task1:

```sql
1   create function fun()
2     returns setof address
3     language plpgsql
4     as
5   $$
6   begin
7   return query
8   select * from address
9     where address.city_id < 601 and address.city_id > 399
10  and address.address like '%11%';
11  end
12  $$;
13
14  ✔  select * from fun();
```

address_id	address	address2	district	city_id	postal_code	phone	last_update
1	4	1411 Lillydale Drive	<null>	QLD	576		6172235589	2006-02-15 09:45:30.000000
2	6	1121 Loja Avenue		California	449	17886	838635286649	2006-02-15 09:45:30.000000
3	127	117 Boa Vista Way		Uttar Pradesh	566	6804	677976133614	2006-02-15 09:45:30.000000
4	245	1103 Bilbays Parkway		Hubei	578	87660	279979529227	2006-02-15 09:45:30.000000
5	297	1192 Tongliao Street		Sharja	470	19065	350970907017	2006-02-15 09:45:30.000000
6	324	1145 Vilnius Manor		Mxico	451	73170	674805712553	2006-02-15 09:45:30.000000
7	366	114 Jalib al-Shuyukh Manor		Centre	585	60440	845378657301	2006-02-15 09:45:30.000000
8	378	1191 Tandil Drive		Southern Tagalog	523	6362	45554316010	2006-02-15 09:45:30.000000
9	379	1133 Rizhao Avenue		Pernambuco	572	2800	600264533987	2006-02-15 09:45:30.000000
10	507	1197 Sokoto Boulevard		West Bengali	478	87687	868602816371	2006-02-15 09:45:30.000000
11	511	1152 al-Qatif Lane		Kalimantan Barat	412	44816	131370665218	2006-02-15 09:45:30.000000
12	528	1176 Southend-on-Sea Manor		Southern Tagalog	458	81651	236679267178	2006-02-15 09:45:30.000000
13	602	1101 Bucuresti Boulevard		West Greece	401	97661	199514580428	2006-02-15 09:45:30.000000
14	603	1103 Quilmes Boulevard		Piura	503	52137	644021380889	2006-02-15 09:45:30.000000

function:

```sql
create function fun()
returns setof address
language plpgsql
as
$$
begin
return query
select * from address
where address.city_id < 601 and address.city_id > 399
and address.address like '%11%';
end
$$;
```

python code:

```python
import psycopg2
from geopy import geocoders

conn = psycopg2.connect(database='dvdrental', user='postgres',
password='1308249756', host='localhost', port='5432')
cur = conn.cursor()
cur.execute('select * from fun();')
result = cur.fetchall()

nominatim = geocoders.Nominatim(user_agent='my_agent')
cur.execute('alter table address add column if not exists longitude
int, '
            'add column if not exists latitude int;')

for i in result:
    try:
        geoloc = nominatim.geocode(i[1])
        cur.execute(
            'update address set longitude =' +
str(int(geoloc.longitude)) + 'where address_id =' + str(i[0]) + ';')
        cur.execute(
            'update address set latitude =' +
str(int(geoloc.latitude)) + 'where address_id =' + str(i[0]) + ';')
    except:
        cur.execute('update address set longitude = 0 where
address_id =' + str(i[0]) + ';')
        cur.execute('update address set latitude = 0 where address_id
=' + str(i[0]) + ';')


cur.execute('select * from fun();')
result = cur.fetchall()
for i in result:
    print(i)

conn.close()
```

output:

```
(4, '1411 Lillydale Drive', None, 'QLD', 576, '', '6172235589', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(6, '1121 Loja Avenue', '', 'California', 449, '17886', '838635286649', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(127, '117 Boa Vista Way', '', 'Uttar Pradesh', 566, '6804', '677976133614', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(245, '1103 Bilbays Parkway', '', 'Hubei', 578, '87660', '279979529227', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(297, '1192 Tongliao Street', '', 'Sharja', 470, '19065', '350970907017', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(324, '1145 Vilnius Manor', '', 'Mxico', 451, '73170', '674805712553', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(366, '114 Jalib al-Shuyukh Manor', '', 'Centre', 585, '60440', '845378657301', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(378, '1191 Tandil Drive', '', 'Southern Tagalog', 523, '6362', '45554316010', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(379, '1133 Rizhao Avenue', '', 'Pernambuco', 572, '2800', '600264533987', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(507, '1197 Sokoto Boulevard', '', 'West Bengali', 478, '87687', '868602816371', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(511, '1152 al-Qatif Lane', '', 'Kalimantan Barat', 412, '44816', '131370665218', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(528, '1176 Southend-on-Sea Manor', '', 'Southern Tagalog', 458, '81651', '236679267178', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(602, '1101 Bucuresti Boulevard', '', 'West Greece', 401, '97661', '199514580428', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
(603, '1103 Quilmes Boulevard', '', 'Piura', 503, '52137', '644021380889', datetime.datetime(2022, 4, 15, 18, 32, 23, 127427), 0, 0)
```