Priloženom skriptom možete kreirati tablice (sa sadržajem) koje se koriste u ovim vježbama

### Pri rješavanju zadataka koristiti sljedeći model

### airPort

airPortId	airPortName	kmToTheCity
INTEGER	VARCHAR(30)	INTEGER
100	Zračna luka Split	25
101	Charles de Gaule	23
102	Heathrow	23
103	JFK Airport	21
104	Schönefeld Airport	17

### person

personId	LName	FName	birthDate
INTEGER	VARCHAR(30)	VARCHAR(30)	DATE
100	Han	Ana	01.05.2000
101	Kos	Filip	20.08.1995
457	Car	Pero	11.03.1980
458	Beg	Ema	21.12.1976

### flight

flightld	airPortFromId	airPortTold	departureTS	flightDuration
INTEGER	INTEGER	INTEGER	TIMESTAMP	INTERVAL
300	100	102	04.03.2022 08:30:00	02:35:00
301	102	100	05.03.2021 21:15:00	02:50:00
350	100	102	16.07.2021 08:30:00	02:35:00
351	102	100	17.07.2021 21:15:00	02:50:00
400	100	101	07.08.2021 11:20:00	02:05:00
•••				•••

### passenger

flightld INTEGER	personId INTEGER	seat VARCHAR(5)	ticketPrice NUMERIC(7,2)	airPortFee NUMERIC(7,2)	rewardMiles INTEGER
300	100	2A	1570.50	950.99	500
300	101	23C	1470.50	950.99	520
300	457	12D	1000.20	950.99	480
301	100	14F	1770.70	850.99	400
•••					

airPort				flight					
airPortId INTEGER	airPortName VARCHAR(30)	kmToTheO INTEGER	ity	flightld INTEGER	airPortFror	airPortTo			flightDuration INTERVAL
100	Zračna luka S	Split 12		300	100	102	04.03.202	2 08:30:00	02:35:00
person passenger									
personId	LName	FName	birthDate	flightld	personId	seat	ticketPrice	airPortFee	rewardMile
INTEGER	VARCHAR(30)	VARCHAR(30)	DATE	INTEGER	INTEGER	VARCHAR(5)	NUMERIC(7,2)	NUMERIC(7,	2) INTEGER
100	Han	Ana	01.05.2000	300	100	2A	1570.50	950.99	500

Za putnike koji su ili će tek letjeti u tekućoj godini ispisati prezime, ime, datum rođenja, rođendan tekuće godine (birthDayCY), današnji datum i broj dana od današnjeg datuma do rođendana tekuće godine (untilBirthDay).

LName	FName	birthDate	birthDateCY	TODAY	untilBirthDay
character varying (30)	character varying (30)	DATE	DATE		INTERVAL
Car	Pero	11.03.1980	11.03.2022	22.03.2022	-11 days
Han	Ana	01.05.2000	01.05.2022	22.03.2022	40 days
Kos	Filip	20.08.1995	20.08.2022	22.03.2022	151 days

Za putnike koji su ili će tek letjeti u tekućoj godini ispisati prezime, ime, datum rođenja, rođendan tekuće godine (birthDayCY), današnji datum i broj dana od današnjeg datuma do rođendana tekuće godine (untilBirthDay).

LName	FName	birthDate	birthDateCY	TODAY	untilBirthDay
character varying (30)	character varying (30)	DATE	DATE		INTERVAL
Car	Pero	11.03.1980	11.03.1980	22.03.2022	-11 days
Han	Ana	01.05.2000	01.05.2000	22.03.2022	40 days
Kos	Filip	20.08.1995	20.08.1995	22.03.2022	151 days

airPort				flight					
airPortId INTEGER	airPortName VARCHAR(30)	kmToTheC INTEGER	ity	flightld INTEGER	airPortFror	airPortTo	departureTS		flightDuration INTERVAL
100	Zračna luka S	plit 12		300	100	102	04.03.202	2 08:30:00	02:35:00
person passenger									
personId	LName	FName	birthDate	flightld	personId	seat	ticketPrice	airPortFee	rewardMiles
INTEGER	VARCHAR(30)	VARCHAR(30)	DATE	INTEGER	INTEGER	VARCHAR(5)	NUMERIC(7,2)	NUMERIC(7,2	2) INTEGER
100	Han	Ana	01.05.2000	300	100	2A	1570.50	950.99	500

