

Part A: SQL using PostgreSQL Server

a)

Results		Messages			
	Distinct_Aircrafts	Total_num_of_flights	Minimum_Departure_Delay	Maximum_Departure_Delay	Average_Departure_Delay
1	4402	478000	-48	1988	9

b)

Results		Messages			
	Date	Iata_Code	ORIGIN_AIRPORT	Address	Total_number_Of_Flights
1	2015-1-1	YUM	YUM	Yuma AZ USA	6
2	2015-1-2	YUM	YUM	Yuma AZ USA	6
3	2015-1-3	YUM	YUM	Yuma AZ USA	5
4	2015-1-4	YUM	YUM	Yuma AZ USA	6
5	2015-1-5	YUM	YUM	Yuma AZ USA	6
6	2015-1-6	YUM	YUM	Yuma AZ USA	5
7	2015-1-7	YUM	YUM	Yuma AZ USA	6
8	2015-1-2	YAK	YAK	Yakutat AK USA	2
9	2015-1-3	YAK	YAK	Yakutat AK USA	2
10	2015-1-4	YAK	YAK	Yakutat AK USA	2
11	2015-1-5	YAK	YAK	Yakutat AK USA	2
12	2015-1-6	YAK	YAK	Yakutat AK USA	2
13	2015-1-7	YAK	YAK	Yakutat AK USA	2
14	2015-1-1	XNA	XNA	Fayetteville/Springdale/Rogers AR USA	18

c)

Results		Messages	
	ORIGIN_AIRPORT	DESTINATION_AIRPORT	rank
1	ABE	ORD	3
2	ABE	ATL	2
3	ABE	DTW	1
4	ABI	DFW	1
5	ABQ	DAL	3
6	ABQ	LAX	2
7	ABQ	PHX	1
8	ABR	MSP	1
9	ABY	ATL	1
10	ACT	DFW	1
11	ACV	SFO	1
12	ACY	RSW	3
13	ACY	FLL	1
14	ACY	MCO	1

d)

Results		Messages								
	IATA_CODE	AIRPORT	IATA_CODE	AIRLINE	FLIGHT_NUMBER	TAIL_NUMBER	ORIGIN_AIRPORT	DESTINATION_AIRPORT	DEPARTURE_TIME	ARRIVAL_TIME
1	ANC	Ted Stevens Anchorage International Airport	DL	Delta Air Lines Inc.	1560	N3733Z	ANC	SEA	0038	0456
2	ANC	Ted Stevens Anchorage International Airport	AS	Alaska Airlines Inc.	98	N705AS	ANC	SEA	2359	0452
3	ANC	Ted Stevens Anchorage International Airport	DL	Delta Air Lines Inc.	1560	N375DA	ANC	SEA	0038	0437
4	ANC	Ted Stevens Anchorage International Airport	AS	Alaska Airlines Inc.	122	N457AS	ANC	PDX	0046	0451
5	IAG	Niagara Falls International Airport	NK	Spirit Air Lines	647	N620NK	IAG	FLL	0147	0442
6	ANC	Ted Stevens Anchorage International Airport	AS	Alaska Airlines Inc.	98	N435AS	ANC	SEA	2350	0406
7	ANC	Ted Stevens Anchorage International Airport	AS	Alaska Airlines Inc.	108	N442AS	ANC	SEA	0031	0456
8	SNA	John Wayne Airport (Orange County Airport)	UA	United Air Lines Inc.	1660	N29717	SNA	EWR	2104	0450
9	ANC	Ted Stevens Anchorage International Airport	AS	Alaska Airlines Inc.	98	N767AS	ANC	SEA	0007	0428
10	ANC	Ted Stevens Anchorage International Airport	AS	Alaska Airlines Inc.	108	N546AS	ANC	SEA	0040	0457
11	ANC	Ted Stevens Anchorage International Airport	AS	Alaska Airlines Inc.	98	N317AS	ANC	SEA	0041	0449
12	ANC	Ted Stevens Anchorage International Airport	DL	Delta Air Lines Inc.	1560	N3741S	ANC	SEA	0033	0432
13	SNA	John Wayne Airport (Orange County Airport)	UA	United Air Lines Inc.	1660	N23707	SNA	EWR	2110	0500
14	ANC	Ted Stevens Anchorage International Airport	DL	Delta Air Lines Inc.	1560	N3731T	ANC	SEA	0036	0437
15	ANC	Ted Stevens Anchorage International Airport	AS	Alaska Airlines Inc.	108	N531AS	ANC	SEA	0040	0457

e)

