1.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Pretpostavite da želite za sve šume i vatrogasne postaje pronaći njihovu međusobnu udaljenost i udaljenost pojedine vatrogasne postaje do najbližih zaliha vode.

Za svaku šumu (landuse, "forest") kojoj je definirano ime i zgradu koja u nazivu sadrži niz znakova "vatrog" ili "dvd" (bez obzira na velika ili mala slova) ispisati:
ime šume, udaljenost do zgrade, ime zgrade, udaljenost zgrade do najbližeg vodenog objekta ili rijeke (water, 'water' ili 'river') te ime tog vodenog objekta (mora biti definirano).
Zapise poredati uzlazno prema imenu šume, a zatim prema udaljenosti.
Udaljenosti zaokružite na cijeli broj.

Primjer rezultata:

forest	d1	firedpt	d2	water
Fangorn forest	1234	Misty Mountain Fire DPT	5678	Entwash river
...	...	...	...	...

Assume that for all the forests and fire departments you want to find the distance between them and also the distance from of the fire department units to the closest water reserve.

For each forest (landuse, "forest") that has a defined name and a building that in its name contains string "vatrog" or "dvd" (regardless of lower-case or upper-case letters) print:
the name of the forest, distance to the building, name of the building, distance from the building to the closest water area or river (water, 'water' or 'river') and the name of that water area (must be defined).
Sort the results ascending by the forest name, and then by the distance.
Round the distances to the closest integer.

See the example above.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

Run

Save

```
select
    landuse.name as forest,
    round(st_distance(landuse.geom, b1.geom)) as d1,
    b1.name as firedpt,
    (
        select round(min(st_distance(b2.geom, water.geom)))
        from
            buildings b2, water
        where
            b2.gid = b1.gid and
            (water.fclass = 'water' or water.fclass = 'river') and
            water.name is not null
    ) as d2,
    (
        select water.name
        from water, buildings b2
        where
            b2.gid = b1.gid and
            (water.fclass = 'water' or water.fclass = 'river') and
            water.name is not null
        order by
            round(st_distance(b2.geom, water.geom))
        limit 1
    )
from
    landuse, buildings b1
where
    landuse.fclass = 'forest' and
    landuse.name is not null and
    (lower(b1.name) like '%vatrog%' or lower(b1.name) like '%dvd%')
order by forest, d1
```

Result (**154** rows)

☺ Correct! Well done!

masterexam05

2.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Pretpostavite da želite naći najbližu zalihu vode vatrogasnim domovima.

Za svaku zgradu koja u nazivu sadrži niz znakova "vatrog" ili "dvd" (bez obzira na velika ili mala slova) ispisati ime zgrade i udaljenost do najbližeg vodenog objekta ili rijeke (water, "water", "river") i naziv tog vodenog objekta (mora biti definiran).
Udaljenost zaokružite na cijeli broj.

Suppose you want to find closest water to the fire department units.

For each building that in its name contains string "vatrog" or "dvd" (regardless of lower-case or upper-case letters) print the name of the building, distance to the closest water object or river (water, "water", "river") and the name of that water object (must be defined).
Round the distance to the closest integer.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

Run

Save

```sql
select
    b1.name,
    round(min(st_distance(b1.geom, w1.geom))),
    (
        select w2.name
        from buildings b2, water w2
        where
            b2.gid = b1.gid and
            (w2.fclass = 'water' or w2.fclass = 'river') and
            w2.name is not null
        order by
            round(st_distance(b1.geom, w2.geom))
        limit 1
    )
from
    buildings b1, water w1
where
    (lower(b1.name) like '%vatrog%' or lower(b1.name) like '%dvd%') and
    (w1.fclass = 'water' or w1.fclass = 'river') and
    w1.name is not null
group by b1.gid
```

Result (**7** rows)

☺ Correct! Well done!

masterexam01

3.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Ispišite imena i ukupnu duljinu cesta koje u nazivu sadržavaju riječ 'šetalište' (bez obzira na velika ili mala slova) i koja nekim svojim dijelom prolaze kroz šumu. Duljinu zaokružite na cijeli broj.

