QUESTION 1

a. Create the table named EMPLOYEE, insert the employee details below and assign a primary

```sql
create database sql1;

USE SQL1;
CREATE TABLE employees (
    empno INT PRIMARY KEY,
    ename VARCHAR(20) NOT NULL,
    job VARCHAR(20) NOT NULL,
    mgr INT,
    hiredate DATE NOT NULL,
    sal DECIMAL (6,2),
    comm DECIMAL (6,2),
    deptno INT
);

INSERT INTO employees (empno, ename, job, mgr, hiredate, sal, comm, deptno)
VALUES
(8369, 'SMITH', 'CLERK', 8902, '1990-12-18', 800.00, NULL, 20),
(8499, 'ANYA', 'SALESMAN', 8698, '1991-02-20', 1600.00, 300.00, 30),
(8521, 'SETH', 'SALESMAN', 8698, '1991-02-22', 1250.00, 500.00, 30),
(8566, 'MAHADEVAN', 'MANAGER', 8839, '1991-04-02', 2985.00, NULL, 20),
(8654, 'MOMIN', 'SALESMAN', 8698, '1991-09-28', 1250.00, 1400.00, 30),
(8698, 'BINA', 'MANAGER', 8839, '1991-05-01', 2850.00, NULL, 30),
(8882, 'SHIVANSH', 'MANAGER', 8839, '1991-06-09', 2450.00, NULL, 10),
(8888, 'SCOTT', 'ANALYST', 8566, '1992-12-09', 3000.00, NULL, 20),
(8839, 'AMIR', 'PRESIDENT', NULL, '1991-11-18', 5000.00, NULL, 10),
(8844, 'KULDEEP', 'SALESMAN', 8698, '1991-09-08', 1500.00, 0.00, 30);
```

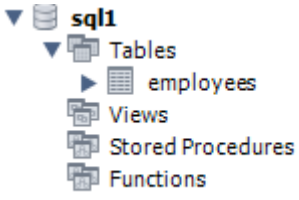

Table: employees

Columns:

empno	int PK
ename	varchar(20)
job	varchar(20)
mgr	int
hiredate	date
sal	decimal(6,2)
comm	decimal(6,2)
deptno	int

Result Grid | Filter Rows: | Edit: | Export/Import:

empno	ename	job	mgr	hiredate	sal	comm	deptno
8369	SMITH	CLERK	8902	1990-12-18	800.00	NULL	20
8499	ANYA	SALESMAN	8698	1991-02-20	1600.00	300.00	30
8521	SETH	SALESMAN	8698	1991-02-22	1250.00	500.00	30
8566	MAHADEVAN	MANAGER	8839	1991-04-02	2985.00	NULL	20
8654	MOMIN	SALESMAN	8698	1991-09-28	1250.00	1400.00	30
8698	BINA	MANAGER	8839	1991-05-01	2850.00	NULL	30
8839	AMIR	PRESIDENT	NULL	1991-11-18	5000.00	NULL	10
8844	KULDEEP	SALESMAN	8698	1991-09-08	1500.00	0.00	30
8882	SHIVANSH	MANAGER	8839	1991-06-09	2450.00	NULL	10
8888	SCOTT	ANALYST	8566	1992-12-09	3000.00	NULL	20
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

b. Return only the jobs from the table. List them only once (1).

```
28 •  use sql1;
29 •  SELECT DISTINCT(JOB) FROM employees;
30
```

Result Grid | Filter Rows: | Expor

JOB
CLERK
SALESMAN
MANAGER
PRESIDENT
ANALYST

c. Return all records from the table. (2)

```
28 •  use sql1;
29 •  SELECT * FROM employees;
30
```

Result Grid | Filter Rows: | Edit: | Export/Import:

empno	ename	job	mgr	hiredate	sal	comm	deptno
8369	SMITH	CLERK	8902	1990-12-18	800.00	NULL	20
8499	ANYA	SALESMAN	8698	1991-02-20	1600.00	300.00	30
8521	SETH	SALESMAN	8698	1991-02-22	1250.00	500.00	30
8566	MAHADEVAN	MANAGER	8839	1991-04-02	2985.00	NULL	20
8654	MOMIN	SALESMAN	8698	1991-09-28	1250.00	1400.00	30
8698	BINA	MANAGER	8839	1991-05-01	2850.00	NULL	30
8839	AMIR	PRESIDENT	NULL	1991-11-18	5000.00	NULL	10
8844	KULDEEP	SALESMAN	8698	1991-09-08	1500.00	0.00	30
8882	SHIVANSH	MANAGER	8839	1991-06-09	2450.00	NULL	10
8888	SCOTT	ANALYST	8566	1992-12-09	3000.00	NULL	20
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

d. Return employee name and salary of employees whose salaries are greater than or equal to 2200. (2)

```
--
34 •  SELECT ename as 'Employee Name', sal as 'SALARY'
35    from employees
36    where sal >= 2200;
37
```