Results		Messages			
	total_count	JFK_total_count	JFK_over_total	JFK_over_NY	
1	478000	8600	1.79916317900	31.74603174600	

f)

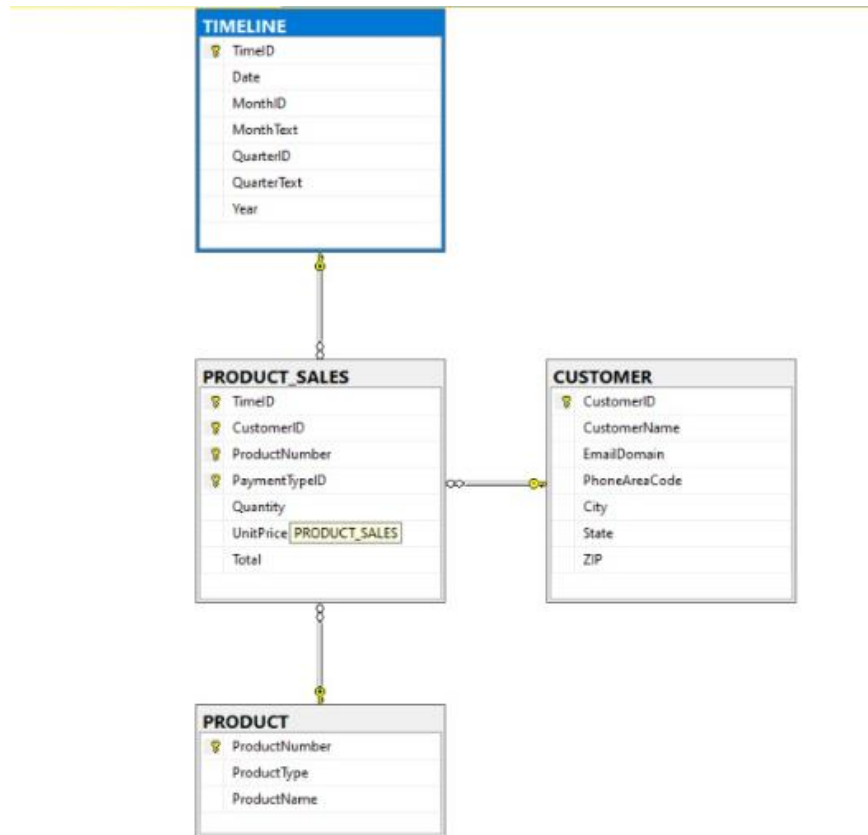
Results		Messages								
	_record_number	YEAR	MONTH	DAY	DAY_OF_WEEK	AIRLINE	FLIGHT_NUMBER	CANCELLED	TAIL_NUMBER	ORIGIN_AIRPORT
1	41192	2015	1	3	6	HA	50	1	N396HA	HNL
2	41967	2015	1	3	6	DL	1059	1	N827MH	HNL
3	61693	2015	1	4	7	UA	14	1	N76064	HNL
4	78311	2015	1	5	1	UA	14	1	N67058	HNL
5	137792	2015	1	9	5	DL	1059	1	N194DN	HNL
6	153925	2015	1	10	6	UA	14	1	N76064	HNL
7	168445	2015	1	11	7	UA	14	1	N69059	HNL
8	184422	2015	1	12	1	UA	14	1	N77066	HNL
9	195594	2015	1	13	2	HA	50	1	N380HA	HNL
10	210866	2015	1	14	3	HA	50	1	N390HA	HNL
11	247159	2015	1	16	5	UA	14	1	N69063	HNL
12	409887	2015	1	27	2	UA	14	1	N78060	HNL
13	9395	2015	1	1	4	HA	50	1	N390HA	HNL
14	105128	2015	1	7	3	HA	50	1	N380HA	HNL
15	105965	2015	1	7	3	DL	1059	1	N197DN	HNL

g)

Results		Messages		
	iata_code	airline	delay_category	total_delays
1	ATL	DL	Small Delay	4664
2	DFW	AA	Small Delay	3615
3	MDW	WN	Small Delay	2221
4	IAH	UA	Small Delay	2144
5	LAS	WN	Small Delay	2053
6	CLT	US	Small Delay	1981
7	PHX	WN	Small Delay	1920
8	BWI	WN	Small Delay	1832
9	DEN	WN	Small Delay	1758
10	DFW	MQ	Small Delay	1754
11	DEN	UA	Small Delay	1743
12	DAL	WN	Small Delay	1633
13	ORD	UA	Small Delay	1612
14	EWR	UA	Small Delay	1551
15	HOU	WN	Small Delay	1297
16	ORD	MQ	Small Delay	1249
17	SFO	UA	Small Delay	1232
18	LAX	WN	Small Delay	1202
19	MIA	AA	Small Delay	1200

