MCDA 5540

Assignment 1

Jiye Wang

A00426401

Index

Question 1

(a)Solution

```
select sname, city
from s
inner join sp on s.sno = sp.sno
where pno = 3;
```

(a)Output

sname	city
sn1	London
sn2	Paris
sn3	London

(b)Solution

```
select sp.pno, pname
from ((S
inner join sp on s.sno = sp.sno)
inner join p on sp.pno = p.pno)
where s.city = "Paris"
and s.status >=20;
```

(b)Output

pno	pname
1	pn1
2	pn2
3	pn3
4	pn4

(c)Solution

```
select p.pno, pname, count(sname)
from ((S
inner join sp on s.sno = sp.sno)
inner join p on sp.pno = p.pno)
group by p.pno;
```

(c)Output

pno	pname	count(sname)
1	pn1	4
2	pn2	3
3	pn3	3
4	pn4	2
5	pn5	1

(d)Solution

```
select sname, sum(qty)
from ((S
inner join sp on s.sno = sp.sno)
inner join p on sp.pno = p.pno)
where s.city = "London"
group by sname
having sum(qty) >=1000;
```

(d)Output

sname	sum(qty)
sn1	1500

(e)Solution

```
select sname,s.city
from s
where s.sno
not in (select distinct sno from sp
where sp.pno
in (select pno from p where weight >= 4));
```

(e)Output

	sname	city
▶	sn3	London
	sn4	Rome

Question 2

(a) ΠCourse_Name(σDepartment = 'CS'(COURSE));

(b) Solution-1
ΠName(σStudent_number=ΠStudent_number(σSection_identifier=ΠSection_identifier(σCourse_number = 'CS3380'(SECTION))(GRADE_REPORT))(STUDENT));

(b) Solution-2
ΠName(σCourse_number = 'CS3380'(STUDENT ⋈Student_number=Student_number(GRADE_REPORT ⋈ Section_identifier = Section_identifier SECTION)));

(c) ΠInstructor(ΠInstructor,Course_number(SECTION) ÷ ΠCourse_number(σCourse_number = 'CS1310' or Course_number = 'CS3380'(COURSE)));

(d) ΠInstructor(ΠInstructor,Course_number(SECTION) ÷ ΠCourse_number(σDepartment = 'CS'(COURSE)));

Question 3

(a)Solution 1

```
select country, count(Customer_ID) as 'Total number of customers',
sum(Customer_ID in (select Customer_ID from customer where Gender = 'M')) as 'Total number of male customers',
sum(Customer_ID in (select Customer_ID from customer where Gender = 'F')) as 'Total number of female customers',
cast((sum(Customer_ID in (select Customer_ID from customer where Gender = 'M'))
/ count(Customer_ID) *100) as decimal(10,2))as 'Percent Male'
from customer
group by Country
order by (sum(Customer_ID in (select Customer_ID from customer where Gender = 'M'))
/ count(Customer_ID) *100);
```

(a)Solution 2

```
select country, count(*) as 'Total number of customers',
sum(if(Gender='M',1,0)) as 'Total number of male customers',
sum(if(Gender='F',1,0)) as 'Total number of female customers',
cast((sum(if(Gender='M',1,0))/count(*)*100) as decimal(10,2))as 'Percent Male'
from customer
group by country
order by (sum(if(Gender='M',1,0))/count(*)*100);
```

(a)Solution 3

```
select a.country, c.MF as 'Total number of customers',
a.M as 'Total number of male customers', b.F as 'Total number of female customers',
cast((a.M/c.MF*100) as decimal(10,2)) as 'Percent Male'
from (((select country, count(Customer_ID) as M
from customer
group by Country,Gender
having Gender = 'M') as a left join (select country, count(Customer_ID) as F
from customer
group by Country,Gender
having Gender = 'F') as b on a.country = b.country) left join (select country, count(Customer_ID) as MF
from customer
group by Country)  as c on a.country = c.country)
order by (a.M/c.MF*100);
```

(a)Output

country	Total number of customers	Total number of male customers	Total number of female customers	Percent Male
ZA	4	1	3	25.00
CA	15	7	8	46.67
US	28	15	13	53.57
AU	8	5	3	62.50
DE	10	7	3	70.00
TR	7	7	0	100.00
IL	5	5	0	100.00