Za letove kojima je polazišna zračna luka Zračna luka Split (airPortFromId = 100) s polaskom barem 10 dana nakon današnjeg dana između 8 i 20 sati ispisati naziv odredišne zračne luke, datum i vrijeme polaska te datum i vrijeme dolaska na odredište.

airPortName character varying (30)	departureTS TIMESTAMP	arriwalTS TIMESTAMP
Heathrow	15.05.2022 09:20:0	15.05.2022 11:35:00
Charles de Gaule	14.08.2022 12:30:00	14.08.2022 14:25:00
Schönefeld Airport	16.04.2022 10:30:00	16.04.2022 12:05:00
Schönefeld Airport	12.05.2022 19:55:00	12.05.2022 21:45:00

Za letove kojima je polazišna zračna luka Zračna luka Split (airPortFromId = 100) s polaskom barem 10 dana nakon današnjeg dana između 8 i 20 sati ispisati naziv odredišne zračne luke, datum i vrijeme polaska te datum i vrijeme dolaska na odredište.

```
SET DateStyle ='German';
SELECT airPortName, departureTS, departureTS + flightDuration datVrijDolazak
  FROM flight
  JOIN airPort ON airPortToId = airPortId
  WHERE airPortFromId = 100
   AND departureTS >= CURRENT_DATE + '10 DAYS'::INTERVAL
  AND departureTS::TIME >= '8 h'::INTERVAL
  AND departureTS::TIME <= '20 h'::INTERVAL</pre>
```

airPortName character varying (30)	departureTS TIMESTAMP	arriwalTS TIMESTAMP
Heathrow	15.05.2022 09:20:0	15.05.2022 11:35:00
Charles de Gaule	14.08.2022 12:30:00	14.08.2022 14:25:00
Schönefeld Airport	16.04.2022 10:30:00	16.04.2022 12:05:00
Schönefeld Airport	12.05.2022 19:55:00	12.05.2022 21:45:00

airPort				flight					
airPortId INTEGER	airPortName VARCHAR(30)	kmToTheO INTEGER	ity	flightld INTEGER	airPortFror	mld airPortTo			flightDuration INTERVAL
100	Zračna luka S	Split 12		300	100	102	04.03.202	2 08:30:00	02:35:00
person passenger									
personId	LName	FName	birthDate	flightld	personId	seat	ticketPrice	airPortFee	rewardMiles
INTEGER	VARCHAR(30)	VARCHAR(30)	DATE	INTEGER	INTEGER	VARCHAR(5)	NUMERIC(7,2)	NUMERIC(7,	2) INTEGER
100	Han	Ana	01.05.2000	300	100	2A	1570.50	950.99	500

Za putnike koji su sjedili na sjedalima uz prozor (označena slovima A ili F), a letjeli su (unatrag) mjesec dana od od današnjeg dana, ispisati imena i prezimena, datum polaska, vrijeme polaska (odvojeno od datuma), te sjedalo na kojem su sjedili. Pored imena i prezimena putnika ispisati i inicijale. Npr. za osobu Ana Han ispisati: Ana Han, (A. H.).

passenger Text	departureDate DATE	departureTS TIME without time zone	Seat Character varying(5)
Ana Han, (A. H.)	04.03.2022	08:30:00	2A
Ana Han, (A. H.)	05.03.2022	21:15:00	14F
Pero Car, (P. C.)	05.03.2022	21:15:00	11A