Part B: Data Warehousing & OLAP

1)



2) a-

Results					Messages				
	CustomerName	CustomerID	Quantities	TotalPrice					
1	Jacobs, Nancy	1	3	47.89					
2	Able, Ralph	3	1	24.95					
3	Baker, Susan	4	3	64.85					
4	Eagleton, Sam	5	3	47.89					
5	Foxtrot, Kathy	6	5	94.79					
6	George, Sally	7	4	94.80					
7	Hullett, Shawn	8	3	54.89					
8	Pearson, Bobbi	9	5	70.83					
9	Tyler, Jenny	11	6	109.78					

b-

Results Messages			
	CustomerName	CustomerID	AverageOrder
1	George, Sally	7	23.950000
2	Tyler, Jenny	11	31.132000

c-

Results Messages							
	CustomerID	CustomerName	ProductNumber	ProductName	Date	EndDate	Days_between_Product_Sales
1	1	Jacobs, Nancy	BK001	Kitchen Remodeling Basics For Everyone	2018-04-08	NULL	NULL
2	1	Jacobs, Nancy	VB001	Kitchen Remodeling Basics	2018-04-08	2018-04-08	0
3	1	Jacobs, Nancy	VK001	Kitchen Remodeling Basics	2018-04-08	2018-04-08	0
4	3	Able, Ralph	VB001	Kitchen Remodeling Basics	2017-10-15	NULL	NULL
5	3	Able, Ralph	VK001	Kitchen Remodeling Basics	2017-10-15	2017-10-15	0
6	3	Able, Ralph	BK001	Kitchen Remodeling Basics For Everyone	2018-04-23	2017-10-15	190
7	3	Able, Ralph	BK002	Advanced Kitchen Remodeling For Everyone	2018-06-05	2018-04-23	43
8	3	Able, Ralph	VB001	Kitchen Remodeling Basics	2018-06-05	2018-06-05	0
9	3	Able, Ralph	VB002	Advanced Kitchen Remodeling I	2018-06-05	2018-06-05	0
10	3	Able, Ralph	VK001	Kitchen Remodeling Basics	2018-06-05	2018-06-05	0
11	3	Able, Ralph	VK002	Advanced Kitchen Remodeling	2018-06-05	2018-06-05	0
12	4	Baker, Susan	BK001	Kitchen Remodeling Basics For Everyone	2017-10-25	NULL	NULL
13	4	Baker, Susan	VB001	Kitchen Remodeling Basics	2017-10-25	2017-10-25	0
14	4	Baker, Susan	VK001	Kitchen Remodeling Basics	2017-10-25	2017-10-25	0
15	4	Baker, Susan	BK002	Advanced Kitchen Remodeling For Everyone	2018-03-25	2017-10-25	151
16	4	Baker, Susan	VK002	Advanced Kitchen Remodeling	2018-03-25	2018-03-25	0
17	4	Baker, Susan	VK004	Heather Sweeney Seminar Live in Dallas on 25-OCT...	2018-03-25	2018-03-25	0
18	5	Eagleton, Sam	BK001	Kitchen Remodeling Basics For Everyone	2018-04-08	NULL	NULL
19	5	Eagleton, Sam	VB001	Kitchen Remodeling Basics	2018-04-08	2018-04-08	0
20	5	Eagleton, Sam	VK001	Kitchen Remodeling Basics	2018-04-08	2018-04-08	0

d-

Results Messages			
	Year	Quarter	TotalSales
1	2018	1	302.33
2	2018	2	542.78
3	2017	4	95.78

3) a-

```
> two_years["Two Year",,]  
      Internet.Type  
offer      Cable      DSL Fiber optic  
None      554678.24 1235674.43 2075682.41  
offer A 349750.71 720759.09 1474862.52  
offer B 164188.21 362671.78 473681.65  
offer C 10360.26 34148.92 80196.94  
offer D 5443.22 5592.51 22464.25  
offer E 1684.86 3019.54 6134.10
```

b-

```
> total_offers/ total_B_for_churned * 100  
[1] 0.4511609
```