Print the names and total length of roads which in their name contain the word 'šetalište' (regardless of lower-case or upper-case letters) and at least partially go through a forest. Round the lengths to the closest integer.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```
select
    roads.name,
    round(sum(distinct st_length(roads.geom)))
from
    roads, landuse
where
    lower(roads.name) like '%šetalište%' and
    landuse.fclass = 'forest' and
    st_intersects(roads.geom, landuse.geom)
group by roads.name
```

Run

Save

Result (**10** rows)

☺ Correct! Well done!

masterexam01

4.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Pretpostavimo da želimo naći stambene parcele koje graniče samo sa zelenim površinama.

Ispišite gid i površinu stambenih parcela (landuse, "residential") u općini Vis koje graniče **samo** sa zelenim parcelama (jedno od: "forest", "grass", "park").

Pazite: te susjedne zelene parcele ne moraju nužno biti u općini Vis.

Suppose we want to find residential plots (landuse) that border only with green areas.

Print the gid and the area of landuse of residential class in the municipality of Vis (`muny.name_2`) that borders ** only ** with green parcels (class is one of: "forest", "grass", "park").

Note that neighboring green areas do not have to be in the municipality of Vis.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```
select
    l1.gid,
    st_area(l1.geom)
from
    landuse l1
where
    l1.gid in (
        select l2.gid
        from
            landuse l2, landuse l3, muny m1
        where
            l2.fclass = 'residential' and
            m1.name_2 = 'Vis' and
            st_contains(m1.geom, l2.geom) and
            st_touches(l2.geom, l3.geom)
        group by l2.gid
        having
            count(*) = count(*) filter(where l3.fclass in ('forest', 'grass', 'park'))
    )
```

Run

Save

Result (**3** rows)

☺ Correct! Well done!

masterexam03

5.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Pretpostavite da želite za sve vatrogasne postaje (buildings) naći 2 najbliže rijeke (water, "river") i udaljenost do njih.

Za svaku zgradu koja u nazivu sadrži niz znakova "vatrog" ili "dvd" (bez obzira na velika ili mala slova) ispisati: ime zgrade, ime rijeke, udaljenost do rijeke i redni broj.
Rezultate poredajte po imenu zgrade i rednom broju rijeke.
Udaljenosti zaokružite na cijeli broj.

Primjer rezultata prikazan je ispod.

Assume that you want to find for all the fire department units 2 closest rivers (water, "river") and distance to them.

For each building (buildings table) that in its name contains string "vatrog" or "dvd" (regardless of lower-case or upper-case letters) print: the name of the building, name of the river, distance to the river and ordinal number.

Sort the results ascending by the building name, and then by the ordinal number of river.
Round the distances to the closest integer.

Result example:

depname	rname	dist	rn
DVD Most	Cetina	2654	1
DVD Most	Jadro	4537	2
DVD Gaj	Jadro	3423	1
DVD Gaj	Cetina	5076	2
...	...	...	...

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```sql
with ranked_dist as (
    select
        buildings.name as depname,
        water.name as rname,
        round(st_distance(buildings.geom, water.geom)) as dist,
        rank() over (partition by buildings.gid order by st_distance(buildings.geom, water.geom)) as rn
    from
        buildings, water
    where
        (lower(buildings.name) like '%vatrog%' or lower(buildings.name) like '%dvd%') and
        water.fclass = 'river'
    order by depname, rn
)
select * from ranked_dist where rn <= 2
```

Run

Save

Result (**14** rows)

☺ Correct! Well done!

masterexam09

1.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Za svaku plažu (nature, "beach") ispišite ime i udaljenost do njoj najbližeg kafića (pois, "bar").
Rezultate poredajte uzlazno prema imenu plaže.
Udaljenost zaokružite na cijeli broj.

For each beach (nature, "beach") print its names and the distance to the its nearest bar (pois, "bar").
Order the results ascending by the name of the beach. Round the distance to the closest integer.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```
select
    nature.name,
    round(min(st_distance(pois.geom, nature.geom)))
from
    nature, pois
where
    nature.fclass = 'beach' and
    pois.fclass = 'bar'
group by nature.name
order by nature.name
```

Run

Save

Result (**25** rows)

☺ Correct! Well done!

masterexam02

#	name	round

2.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Pronaći općine (muny) u Splitsko-dalmatinskoj županiji (muny, name_1) kroz koje prolazi pruga.
Potrebno je ispisati naziv općine (muny, name_2) i duljinu pruge (railways) koja prolazi kroz tu općinu.
Zapise poredati uzlazno s obzirom na duljinu pruge koja prolazi općinom.

