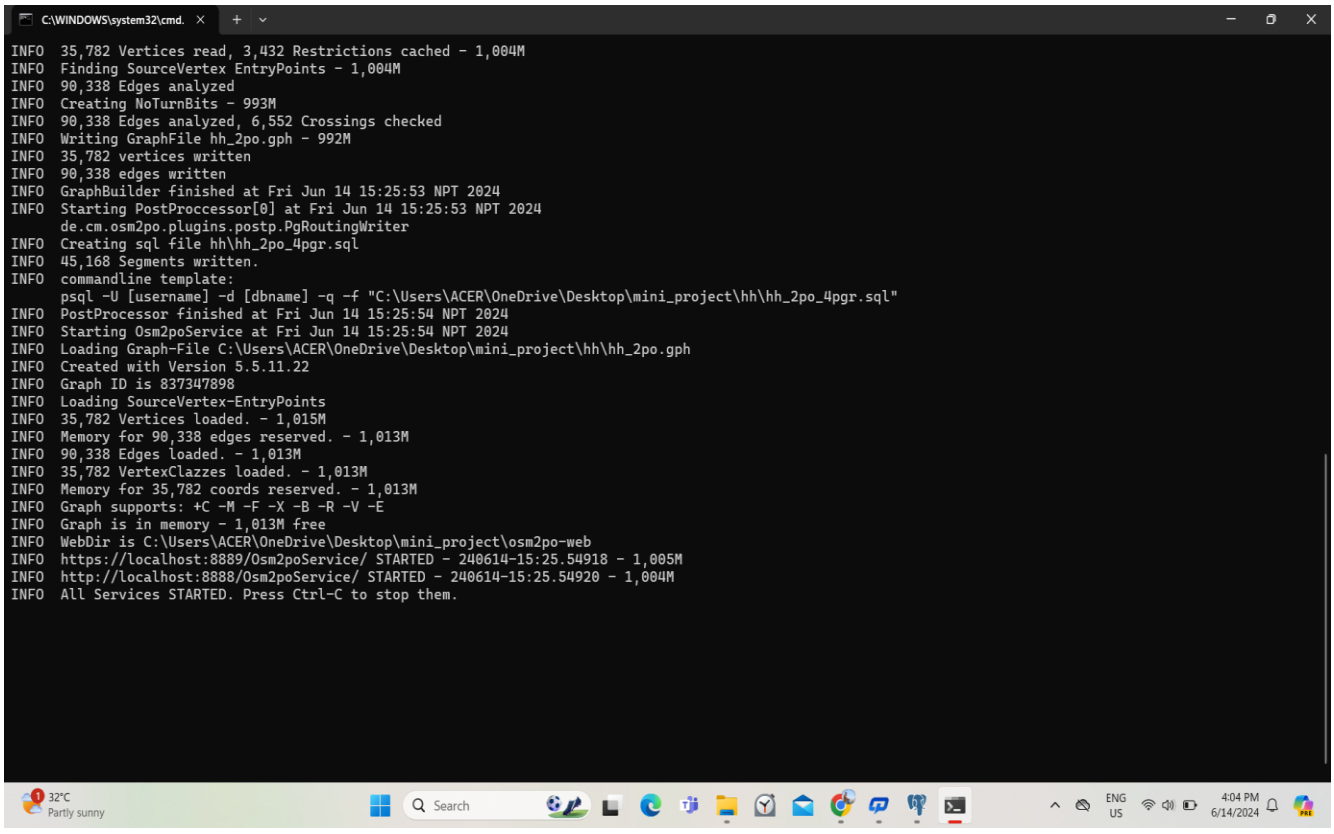
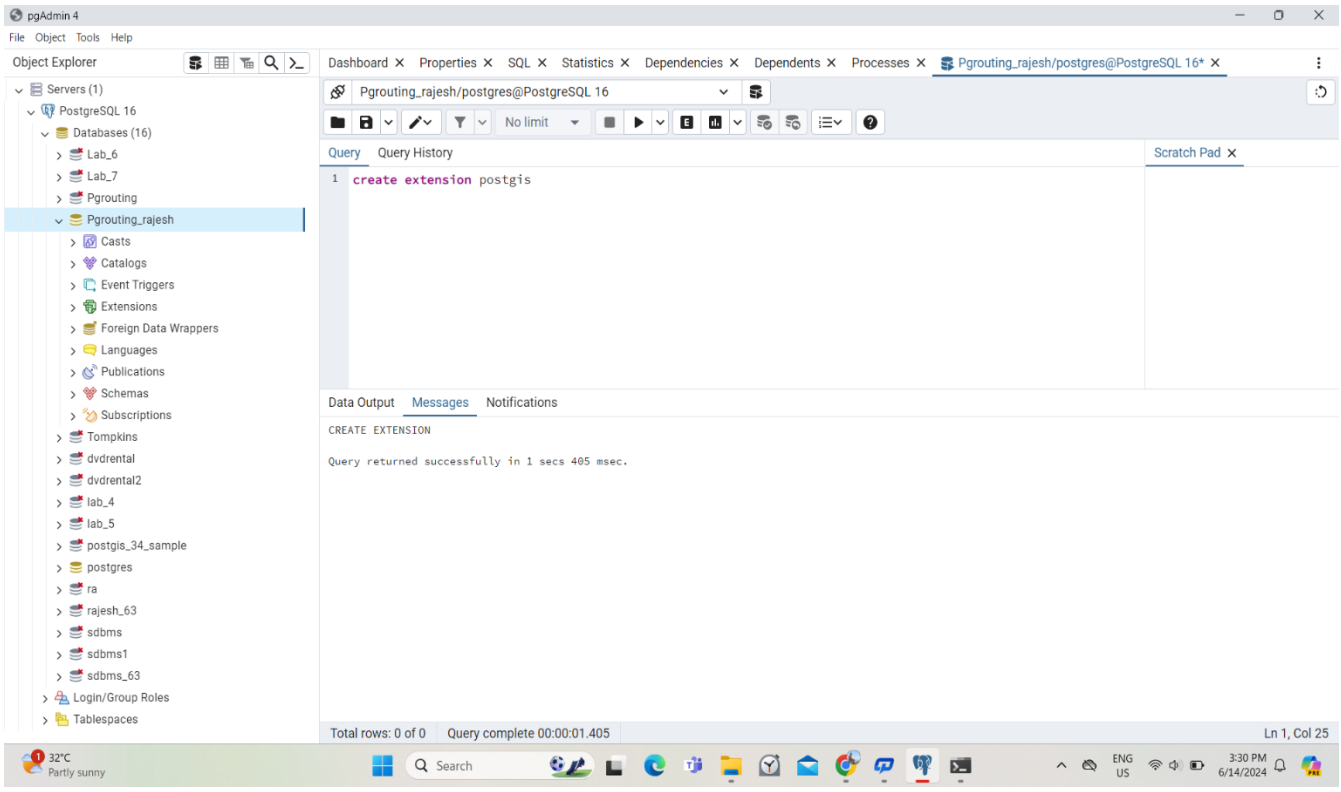
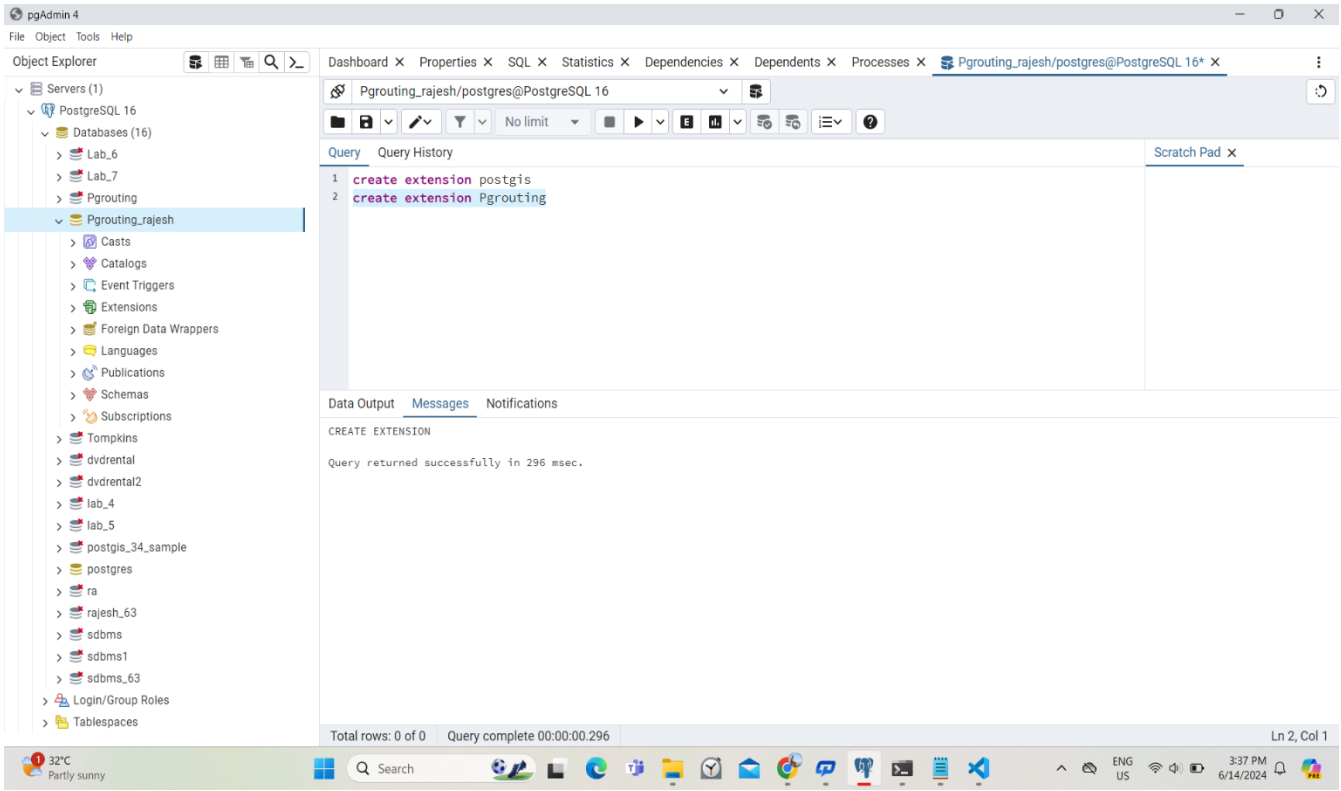
it in its unmodified form via electronic means. You may not reverse
engineer, de-compile or disassemble it, rent, lease, lend or sell it.
This software is provided 'AS IS', without warranty of any kind,
so use it at your own risk.
INFO Reading Configuration from file:/C:/Users/ACER/OneDrive/Desktop/mini_project/osm2po.config
INFO Plugin /C:/Users/ACER/OneDrive/Desktop/mini_project/osm2po-plugins/osm2po-plugins-5.5.11.jar loaded
INFO Running osm2po 5.5.11 with cmd=tjsgpr - 1,021M
INFO Java 18 (Oracle Corporation)
INFO Starting Tiler at Fri Jun 14 15:25:37 NPT 2024
INFO Reading from http://download.geofabrik.de/europe/germany/hamburg-latest.osm.pbf
INFO Using parser de.cm.osm2po.plugins.parser.OsmPbfParser
INFO TileSize disabled, using SingleTileMode - PreFilter is ON
INFO 3,613,150 of 3,613,150 nodes extracted - 929M
INFO 35,947 of 623,525 ways extracted - 835M
INFO 3,932 of 11,957 relations extracted - 860M
INFO Building set of referenced NodeIds
INFO Postprocessing 186,303 referenced nodes
INFO 186,303 nodes tiled.
INFO Tiler finished at Fri Jun 14 15:25:51 NPT 2024
INFO Starting Joiner at Fri Jun 14 15:25:51 NPT 2024
INFO Caching relations from tr_raw.2po - 1,017M
INFO 3,932 of 3,932 relations cached - 1,008M
INFO 186,303 of 186,303 nodes cached (S090W180) - 994M
INFO 35,947 of 35,947 ways read, 35,947 written
Total 35,947 tiled, 0 shared
INFO 35,947 of 35,947 ways resolved.
INFO Joiner finished at Fri Jun 14 15:25:51 NPT 2024
INFO Starting Segmenter at Fri Jun 14 15:25:51 NPT 2024
32°C
Partly sunny
Search
ENG
US
4:04 PM
6/14/2024