(b)Solution 1

```
select p.Product_ID, Product_Name, SumbyPID as 'Total Sold'
from (select Product_ID, cast(sum(Total_Retail_Price) as decimal(10,1)) as SumbyPID from order_fact
group by Product_ID) as o join product_dim as p on p.product_ID = o.product_ID
order by SumbyPID desc,p.Product_Name;
```

(b)Solution 2

```
select p.Product_ID, Product_Name, cast(sum(Total_Retail_Price) as decimal(10,1)) as 'Total Sold'
from  order_fact as o join product_dim as p on p.product_ID = o.product_ID
group by p.Product_ID,p.Product_Name
order by sum(Total_Retail_Price) desc,p.Product_Name;
```

(b)Output

Product_ID	Product_Name	Total Sold
230100700009	Family Holiday 6	3391.8
230100700008	Family Holiday 4	3080.3
230100700011	Hurricane 4	2250.0
240200100173	Proplay Executive Bi-Metal Graphite	1937.2
240200100076	Expert Men's Firesole Driver	1796.0
240300300090	Top R&D Long Jacket	1561.8
240300300070	Top Men's R&D Ultimate Jacket	1514.4
240100400098	Rollerskate Roller Skates Ex9 76mm/78a Biofl	1510.8
240100400129	Rollerskate Roller Skates Sq9 80-76mm/78a	1424.4
240100400043	Perfect Fit Men's Roller Skates	1343.3
240200200013	Master Golf Rain Suit	1266.0
240400200097	Smasher Tg 70 Tennis String Roll	1250.4
230100500026	Trekking Tent	1237.5
240300100032	Letour Trimag Bike	1200.2
230100200025	Feelgood 55-75 Litre Black Women's Backpack	1103.6
240300100028	Letour Heart Bike	1066.4
240200100118	Hi-fly Intrepid Stand 8 Black	1053.0
240100400046	Perfect Fit Men's Stunt Skates	984.9
240800100074	Mayday Soul Pro New Tech Ski Jacket	949.8
240200200060	Eagle Windstopper Knit Neck	922.5
230100100063	Tx Peak Parka	767.8
240800100042	Helmsdale Ski Pants	760.8
230100600022	Expedition10,Medium,Right,Blue Ribbon	756.9
230100500082	Lucky Tech Intergal Wp/B Rain Pants	756.6
240200100157	Normal Standard	706.2
230100600030	Outback Sleeping Bag, Large,Left,Blue/Black	690.4
230100700002	Comfort Shelter	660.0
240100400143	Twain Ac7/Ft7 Women's Roller Skates	660.0
240200100116	Hi-fly Intimidator Ti R80/10	658.5
230100600005	Basic 10, Left , Yellow/Black	649.0
230100600031	Outback Sleeping Bag, Large,Right, Blue/Black	619.5
230100600016	Expedition Zero,Medium,Right,Charcoal	616.0
240200100225	Rubby Men's Golf Shoes w/Goretex	612.4
230100600026	Expedition 20,Large,Right,Forestgreen	593.0
230100500092	Mayday Sports Pullover	587.9
230100600028	Expedition 20,Medium,Right,Forestgreen	580.2
230100500074	Tent Milano Tent,4 Persons, about 4.8	544.0
230100200054	Trekker 65 Royal Men's Backpack	543.2

Result 56

(c)Solution

```
select f1.Employee_ID, f1.Employee_Name, f1.Job_Title, f1.Manager_ID, f2.Employee_Name as Manager_Name
from (select eb.Employee_ID, eb.Employee_Name, sb.Job_Title, sb.Manager_ID
from (employee_addresses as eb
join staff as sb
on eb.Employee_ID = sb.Employee_ID)) as f1
left join (select distinct ea.Employee_ID, ea.Employee_Name,sa.Manager_ID
from (employee_addresses as ea
join staff as sa
on ea.Employee_ID = sa.Manager_ID)) as f2 on f1.Manager_ID = f2.Manager_ID
order by f1.Employee_ID;
```