Napomena: Ne postoji shape datoteka muny.shp u Croatia-latest-free.shp.zip. Kod rješavanja zadataka u tutorialu, potrebno je samostalno učitati i prilagoditi podatke. Shape datoteke o administrativnim područjima (Administrative areas) za Hrvatsku (HRV_adm.zip) mogu se preuzeti s http://www.diva-gis.org/datadown (informacija iz GIS tutoriala).

Find municipalites (muny) in the Splitsko-dalmatinska county (muny, name_1) through which the railroad passes.
Print the names (muny, name_2) of the municipalities and the length of the railroad (railways table) passing through the municipality.
Give results in ascending order with respect to the railroad length.

Note: There is no shape file muny.shp in Croatia-latest-free.shp.zip. When solving tasks in GIS tutorial, it is necessary to load and adjust the data independently. Shape files on administrative areas for Croatia (HRV_adm.zip) can be downloaded from http://www.diva-gis.org/datadown (information from the GIS tutorial).

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```
select
    muny.name_2 as muny_name,
    sum(st_length(st_intersection(railways.geom, muny.geom))) as len
from
    muny, railways
where
    muny.name_1 = 'Splitsko-Dalmatinska' and
    st_intersects(railways.geom, muny.geom)
group by muny_name
order by len
```

Run

Save

Result (**6** rows)

☺ Correct! Well done!

masterexam010

3.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Za ceste (`roads`) koje u nazivu sadržavaju riječ 'šetalište' (bez obzira na velika ili mala slova) i koje nekim svojim dijelom prolaze kroz šumu (`landuse.fclass = 'forest'`) ispišite naziv, ukupnu duljinu ceste, ukupnu duljinu dijelova ceste koji prolaze kroz šumu te postotak duljine te ceste koji prolazi kroz šumu.
Rezultate poredajte silazno prema postotku.
Sve vrijednosti zaokružite na cijeli broj.

Primjer rezultata prikazan je ispod.

For the roads which in their name contain the word 'šetalište' (regardless of lower-case or upper-case letters) and at least partially go through a forest print out the name of the road, total length of the road, total length of segments of that road that go through a forest, and the percentage of the road length that goes through a forest.
Order the results descending by the percentage.
Round all of the values to the closest integer.

Example of how the result should look like is displayed below.

name	total	forest_part	percentage
Široko šetalište	264	264	100%
Šetalište Sv. Duje	156	140	90%
...	...	...	...

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```sql
select
    roads.name as name,
    round(sum(st_length(roads.geom))) as total,
    round(sum(st_length(st_intersection(roads.geom, landuse.geom)))) as forest_part,
    round(sum(st_length(st_intersection(roads.geom, landuse.geom))) / sum(st_length(roads.geom)) * 100) || '%' as percentage
from
    roads, landuse
where
    lower(roads.name) like '%šetalište%' and
    landuse.fclass = 'forest'
    and st_intersects(roads.geom, landuse.geom)
group by roads.name
order by round(sum(st_length(st_intersection(roads.geom, landuse.geom))) / sum(st_length(roads.geom)) * 100) desc
```

Run
Save

Result (**10** rows)

☺ Correct! Well done!

masterexam01

5.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Kolika je ukupna površina zelenih površina (jedno od "forest" ili "grass") koje u nazivu sadrže riječ 'gaj'? Zaokružite rezultat na cijeli broj.