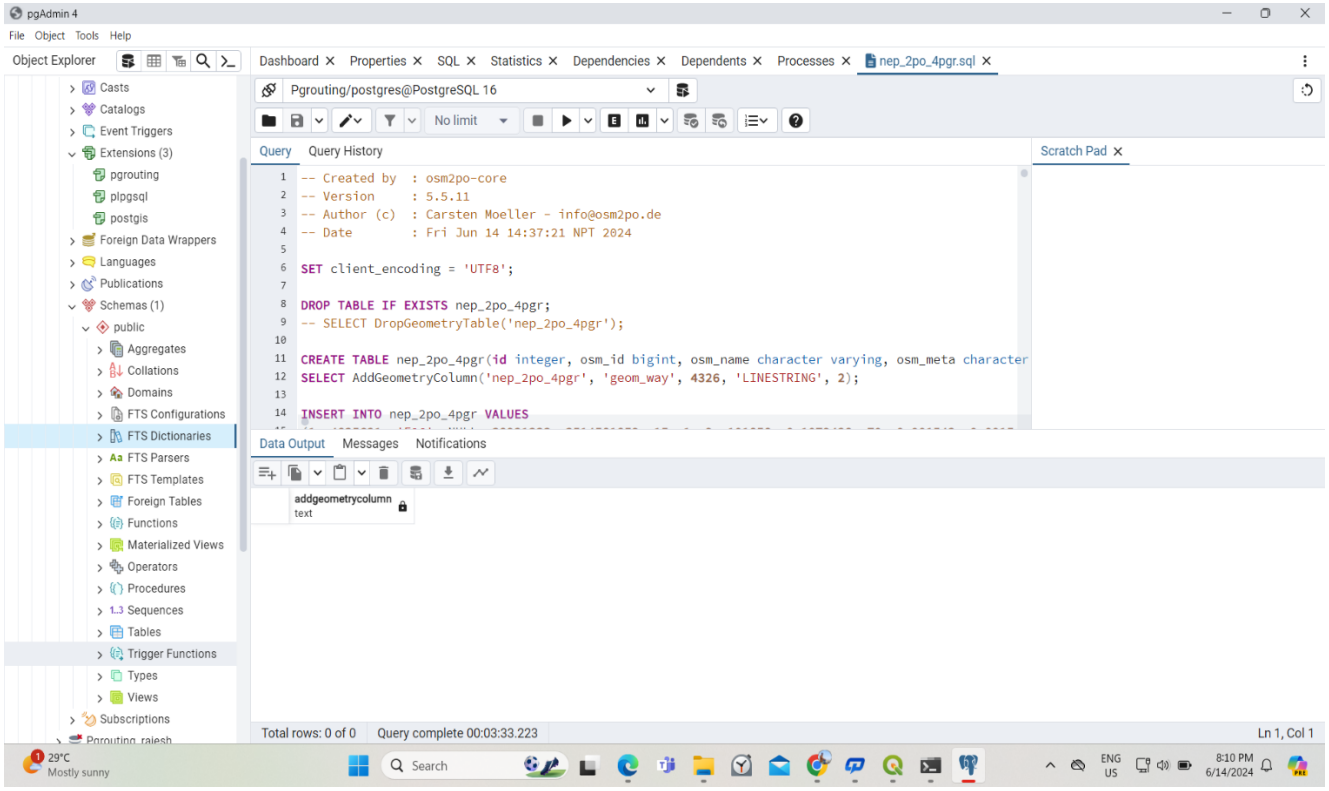

C:\WINDOWS\system32\cmd.
INFO 35,782 Vertices read, 3,432 Restrictions cached - 1,004M
INFO Finding SourceVertex EntryPoints - 1,004M
INFO 90,338 Edges analyzed
INFO Creating NoTurnBits - 993M
INFO 90,338 Edges analyzed, 6,552 Crossings checked
INFO Writing GraphFile hh_2po.gph - 992M
INFO 35,782 vertices written
INFO 90,338 edges written
INFO GraphBuilder finished at Fri Jun 14 15:25:53 NPT 2024
INFO Starting PostProccessor[0] at Fri Jun 14 15:25:53 NPT 2024
de.cm.osm2po.plugins.postp.PgRoutingWriter
INFO Creating sql file hh\hh_2po_4pgr.sql
INFO 45,168 Segments written.
INFO commandline template:
psql -U [username] -d [dbname] -q -f "C:\Users\ACER\OneDrive\Desktop\mini_project\hh\hh_2po_4pgr.sql"
INFO PostProcessor finished at Fri Jun 14 15:25:54 NPT 2024
INFO Starting Osm2poService at Fri Jun 14 15:25:54 NPT 2024
INFO Loading Graph-File C:\Users\ACER\OneDrive\Desktop\mini_project\hh\hh_2po.gph
INFO Created with Version 5.5.11.22
INFO Graph ID is 837347898
INFO Loading SourceVertex-EntryPoints
INFO 35,782 Vertices loaded. - 1,015M
INFO Memory for 90,338 edges reserved. - 1,013M
INFO 90,338 Edges loaded. - 1,013M
INFO 35,782 VertexClazzes loaded. - 1,013M
INFO Memory for 35,782 coords reserved. - 1,013M
INFO Graph supports: +C -M -F -X -B -R -V -E
INFO Graph is in memory - 1,013M free
INFO WebDir is C:\Users\ACER\OneDrive\Desktop\mini_project\osm2po-web
INFO https://localhost:8889/Osm2poService/ STARTED - 240614-15:25.54918 - 1,005M
INFO http://localhost:8888/Osm2poService/ STARTED - 240614-15:25.54920 - 1,004M
INFO All Services STARTED. Press Ctrl-C to stop them.
32°C
Partly sunny
Search
ENG
US
4:04 PM
6/14/2024

Pgadmin4: In pgadmin4 we create a extension of both postgis and pgrouting. One the file obtained from a java.