(c)Output

Employee_ID	Employee_Name	Job_Title	Manager_ID	Manager_Name
120101	Lu, Patrick	Director	120261	Highpoint, Harry
120102	Zhou, Tom	Sales Manager	120101	Lu, Patrick
120103	Dawes, Wilson	Sales Manager	120101	Lu, Patrick
120104	Billington, Kareen	Administration Manager	120101	Lu, Patrick
120105	Povey, Liz	Secretary I	120101	Lu, Patrick
120106	Hornsey, John	Office Assistant II	120104	Billington, Kareen
120107	Sheedy, Sherie	Office Assistant III	120104	Billington, Kareen
120108	Gromek, Gladys	Warehouse Assistant II	120104	Billington, Kareen
120109	Baker, Gabriele	Warehouse Assistant I	120104	Billington, Kareen
120110	Entwisle, Dennis	Warehouse Assistant III	120104	Billington, Kareen
120111	Spillane, Ubaldo	Security Guard II	120104	Billington, Kareen
120112	Glattback, Ellis	Security Guard I	120104	Billington, Kareen
120113	Horsey, Riu	Security Guard II	120104	Billington, Kareen
120114	Buddery, Jeannette	Security Manager	120104	Billington, Kareen
120115	Nichollas, Hugh	Service Assistant I	120104	Billington, Kareen
120116	Ralston, Austen	Service Assistant II	120104	Billington, Kareen
120117	Mccleary, Bill	Cabinet Maker III	120104	Billington, Kareen
120118	Hartshorn, Darshi	Cabinet Maker II	120104	Billington, Kareen
120119	Elleman, Lal	Electrician IV	120104	Billington, Kareen
120120	Peiris, Krishna	Electrician II	120104	Billington, Kareen
120121	Elvish, Irenie	Sales Rep. II	120102	Zhou, Tom
120122	Ngan, Christina	Sales Rep. II	120102	Zhou, Tom
120123	Hotstone, Kimiko	Sales Rep. I	120102	Zhou, Tom
120124	Daymond, Lucian	Sales Rep. I	120102	Zhou, Tom
120125	Hofmeister, Fong	Sales Rep. IV	120102	Zhou, Tom
120126	Denny, Satyakam	Sales Rep. II	120102	Zhou, Tom
120127	Clarkson, Sharryn	Sales Rep. II	120102	Zhou, Tom
120128	Kletschkus, Monica	Sales Rep. IV	120102	Zhou, Tom
120129	Roebuck, Alvin	Sales Rep. III	120102	Zhou, Tom
120130	Lyon, Kevin	Sales Rep. I	120102	Zhou, Tom
120131	Surawski, Marinus	Sales Rep. I	120102	Zhou, Tom
120132	Kaiser, Fancine	Sales Rep. III	120102	Zhou, Tom
120133	Soltau, Petrea	Sales Rep. II	120102	Zhou, Tom
120134	Shannan, Sian	Sales Rep. II	120102	Zhou, Tom
120135	Platts, Alexei	Sales Rep. IV	120102	Zhou, Tom
120136	Leyden, Atul	Sales Rep. I	120102	Zhou, Tom
120137	Iyengar, Marina	Sales Rep. III	120102	Zhou, Tom
120138	Duckett, Shani	Sales Rep. I	120102	Zhou, Tom

Result 55

(d)Solution

```
select Employee_ID, Salary,(Salary - lag(Salary,1)
over (partition by null)) as 'Previous_Salary',
 (Salary - lead(Salary,1)
over (partition by null)) as 'Following_Salary'
from employee_payroll;
```

(d)Output

Employee_ID	Salary	Previous_Salary	Following_Salary
120101	163040	NULL	54785
120102	108255	-54785	20280
120103	87975	-20280	41745
120104	46230	-41745	19120
120105	27110	-19120	150
120106	26960	-150	-3515
120107	30475	3515	2815
120108	27660	-2815	1165
120109	26495	-1165	-2120
120110	28615	2120	1720
120111	26895	-1720	345
120112	26550	-345	-320
120113	26870	320	-4415
120114	31285	4415	4785
120115	26500	-4785	-2750
120116	29250	2750	-2420
120117	31670	2420	3580
120118	28090	-3580	-2165
120119	30255	2165	2610
120120	27645	-2610	1045
120121	26600	-1045	-875
120122	27475	875	1285
120123	26190	-1285	-290
120124	26480	290	-5560
120125	32040	5560	5260
120126	26780	-5260	-1320
120127	28100	1320	-2790
120128	30890	2790	820
120129	30070	-820	3115
120130	26955	-3115	45
120131	26910	-45	-1615
120132	28525	1615	1085
120133	27440	-1085	-575
120134	28015	575	-4475
120135	32490	4475	5885
120136	26605	-5885	-3110
120137	29715	3110	3920
120138	25795	-3920	-1015

Result 57