What is the total area of green surfaces (whose class is one of "forest" or "grass") that contain the word 'gaj' in their name?
Round the result to the closest integer.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```
1  select round(sum(st_area(landuse.geom)))
2  from landuse
3  where
4      landuse.fclass in ('forest', 'grass') and
5      landuse.name like '%gaj%'
6
7
8
9
10
```

Run

Save

Result (1 rows)

☺ Correct! Well done!

masterexam06

#	round
1	3092464

2.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Za sve hotele (pois, "hotel") za koje u krugu od 100 metara ima barem 10 restorana (pois, "restaurant") ispišite gid, naziv hotela i broj restorana u krugu od 100 metara. Zapise poredati silazno po broju restorana, zatim po hotel.gid uzlazno.

Primjer rezultata:

gid	name	cnt
100	Hotel Bellevue	16
300	Hotel Split	13
200	Hotel na kraju grada	11
...	...	...

For all hotels (pois, "hotel"), which have at least 10 restaurants within a 100-meter radius (pois, "restaurant"), print gid, hotel name and number of restaurants within 100 meters. Sort descending by number of restaurants, then by hotel.gid ascending. See example above.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```sql
select
    p1.gid as gid,
    p1.name as name,
    count(*) as cnt
from
    pois p1, pois p2
where
    p1.fclass = 'hotel' and
    p2.fclass = 'restaurant' and
    st_intersects(st_buffer(p1.geom, 100), p2.geom)
group by p1.gid
having
    count(*) >= 10
order by cnt desc, gid
```

Run

Save

Result (**11** rows)

☺ Correct! Well done!

masterexam010

1.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Za svaki hotel (pois.fclass, "hotel") koji ima definirano ime pronađite tri najbliža planinska vrha (nature.fclass, "peak"). Ime vrhunca može biti nepoznato.
Ispišite gid i naziv hotela, gid i naziv vrhunca, te udaljenost od hotela do vrhunca (zaokruženo na cijeli broj) i redni broj. Rezultate poredajte po nazivu hotela i rednom broju vrhunca.

Primjer rezultata:

	gid integer	hname character varying(100)	gid integer	pname character varying(100)	dist double precision	rn bigint
1	15988	Adriatic Beach	92	Golo Br.	1458	1
2	15988	Adriatic Beach	93	Andrijas	2578	2
3	15988	Adriatic Beach	100	Velika Kapela	2616	3
4	12113	ADRIATICQUEEN	1774		2744	1
5	12113	ADRIATICQUEEN	928	Telegrin	3660	2
6	12113	ADRIATICQUEEN	1048	Crkva "sv. Jure"	7454	3
7	12941	Adriatiq Resort Fontana	2098	Račić	1007	1
8	12941	Adriatiq Resort Fontana	950	Hum	4375	2
9	12941	Adriatiq Resort Fontana	945	Česminova glava	6158	3
10	4297	Alem	69	Umac	778	1
11	4297	Alem	68	Visoki Greben	1747	2

Find the three closest peaks (nature.fclass) for each hotel (pois.fclass) that has a name (peak can have an undefined name).
Print the gid and hotel name, gid and peak name, and distance from the hotel to the peak (rounded to the closest integer) and the peak's row number.
Order results by the hotel name and peak's row number (example above).

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```sql
with ranked_dist as (
    select
        pois.gid as gid,
        pois.name as hname,
        nature.gid as gid,
        nature.name as pname,
        round(st_distance(pois.geom, nature.geom)) as dist,
        rank() over(partition by pois.gid order by st_distance(pois.geom, nature.geom)) as rn
    from
        pois, nature
    where
        pois.fclass = 'hotel' and
        pois.name is not null and
        nature.fclass = 'peak'
    order by hname, rn
)
select * from ranked_dist where rn <= 3
```

Run | Save

Result (**402** rows) ☺ Correct! Well done! masterexam09

2.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Ispišite gid pruga kraćih od 20000m koje prolaze pokraj vinograda (landuse, "vineyard") na udaljenosti od 100m ili manje i broj vinograda.

Print out the gid of the railways shorter than 20000m, which pass near a vineyard (landuse, "vineyard") at a distance of 100m or less, and the number of such vineyards.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```
select
    railways.gid,
    count(*)
from
    railways, landuse
where
    landuse.fclass = 'vineyard' and
    st_intersects(st_buffer(landuse.geom, 100), railways.geom) and
    st_length(railways.geom) < 20000
group by railways.gid
```

Run

Save

Result (**23** rows)

☺ Correct! Well done!

masterexam05

#	gid	count
1	26	4
2	28	6
3	214	1

4.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Ispišite gid pruga koje prolaze kroz šumu i duljinu dijela pruge koji prolazi kroz šumu.
Duljinu zaokružite na cijeli broj.