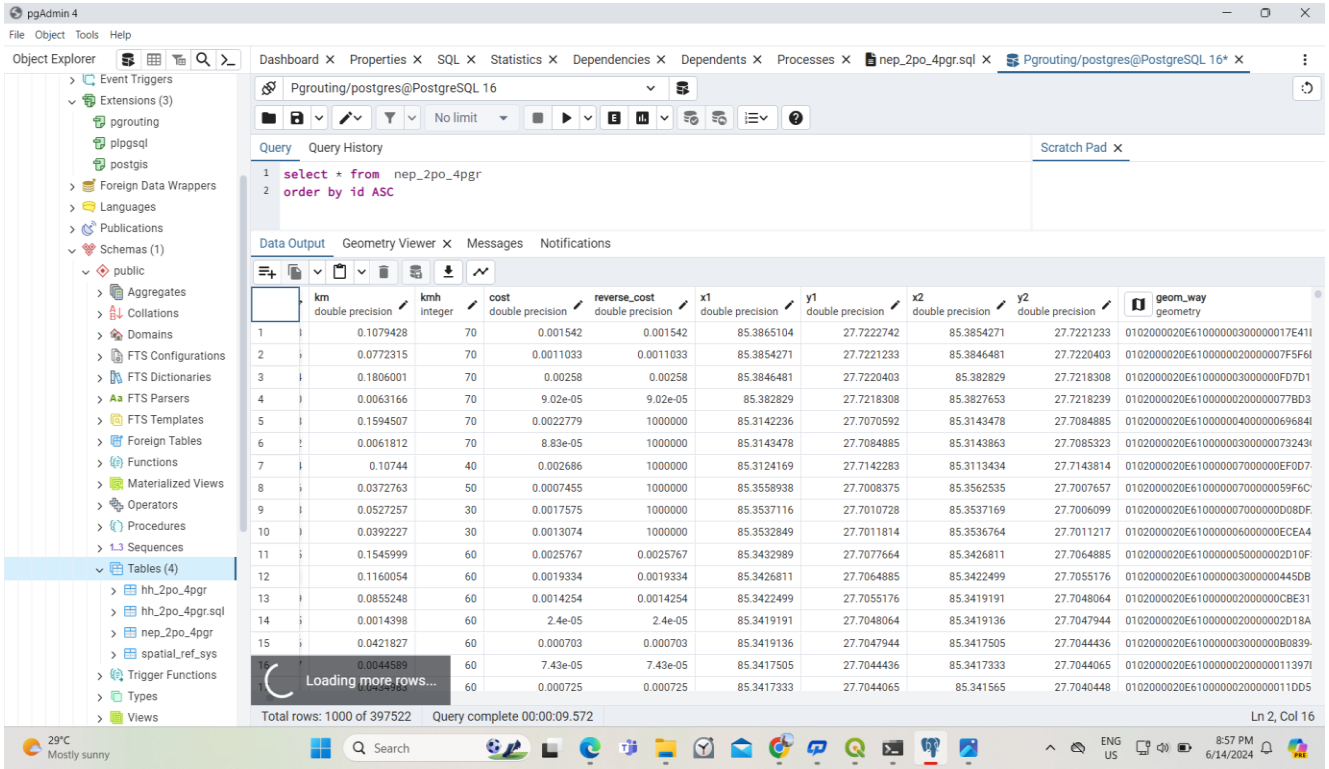


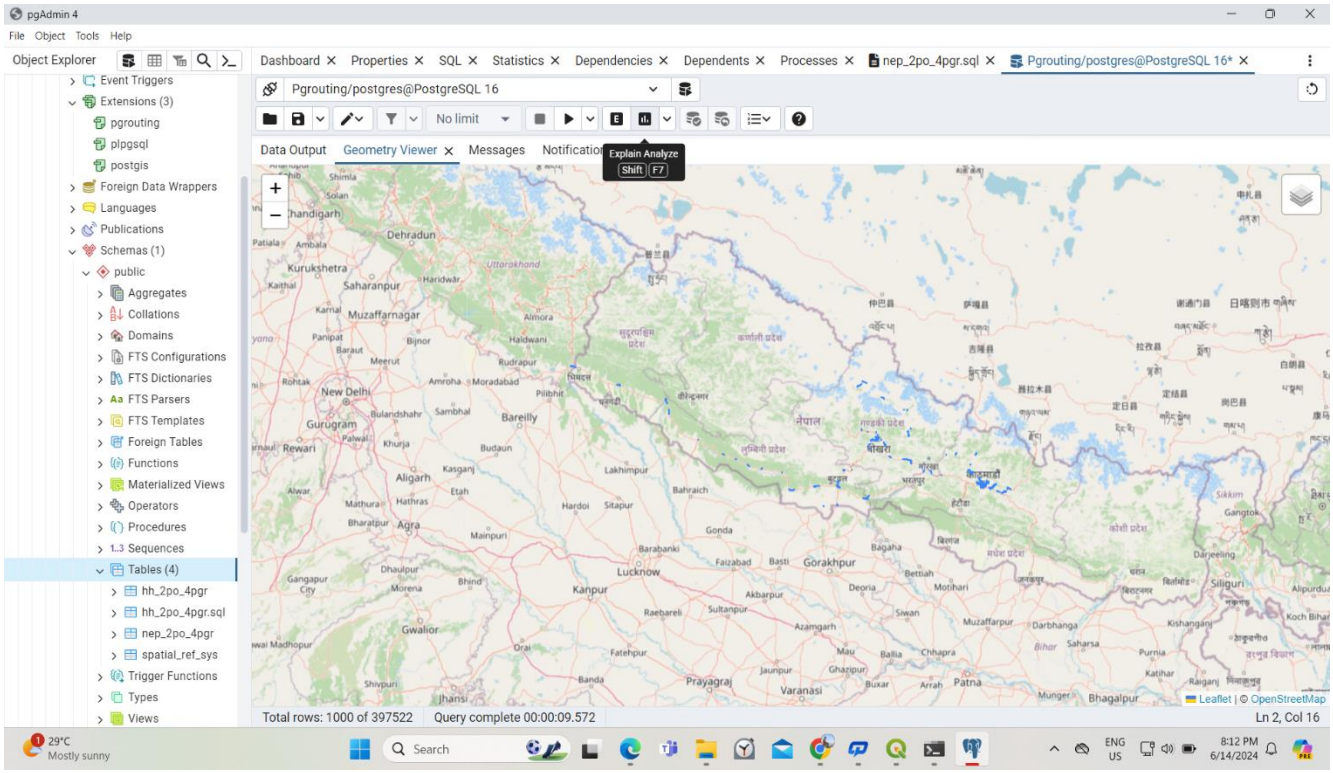


By using of the Pgadmin4 tools we opened the sql file converted early in the window explorer:



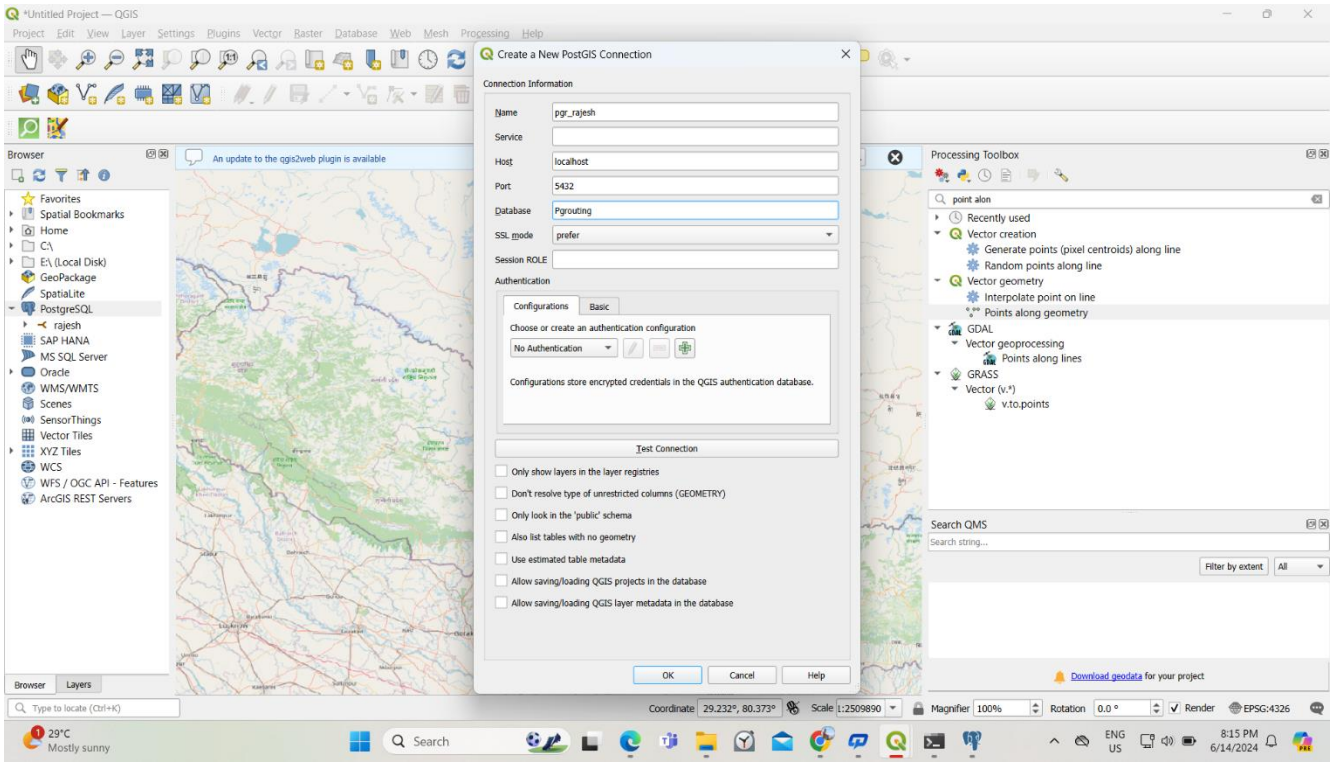
Execute the simple query using of the select operation and output with it geometry view:



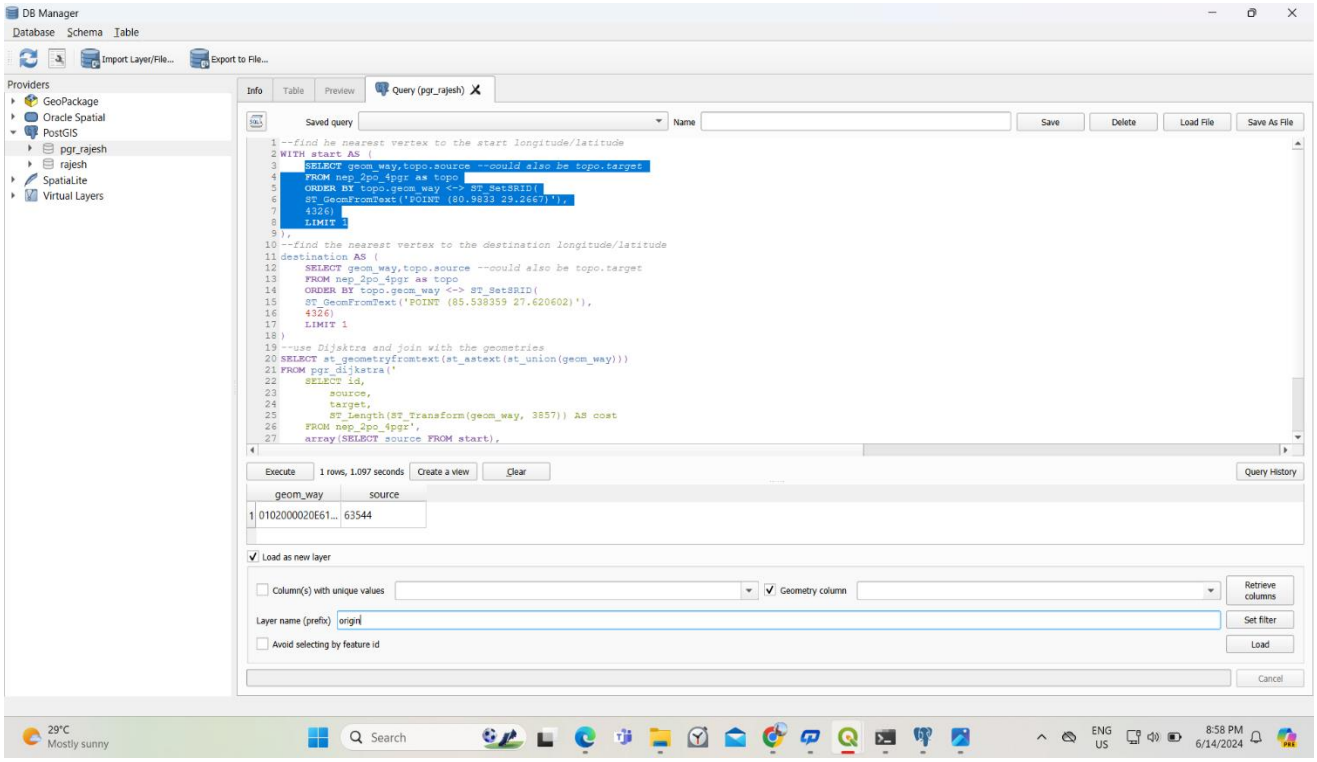


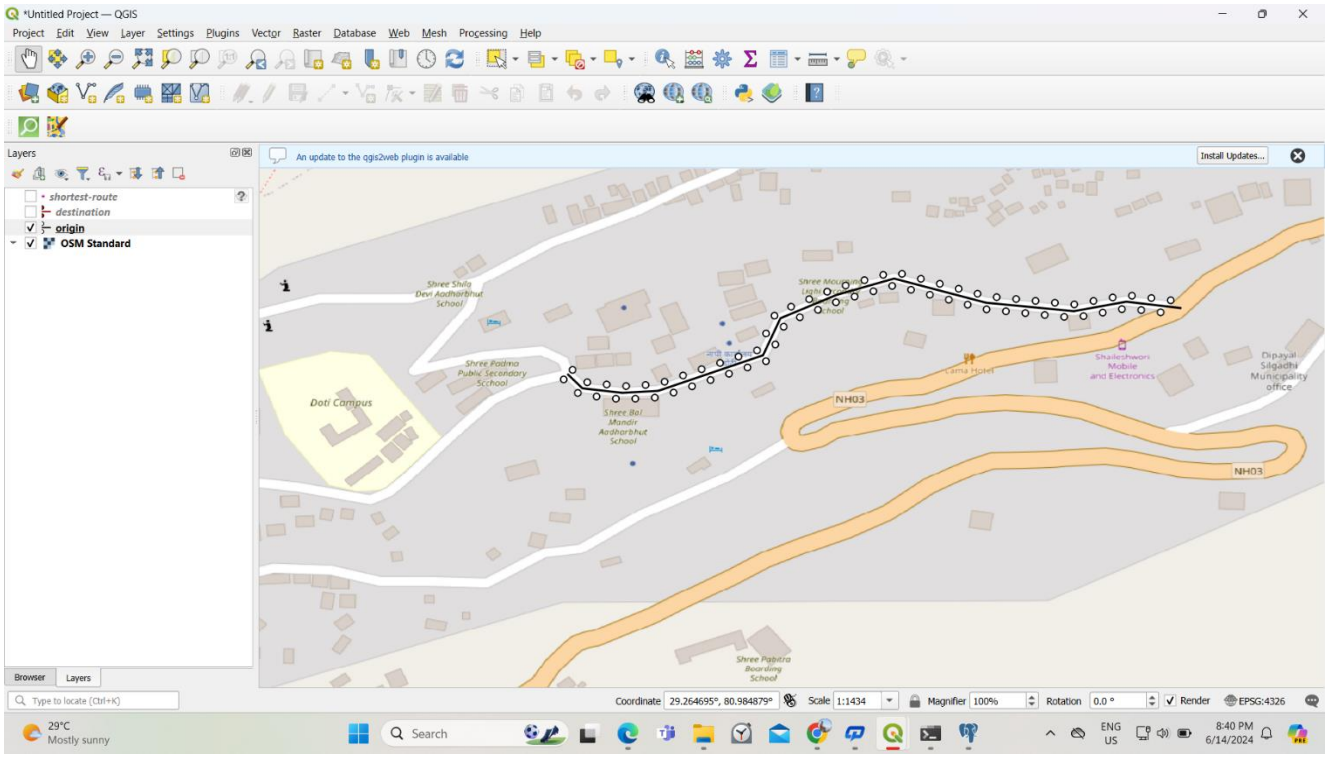
QGIS:

In QGIS we made a connection of database that present in the pgadmin4 using of postgis , then succeed the connection for write a sql query in window:

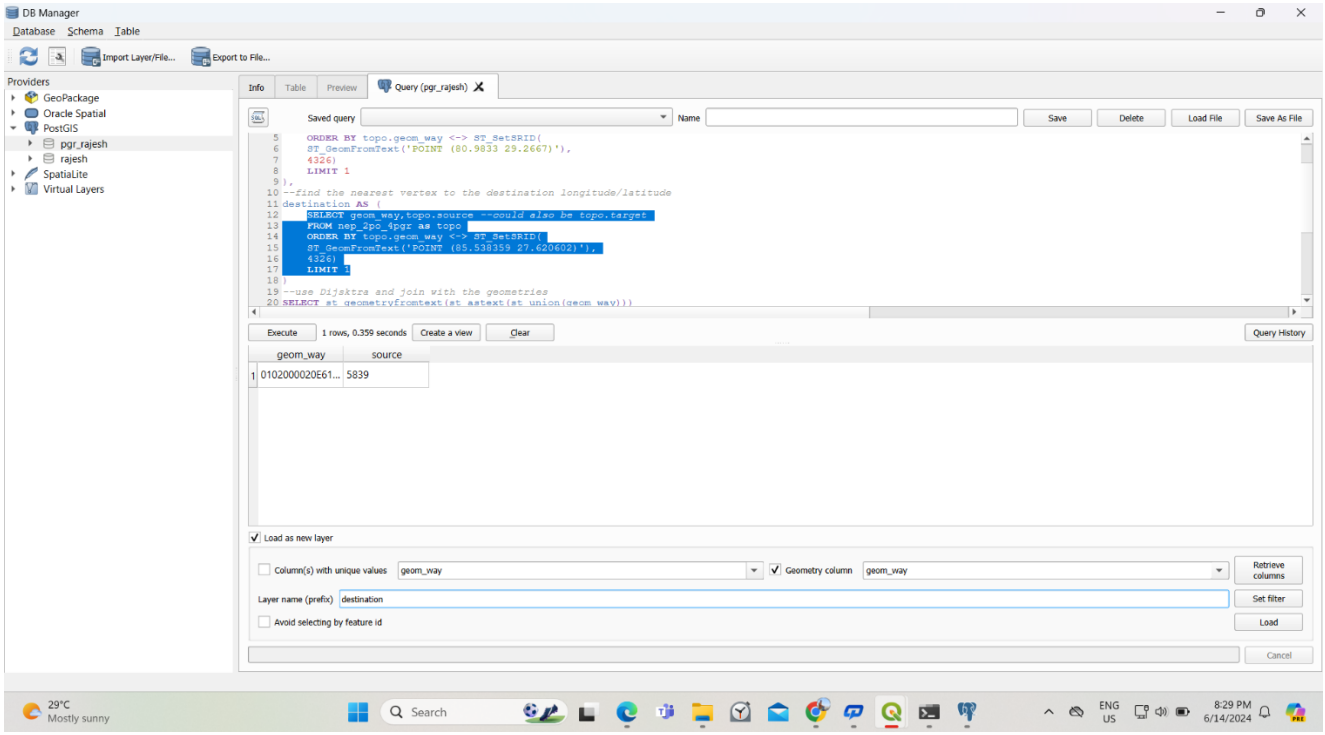


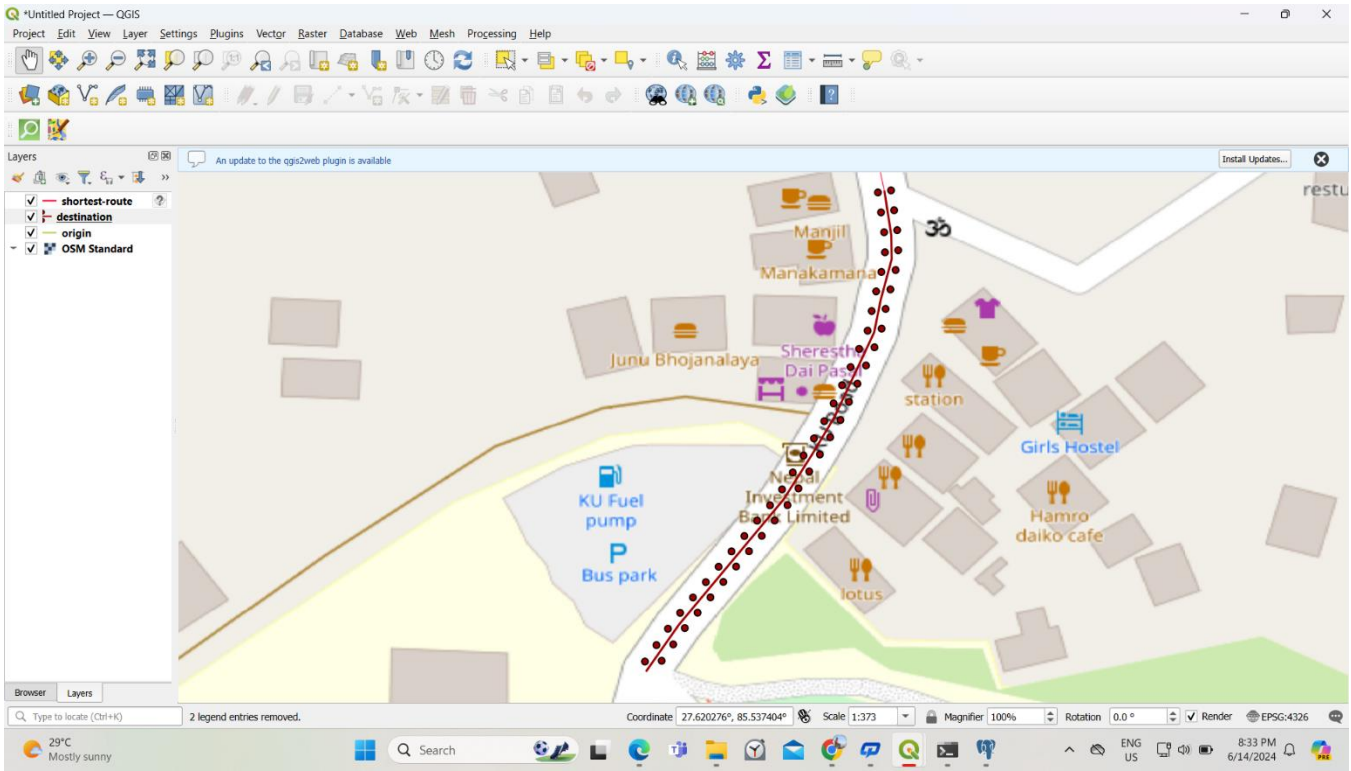
We write the sql query in QGIS windows the starting point of my route is in doti district which lies in sudurpaschim, Nepal the co-ordinate is longitude and latitude(80.9833, 29.2667) Exute only starting point sql for the layer of starting point also known as the origin point of shortest route is given below:



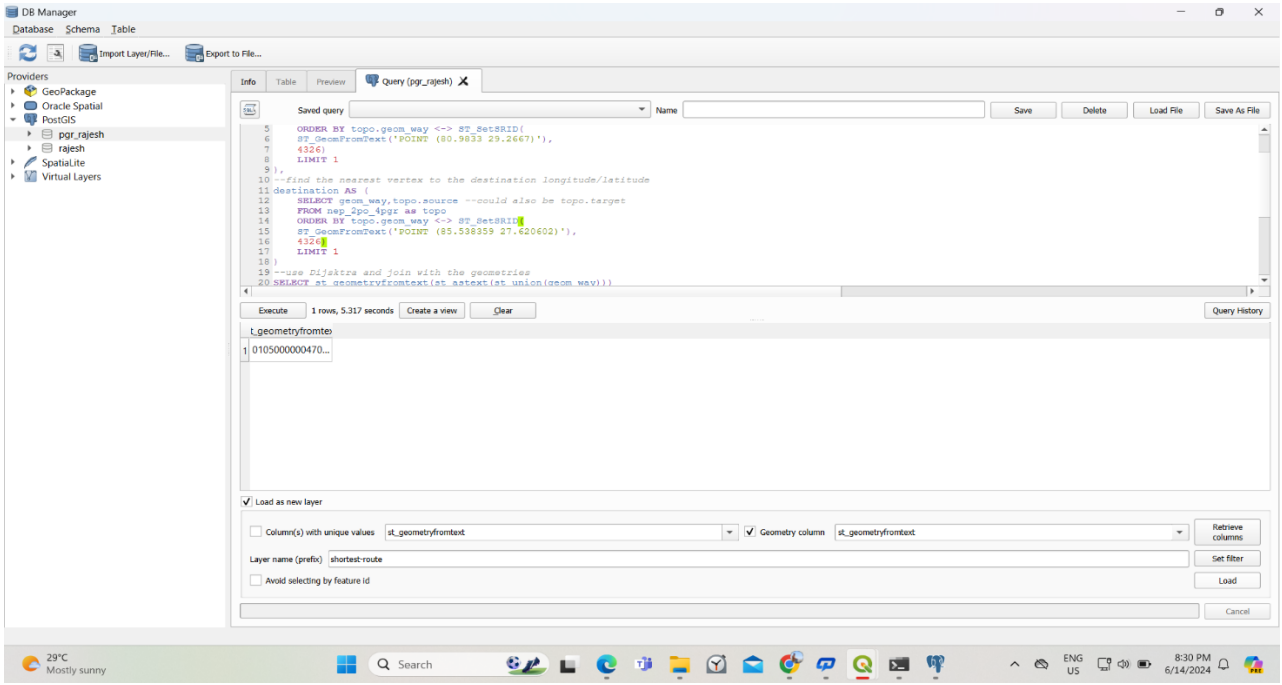


Similarly the coordinate of the end point or the destination point is easting (85.3240) and northing (27.7172). the location of my destination is at Kathmandu University Dhulikhel, kavre. With the helps of OSM standards to directly point out the required location and mark out with the helps of spatial query languages.