Za putnike koji su sjedili na sjedalima uz prozor (označena slovima A ili F), a letjeli su (unatrag) mjesec dana od od današnjeg dana, ispisati imena i prezimena, datum polaska, vrijeme polaska (odvojeno od datuma), te sjedalo na kojem su sjedili. Pored imena i prezimena putnika ispisati i inicijale. Npr. za osobu Ana Han ispisati: Ana Han, (A. H.).

```
SELECT FName || ' ' || LName || ', (' ||

SUBSTRING (FName FROM 1 FOR 1) || '. '||

SUBSTRING (LName FROM 1 FOR 1) || '.)' passenger,

departureTs::DATE departureDate,

departureTs::TIME(0) departureTime,

seat

FROM person

NATURAL JOIN passenger

NATURAL JOIN flight

WHERE (seat LIKE '%A' OR seat LIKE '%F')

AND departureTS BETWEEN CURRENT_DATE - '1 MONTH'::INTERVAL AND CURRENT_DATE
```

passenger Text	departureDate DATE	departureTS TIME without time zone	Seat Character varying(5)
Ana Han, (A. H.)	04.03.2022	08:30:00	2A
Ana Han, (A. H.)	05.03.2022	21:15:00	14F
Pero Car, (P. C.)	05.03.2022	21:15:00	11A

airPort				flight					
airPortId INTEGER	airPortName VARCHAR(30)	kmToThe0 INTEGER	ity	flightld INTEGER	airPortFron	airPortTol	d departureT		flightDuration INTERVAL
100	Zračna luka S	Split 12		300	100	102	04.03.202	04.03.2022 08:30:00	
person				passenç	ger				
personId	LName	FName	birthDate	flightld	personId	seat	ticketPrice	airPortFee	rewardMile
INTEGER	VARCHAR(30)	VARCHAR(30)	DATE	INTEGER	INTEGER	VARCHAR(5)	NUMERIC(7,2)	NUMERIC(7,	2) INTEGER
100	Han	Ana	01.05.2000	300	100	2A	1570.50	950.99	500

Za letove s trajanjem duljim od 120 minuta ispisati naziv zračne luke polaska i dolaska, trajanje leta, datum i vrijeme polaska te oznaku kvartala u godini i doba dana kojem pripada datum odnosno vrijeme polaska.

Kvartal kojem pripada mjesec u godini odredite prema sljedećem pravilu:

 $\{1, 2, 3\} \in Q1; \{4, 5, 6\} \in Q2; \{7, 8, 9\} \in Q3; \{10, 11, 12\} \in Q4;$ 

Doba dana odredite prema satu prema sljedećem pravilu:

'Night' = 0-5; 'Morning' = 6-9; 'Forenoon' = 10-12; 'Afternoon' = 13-17; 'Evening' = 18-23

departure character varying (30)	arrival character varying (30)	flightDuration interval	departureTS Timestamp without time zone	quarter text	dayPart text
Zračna luka Split	Heathrow	02:35:00	04.03.2022 08:30:00	Q1	Morning
		•••			

Za letove s trajanjem duljim od 120 minuta ispisati naziv zračne luke polaska i dolaska, trajanje leta, datum i vrijeme polaska te oznaku kvartala u godini i doba dana kojem pripada datum odnosno vrijeme polaska.

```
SELECT airPortFrom.airPortName departure, airPortTo.airPortName arrival, flightDuration,
departureTS,
      CASE
          WHEN EXTRACT (MONTH FROM departureTS) IN (1,2,3) THEN 'Q1'
          WHEN EXTRACT (MONTH FROM departureTS) IN (4,5,6) THEN 'Q2'
          WHEN EXTRACT (MONTH FROM departureTS) IN (7,8,9) THEN 'Q3'
          WHEN EXTRACT (MONTH FROM departureTS) IN (10,11,12) THEN 'Q4'
      END quarter,
      CASE
         WHEN departureTS::TIME BETWEEN '0:00' AND '5:59:59' THEN 'Night'
         WHEN departureTS::TIME
                                  BETWEEN '6:00' AND '9:59:59' THEN 'Morning'
         WHEN departureTS::TIME BETWEEN '10:00' AND '12:59:59' THEN 'Forenoon'
         WHEN departureTS::TIME BETWEEN '13:00' AND '17:59:59' THEN 'Afternoon'
         WHEN departureTS::TIME
                                 BETWEEN '18:00' AND '23:59:59' THEN 'Evening'
      END dayPart
FROM flight
     JOIN airPort airPortFrom
            ON airPortFrom.airPortId = flight.airPortFromId
    JOIN airPort airPortTo
            ON airPortTo.airPortId = flight.airPortToId
WHERE flightDuration >= '120 M'
Rezultat:
```