Print out the gid of the railways that pass through a forest (landuse, "forest") and the length of the section that passes though the forest.
Round the length to the closest integer.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```
select
    railways.gid,
    round(st_length(st_intersection(railways.geom, landuse.geom)))
from
    railways, landuse
where
    landuse.fclass = 'forest' and
    st_intersects(railways.geom, landuse.geom)
```

Run

Save

Result (**1** rows)

☺ Correct! Well done!

masterexam06

#	gid	round
1	250	23

5.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Pretpostavite da želite saznati udaljenosti od vatrogasnih postaja do zaliha vode.

Za svaku zgradu koja u nazivu sadrži niz znakova "vatrog" ili "dvd" (bez obzira na velika ili mala slova) ispisati ime zgrade i udaljenost do vodenog objekta ili rijeka (water, "water", "river") i naziv tog vodenog objekta (mora biti definiran).
Zapise **poredajte** uzlazno prema nazivu postaje, (**nezaokruženoj**) udaljenosti i gid-u zgrade.
Udaljenost (ispisanu) zaokružite na cijeli broj.

Assume that you want to find out the distances between all fire department units and water reserves.

For each building that in its name contains string "vatrog" or "dvd" (regardless of lower-case or upper-case letters) print the name of the building, distance to the water object or river (water, "water", "river") and the name of that water object (must be defined).
Sort the results ascending by the fire department name, distance (**not rounded**), and gid of the building.
Round the (printed) distance to the closest integer.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```sql
select
    buildings.name bname,
    round(st_distance(buildings.geom, water.geom)) as dist,
    water.name as wname
from
    buildings, water
where
    (lower(buildings.name) like '%vatrog%' or lower(buildings.name) like '%dvd%') and
    water.fclass in ('water', 'river') and
    water.name is not null
order by bname, st_distance(buildings.geom, water.geom), buildings.gid


```

Run

Save

Result (**938** rows)

☺ Correct! Well done!

masterexam05

1.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Pretpostavite da za sve imenovane šume (landuse, "forest") kojima je najbliža vatrogasna postaja (buildings) udaljena manje od 5000m želite naći tu najbližu vatrogasnu postaju i udaljenost do nje.

Za svaku šumu koja ima definirano ime ispišite ime šume, ime najbliže zgrade koja u nazivu sadrži niz znakova "vatrog" ili "dvd" (bez obzira na velika ili mala slova) i udaljenost do nje. Udaljenost zaokružite na cijeli broj.

Primjer rezultata dan je ispod.

Suppose you want for each named forest (landuse, "forest") that has its closest fire department (buildings) within 5000m find its name, distance to that closest fire department unit and the unit's name.

For each forest that has a defined name print the name of the forest, name of the closest building that in its name contains string "vatrog" or "dvd" (regardless of lower-case or upper-case letters), and the distance between them.
Round the distance to the closest integer.

See result example below.

forest	dist	firedpt
Fangorn forest	1234	Misty Mountain Fire DPT
...	...	...

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```
select
    l1.name as forest,
    round(min(st_distance(l1.geom, b1.geom))) as dist,
    (
        select b2.name
        from buildings b2, landuse l2
        where
            l2.gid = l1.gid and
            (lower(b2.name) like '%vatrog%' or lower(b2.name) like '%dvd%')
        order by st_distance(l2.geom, b2.geom)
        limit 1
    ) as firedpt
from
    landuse l1, buildings b1
where
    l1.fclass = 'forest' and
    l1.name is not null and
    (lower(b1.name) like '%vatrog%' or lower(b1.name) like '%dvd%')
group by l1.gid
having min(st_distance(l1.geom, b1.geom)) < 5000
```

Run

Save

Result (**14** rows)

☺ Correct! Well done!

masterexam05

1.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Pronaći pet mjesta (places) koja su najviše izolirana (najviše udaljena od drugih mjesta).
Potrebno je ispisati gid, naziv mjesta i udaljenost do najbližeg mjesta.
Zapise poredati silazno s obzirom na udaljenost do najbližeg mjesta.

Find five most isolated places (most distant from other places) (DB table places). Print the gid, place name and distance to the nearest place. Sort the results in descending order with respect to the distance to the nearest place.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```sql
select
    p1.gid,
    p1.name,
    min(st_distance(p1.geom, p2.geom)) as dist
from
    places p1, places p2
where
    p1.gid <> p2.gid
group by p1.gid
order by dist desc
limit 5
```

Run

Save

Result (**5** rows)

☺ Correct! Well done!

masterexam010

#	gid	name	dist
1	3202	Selca kod Bogomolja	5662.305282401494
2	4930	Kasarna	5021.783957362706
3	1604	Otišić	4796.073014846262
4	4929	staje Đapić	4660.253311448242
5	2392	Kadijina bukva	4660.253311448242

1.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Kolika je udaljenost u metrima između Modrog i Crvenog jezera.
Zaokružite na cijeli broj.