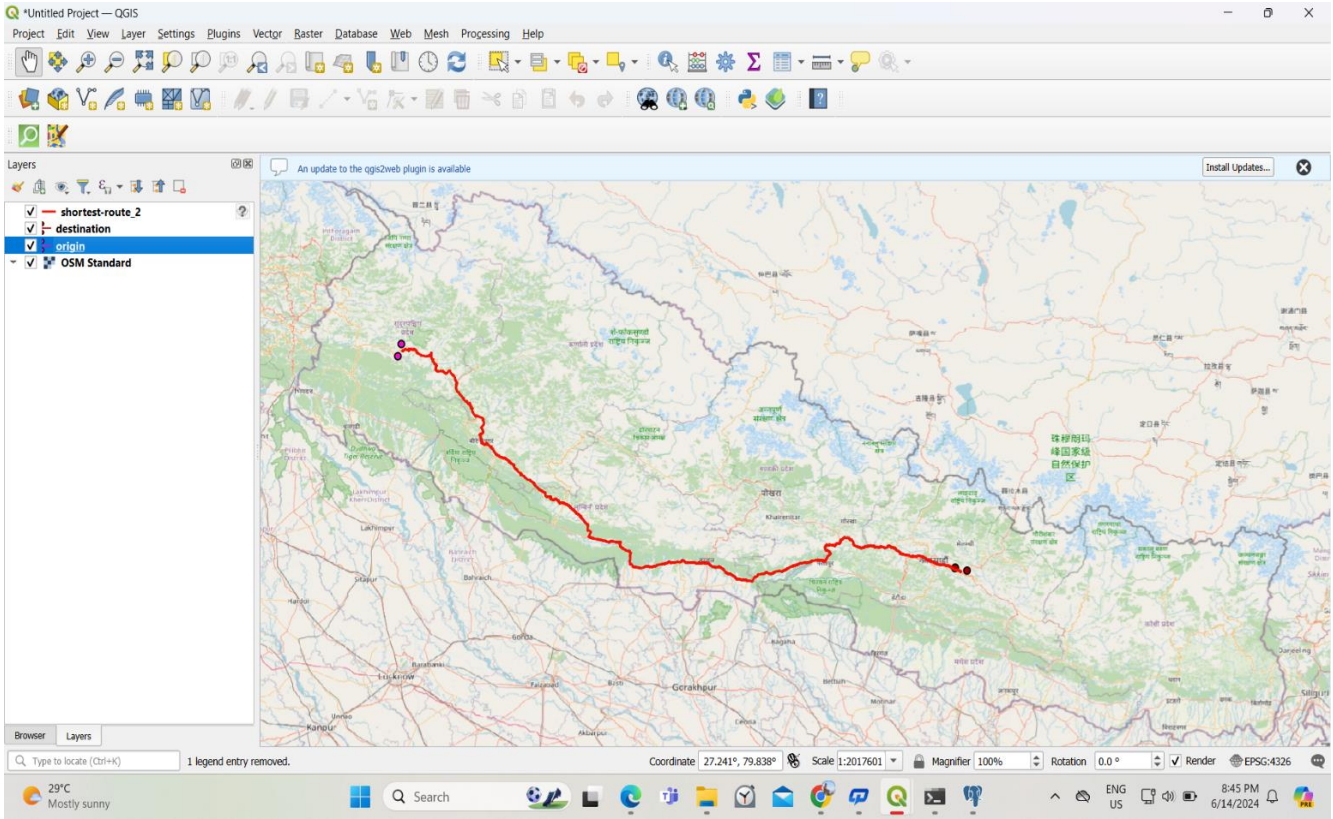


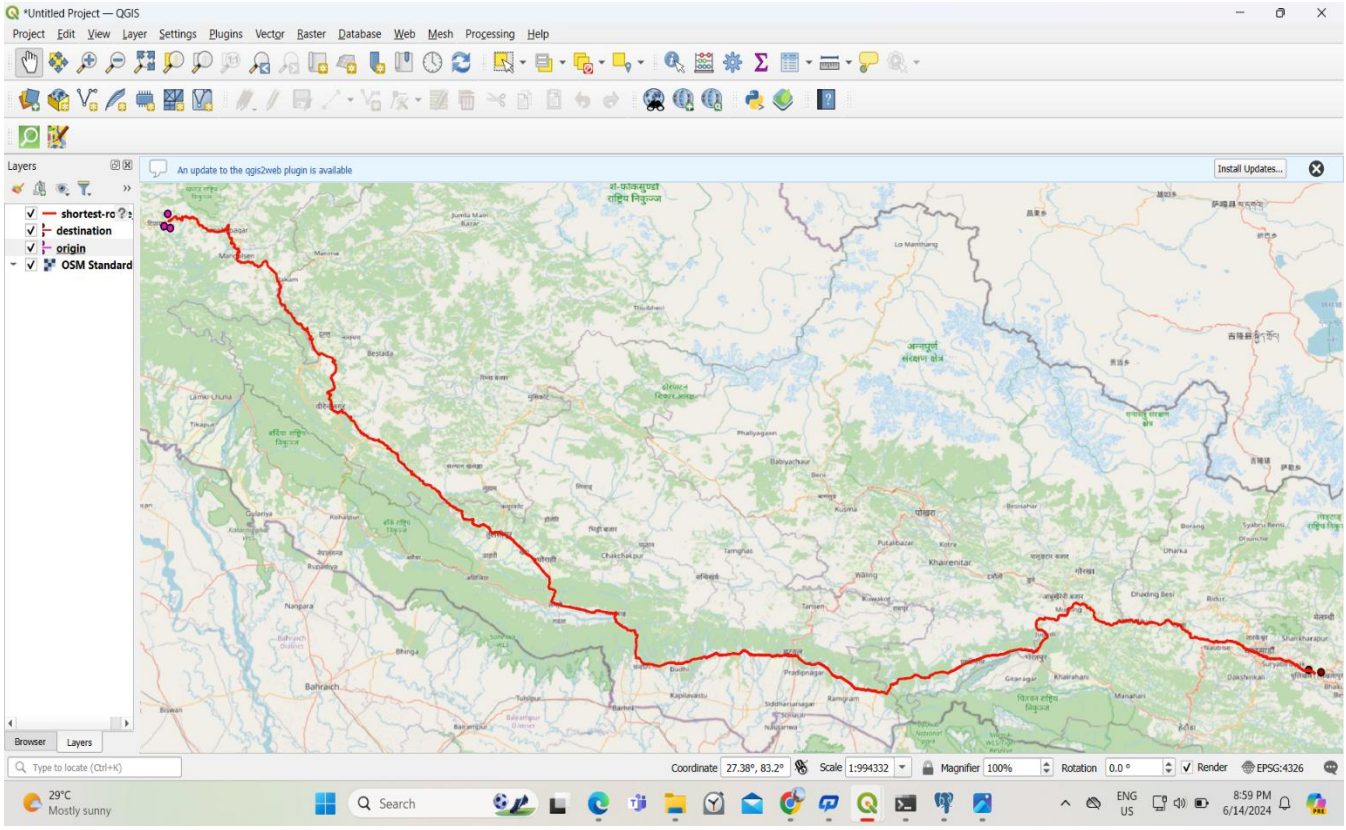


All the SQL query to find the shortest route of required area is given below:



Result: At last after the loaded the layer with requires colomn name and given the layer name as Shotest_route and show in QGIS. From whole area, we put the coordinates of required area and find the shortest route and also show the nearest feature with that coordinates. The final outcomes of the project is shown in given below:





Conclusion: In conclusion with collaboration of software like postgis, java, osm2pro, pgadmin4, QGIS and Pgrouting, which is also known as the extension of Postgres SQL. To find the shortest route between any two point in the earth surfaces and it also helps to find the hiking tracks. It determine the best route or shortest for those area or places where there is no facilities of moving vehicles.