departure character varying (30)	arrival character varying (30)	flightDuration interval	departureTS Timestamp without time zone	quarter text	dayPart text
Zračna luka Split	Heathrow	02:35:00	04.03.2022 08:30:00	Q1	Morning

airPort				flight					
airPortId INTEGER	airPortName VARCHAR(30)	kmToTheC INTEGER	ity	flightld INTEGER	airPortFror	nld airPortTo			flightDuration INTERVAL
100	Zračna luka S	Split 12		300	100	102	04.03.202	04.03.2022 08:30:00	
person				passenç	ger				
personId	LName	FName	birthDate	flightld	personId	seat	ticketPrice	airPortFee	rewardMiles
INTEGER	VARCHAR(30)	VARCHAR(30)	DATE	INTEGER	INTEGER	VARCHAR(5)	NUMERIC(7,2)	NUMERIC(7,2	2) INTEGER
100	Han	Ana	01.05.2000	300	100	2A	1570.50	950.99	500

Za svaki let ispisati šifru leta, naziv polazne i dolazne zračne luke, datum i vrijeme polijetanja te datum i vrijeme slijetanja, ukupan broj prodanih karata i ukupan iznos zarađen od prodanih karata. Pristojbe ne treba uzeti u obzir. Smatrati da je za svaki let evidentirana polazna i dolazna zračna luka.

A	flightid integer		airportname character varying (30)	airportname character varying (30)	departuredate date	•	departuretime time without time zone	100	arrivaldate date	arrivaltime time without time zone	ukkarata bigint	•	ukiznoskarta numeric
1	40	1	Charles de Gaule	Zračna luka Split	06.08.2021		13:05:00		06.08.2021	15:20:00		3	8572.97
2	35	0	Zračna luka Split	Heathrow	16.07.2021		08:30:00		16.07.2021	11:05:00		2	7181.98
3	30	0	Zračna luka Split	Heathrow	04.03.2022		08:30:00		04.03.2022	11:05:00		3	4041.20
4	45	0	Zračna luka Split	Schönefeld Airport	16.04.2022		10:30:00		16.04.2022	12:05:00		3	4179.00
5	40	0	Zračna luka Split	Charles de Gaule	07.08.2021		11:20:00		07.08.2021	13:25:00		3	13281.97
6	45	1	Schönefeld Airport	Zračna luka Split	17.04.2022		08:30:00		17.04.2022	09:55:00		3	3700.97
7	35	1	Heathrow	Zračna luka Split	17.07.2021		21:15:00		18.07.2021	00:05:00		2	12381.98
8	30	a l	Heathrow	Zračna luka Split	05.03.2022		21:15:00		06.03.2022	00:05:00		3	5332.10

Za svaki let ispisati šifru leta, naziv polazne i dolazne zračne luke, datum i vrijeme polijetanja te datum i vrijeme slijetanja, ukupan broj prodanih karata i ukupan iznos zarađen od prodanih karata. Pristojbe ne treba uzeti u obzir. Smatrati da je za svaki let evidentirana polazna i dolazna zračna luka.

```
SELECT flight.flightId,
      airPortFrom.airPortName,
       airPortTo.airPortName,
       departureTS::DATE departureDate,
       departureTS::TIME(0) departureTime,
       (departureTS+flight.flightDuration)::DATE arrivalDate,
       (departureTS+flight.flightDuration)::TIME(0) arrivalTime,
      COUNT (passenger.personId)
                                    ukKarata.
      SUM(passenger.ticketPrice) ukIznosKarta
 FROM flight
    JOIN airPort airPortFrom
           ON airPortFrom.airPortId = flight.airPortFromId
    JOIN airPort airPortTo
           ON airPortTo.airPortId = flight.airPortToId
   NATURAL JOIN passenger
 GROUP BY flight.flightId,
           airPortFrom.airPortName,
           airPortTo.airPortName,
           departureDate, departureTime,
           arrivalDate, arrivalTime
```