What is the distance in meters between lakes Modro jezero and Crveno jezero.
Round the result to the closest integer.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```
select round(st_distance(w1.geom, w2.geom))
from
    water w1, water w2
where
    w1.name = 'Modro Jezero' and w2.name = 'Crveno jezero'
```

Run

Save

Result (1 rows)

☺ Correct! Well done!

masterexam06

#	round
1	867

3.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Za plaže (nature, "beach") koje u krugu od 300 metara imaju barem 3 kafića ili restorana (pois, "bar" i "restaurant") ispišite gid, ime plaže i ukupan broj kafića/restorana u krugu od 300 metara.

Primjer rezultata:

gid	name	count
123	Badestag	4
...	...	...

For each beach (nature, "beach") that has at least 3 bars or restaurants within a 300-meter radius (pois, "bar" or "restaurant"), print its gid, name and the total number of bars and restaurants within its 300-meter radius.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```
select
    nature.gid,
    nature.name,
    count(*)
from
    nature, pois
where
    nature.fclass = 'beach' and
    pois.fclass in ('bar', 'restaurant') and
    st_intersects(st_buffer(nature.geom, 300), pois.geom)
group by nature.gid
having count(*) >= 3
```

Run

Save

Result (**3** rows)

☺ Correct! Well done!

masterexam03

#	gid	name	count
1	2088	Ždrilca	4
2	31328	Badesteg	4
3	33069	Plaża Porat	5

2.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

Potrebno je pronaći pet najvećih zgrade koje se nalaze u krugu od jednog kilometra od Crvenog jezera, te za njih ispisati gid, udaljenost od jezera i površinu.
Za zgradu vrijedi da je "u krugu od..." samo ako je cijela zgrada sadržana u toj površini.
Sve vrijednosti zaokružiti na cijeli broj.

Find the five largest buildings within one kilometer of the Crveno jezero (Red lake), and print the gid, the distance from the lake and the building area.
A building is considered to be "within a radius of ..." only if the whole building is contained in the assigned surface.
Round the results to integers.

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

```sql
select
    buildings.gid,
    round(st_distance(buildings.geom, water.geom)) as dist,
    round(st_area(buildings.geom)) as area
from
    buildings, water
where
    water.name = 'Crveno jezero' and
    st_contains(st_buffer(water.geom, 1000), buildings.geom)
order by st_area(buildings.geom) desc
limit 5
```

Run

Save

Result (**5** rows)

☺ Correct! Well done!

masterexam02

#	gid	dist	area
1	389995	924	1163
2	392256	823	513
3	390749	917	510
4	390080	896	423
5	390070	875	405

3.

0.6pts Correct | 0 pts Unanswered | 0 pts Incorrect

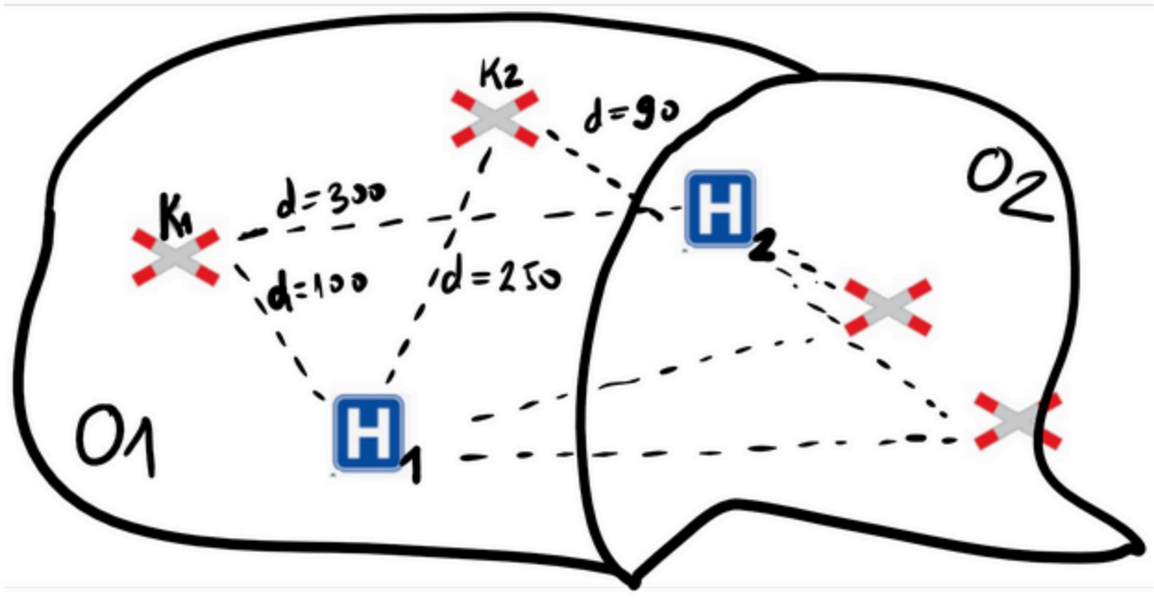
For each municipality (`muny.name_2`), we want to find out how far the intersections of roads (`roads`) and railways (`railways`) from that municipality are from the nearest hospital (`pois.fclass='hospital'`). In general, in a municipality, there may be several intersections of roads and railroads, and we want to find the "worst" of all of them, i.e., the one that is the furthest from the hospital.

Therefore, for each municipality, it is necessary to print the maximum and minimum distance of all intersections from that municipality to the hospital (the hospital does not have to be in that municipality). Round the distance to a whole number. It is not necessary to list municipalities that do not have intersections.

Let's further clarify the "maximum minimum distance" on the example in the image below, which shows two municipalities O1 and O2, with two intersections in each. Let's comment only on municipality O1:

- for each intersection, we determine the **minimum** distance to the hospital (which does not have to be in that municipality). For K1 it is min (300, 100) = 100, and for K2 it is min (250, 90) = 90.
- for the municipality O1, we determine the **maximum** minimum distance, i.e. max(100, 90) = 100 which corresponds to the "worst" intersection of K1

So for O1 it is necessary to print 100.



Example result:

name_2	distance
Blaca	123
Kaštela	456
Salt	789
...	...

Help (query processing speed):

- roads and railways contain only municipalities in the Split-Dalmatia County, so you can consider that the task only applies to those municipalities
- muny contains municipalities from all over Croatia - think about whether you need municipalities from all over Croatia in your query (if it's slow)?
- can you further reduce them to exclude, for example, island municipalities that do not have railroads?

Check column mode: 4. PERMISSIVE: try 3 (to match by names); if not - try 2 (use column order).

Run
Save

```sql
WITH crossings AS (
    SELECT
        muny.name_2 AS municipality,
        ST_Centroid(ST_Intersection(roads.geom, railways.geom)) AS crossing_geom
    FROM
        roads
    INNER JOIN railways ON ST_Intersects(roads.geom, railways.geom)
    INNER JOIN muny ON ST_Contains(muny.geom, ST_Intersection(roads.geom, railways.geom))
),
min_distances AS (
    SELECT
        c.municipality,
        c.crossing_geom,
        MIN(ST_Distance(c.crossing_geom, pois.geom)) AS distance_to_nearest_hospital
    FROM
        crossings c,
        pois
    WHERE pois.fclass = 'hospital'
    GROUP BY c.municipality, c.crossing_geom
),
max_min_distances AS (
    SELECT
        municipality,
        MAX(distance_to_nearest_hospital) AS max_min_distance
    FROM
        min_distances
    GROUP BY municipality
)
SELECT
    municipality AS name_2,
    ROUND(max_min_distance) AS distance
FROM
    max_min_distances
ORDER BY
    municipality;
```

Result (**6** rows)

☺ Correct! Well done!

masterexam01

#	name_2	distance
1	Blaca	3906
2	Kaštela	5633
3	Prgomet	22332
4	Primorski Dolac	20135
5	Solin	2955
6	Split	2821