airPort				flight					
airPortId INTEGER	airPortName VARCHAR(30)	kmToTheO INTEGER	city	flightld INTEGER	airPortFron	nld airPortTo			flightDuration NTERVAL
100	Zračna luka S	Split 12		300	100	102	04.03.202	2 08:30:00	02:35:00
person				passeng	ger				
personId	LName	FName	birthDate	flightld	personId	seat	ticketPrice	airPortFee	rewardMile
INTEGER	VARCHAR(30)	VARCHAR(30)	DATE	INTEGER	INTEGER	VARCHAR(5)	NUMERIC(7,2)	NUMERIC(7,2	) INTEGER
100	Han	Ana	01.05.2000	300	100	2A	1570.50	950.99	500

Ispisati šifru, ime i prezime putnika, ukupan iznos kojeg je taj putnik potrošio na avionske karte i pristojbe zračnim lukama i ukupan iznos zarađenih nagradnih milja. U obzir uzeti samo letove u srpnju i kolovozu. Ukupan zarađeni iznos zaokružiti na 1 decimalu.

sifosoba integer		prezime character varying(30)		uknagmilje bigint
100	Ana	Han	20697.9	1900
101	Filip	Kos	21297.9	2100
457	Pero	Car	8593.0	1100

Ispisati šifru, ime i prezime putnika, ukupan iznos kojeg je taj putnik potrošio na avionske karte i pristojbe zračnim lukama i ukupan iznos zarađenih nagradnih milja. U obzir uzeti samo letove u srpnju i kolovozu.

Ukupan zarađeni iznos zaokružiti na 1 decimalu.

sifosoba integer		prezime character varying(30)		uknagmilje bigint
100	Ana	Han	20697.9	1900
101	Filip	Kos	21297.9	2100
457	Pero	Car	8593.0	1100

airPort				flight					
airPortId INTEGER	airPortName VARCHAR(30)	kmToTheO INTEGER	ity	flightld INTEGER	airPortFror	airPortTo	d departureTS		flightDuration INTERVAL
100	Zračna luka S	plit 12		300	100	102	04.03.202	04.03.2022 08:30:00	
person				passenç	ger				
personId	LName	FName	birthDate	flightld	personId	seat	ticketPrice	airPortFee	rewardMile
INTEGER	VARCHAR(30)	VARCHAR(30)	DATE	INTEGER	INTEGER	VARCHAR(5)	NUMERIC(7,2)	NUMERIC(7,	2) INTEGER
100	Han	Ana	01.05.2000	300	100	2A	1570.50	950.99	500

Za zračne luke, udaljene od grada kojem gravitiraju manje od 30 km, ispisati naziv zračne luke, ukupan broj letova kojima je ona bila odredišna ili polazišna i ukupan iznos zračnih pristojbi u zadnjih 6 mjeseci. Smatrati da jednoj (od dvije) zračne luke leta pripada polovica pristojbi.

Ako iz zračne luke nije bilo letova u zadnjih pola godine ispisati za ukupan iznos pristojbi vrijednost 0.

Zapise poredati po iznosu pristojbe silazno, pa po nazivu zračne luke uzlazno.

Rezultat:	nazivzrluka character varying(30)	brletova bigint	ukpristojba numeric
	Heathrow	2	1351.48500000000000000
	Pleso	2	1351.48500000000000000
	Charles de Gaule	0	0
	JFK Airport	0	0
	Schönefeld Airport	0	0

ORDER BY ukPristojba DESC, airPortName

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Za zračne luke, udaljene od grada kojem gravitiraju manje od 30 km, ispisati naziv zračne luke, ukupan broj letova kojima je ona bila odredišna ili polazišna i ukupan iznos zračnih pristojbi u zadnjih 6 mjeseci. Smatrati da jednoj (od dvije) zračne luke leta pripada polovica pristojbi.

Ako iz zračne luke nije bilo letova u zadnjih pola godine ispisati za ukupan iznos pristojbi vrijednost 0.

Zapise poredati po iznosu pristojbe silazno, pa po nazivu zračne luke uzlazno.

```
SELECT airPortName,
      COUNT (DISTINCT let.flightId) brLetova,
      SUM(CASE WHEN airPortFee IS NULL THEN 0
                ELSE airPortFee/2
           END) ukPristojba
  FROM airPort
  LEFT JOIN let ON (airPort.airPortId = let.airPortFromId OR
                     airPort.airPortId = let.airPortToId) AND
                     departureTS BETWEEN CURRENT DATE - '6 MONTHS'::INTERVAL
                                          AND CURRENT DATE
  LEFT JOIN passenger USING (flightId)
                                               Rezultat:
                                                          nazivzrluka
  WHERE kmToTheCity < 30
                                                                       brletova ukpristojba
                                                          character varying(30) bigint
                                                                            numeric
  GROUP BY airPortName
                                                          Heathrow
                                                                           2 1351.48500000000000000
```

Baze podataka 2021./2022.

Pleso

Charles de Gaule

Schönefeld Airport

JFK Airport

2 1351.48500000000000000

LEFT JOIN passenger USING (flightId)
WHERE kmToTheCity < 30
GROUP BY airPortName
ORDER BY ukPristojba DESC, airPortName

nazivzrluka character varying(30)		ukpristojba numeric		
Heathrow	6	1351.48500000000000000		
Pleso	6	1351.48500000000000000		
Charles de Gaule	1	0		
JFK Airport	1	0		
Schönefeld Airport	1	0		

#### Ne.

- COUNT(\*) broji n-torke pa će u ovom slučaju imati 1 za rezultat i kada nije bilo letova iz/u tu zračnu luku.
- COUNT(airPortName) broji NOT NULL vrijednosti atributa airPortName, a on je NOT NULL bez obzira postoji li let iz/u tu zračnu luku ili ne.

airPort				flight							
airPortId INTEGER	airPortName kmToTheCity VARCHAR(30) INTEGER		ity	flightld INTEGER	airPortFror	airPortTo	d departureTS TIMESTAMP		flightDuration INTERVAL		
100	Zračna luka S	plit 12		300	100	102	04.03.202	04.03.2022 08:30:00			
person	passenger										
personId	LName	FName	birthDate	flightld	personId	seat	ticketPrice	airPortFee	rewardMiles		
INTEGER	VARCHAR(30)	VARCHAR(30)	DATE	INTEGER	INTEGER	VARCHAR(5)	NUMERIC(7,2)	NUMERIC(7,	2) INTEGER		
100	Han	Ana	01.05.2000	300	100	2A	1570.50	950.99	500		

# Napišite upit kojim bi se vidjelo bi li avio kompanija više zaradila od prodaje karata

- prema trenutnom modelu prodaje ili
- prema modelu u kojem bi letovi vikendom (subota i nedjelja) karte bile 15% jeftinije, uz pretpostavku da bi tada prodali 10% više karata

```
SELECT SUM(ticketPrice),

ROUND(SUM(CASE WHEN EXTRACT (DOW FROM departureTS) IN (6, 0)

THEN ticketPrice*0.85

ELSE ticketPrice

END), 2)*1.08 ukIznos

FROM passenger

JOIN let USING (flightId)

WHERE EXTRACT (DOW FROM departureTS) IN (6, 0)
```