Result Grid | Filter Rows: | Export: | Wrap Ce

Employee Name	SALARY
MAHADEVAN	2985.00
BINA	2850.00
AMIR	5000.00
SHIVANSH	2450.00
SCOTT	3000.00

e. Return employee name and salary of those employees who do not have their salary in the range of 2500 to 4000. (2)

```
38 •  SELECT ename as 'Employee Name', sal as 'SALARY'
39    from employees
40    where sal not between 2200 and 4000;
41
```

Result Grid | Filter Rows: | Export: | Wrap Cell C

Employee Name	SALARY
SMITH	800.00
ANYA	1600.00
SETH	1250.00
MOMIN	1250.00
AMIR	5000.00
KULDEEP	1500.00

f. Return employee name whose name contains “I” as third character. (2)

```
43 •  SELECT ename AS 'Employee Name'
44    FROM employees
45    WHERE ename like '__I%'
46
```

Result Grid | Filter Rows:

Employee Name
SMITH
AMIR
SHIVANSH

g. Return employee name whose name contains” M” as first and “H” as third character. (2)

```
48 •  SELECT ename as 'Employee Name'
49    FROM employees
50    WHERE ename LIKE 'M_H%';
51
```

Result Grid | Filter Rows:

ename
MAHADEVAN

h. Count the number of employees in each department, with the department number along with the employee count. (2)

```
52 •  SELECT deptno AS 'Department Number', COUNT(ename) AS
53    'Employees Count Per Department' FROM employees
54    GROUP BY deptno;
55
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Department Number	Employees Count Per Department
20	3
30	5
10	2

i. Return employee name and hire dates of employees hired after 1991-01-01. (2)

```
56 •  SELECT ename as 'Employee Name', hiredate as 'Date Hired'
57    FROM employees
58    where hiredate> '1991-01-01';
59
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Employee Name	Date Hired
ANYA	1991-02-20
SETH	1991-02-22
MAHADEVAN	1991-04-02
MOMIN	1991-09-28
BINA	1991-05-01
AMIR	1991-11-18
KULDEEP	1991-09-08
SHIVANSH	1991-06-09
SCOTT	1992-12-09

j. Calculate the average salary of all employees. (2)

```
60 •  SELECT AVG(sal) as 'AVERAGE SALARY' FROM employees;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Con

AVERAGE SALARY
2268.500000

QUESTION 2

a) Create the following tables and name them student and project respectively. (2)

```
use sql1;
create table student(
stdid int auto_increment unique not null primary key,
fname varchar (10),
lname varchar (10),
credits int,
dept varchar (10),
gender VARCHAR(1)
);

insert into student( stdid, fname, lname, credits,dept,gender)
values
(100 ,'Mary','Copper', '6000','Drama','F'),
(101,'Mike','Carpen', '5000','Maths','M'),
(102 ,'Ryan','Smith', '10000','Drama','M'),
(103 ,'Tom','Randall', '4800','Maths','M'),
(104 ,'Ashley','Brown', '5000','Science','F')
;


create table project(
project_id int auto_increment not null primary key,
stdid int references student,
projectname varchar (50)
);

insert into project(project_id, stdid,projectname)
values
(1, 100, 'Shakespeare'),
(2, 100, 'Greek Tragedy'),
(3, 100, 'Disaster'),
(4, 101, 'Trigonometry'),
(5, 102 , 'Wizard of Oz'),
(6, 102, 'Creative Dramatics'),
(7, 102, 'Modern Art'),
(8,106 , 'Natural Language Processing'),
(9,104 , 'Gravity')
;
```

Table: project

Columns:

project_id	int AI PK
stdid	int
projectname	varchar(50)

Result Grid | Filter Rows: | Edit

project_id	stdid	projectname
1	100	Shakespeare
2	100	Greek Tragedy
3	100	Disaster
4	101	Trigonometry
5	102	Wizard of Oz
6	102	Creative Dramatics
7	102	Modern Art
8	106	Natural Language Processing
9	104	Gravity
NULL	NULL	NULL

Table: student

Columns:

stdid	int AI PK
fname	varchar(10)
lname	varchar(10)
credits	int
dept	varchar(10)
gender	varchar(1)

Result Grid | Filter Rows: | Edit:

stdid	fname	lname	credits	dept	gender
100	Mary	Copper	6000	Drama	F
101	Mike	Carpen	5000	Maths	M
102	Ryan	Smith	10000	Drama	M
103	Tom	Randall	4800	Maths	M
104	Ashley	Brown	5000	Science	F
NULL	NULL	NULL	NULL	NULL	NULL

b) Return the project names along with the corresponding student details (first name, last name) for all projects. (2)

```
101 •  Select projectname as ' Project Name',
102            fname 'First Name',
103            lname as 'Last Name'
104    from project pro
105    join student stu
106    on pro.stdid=stu.stdid;
```

Result Grid | Filter Rows: | Export:

Project Name	First Name	Last Name
Shakespeare	Mary	Copper
Greek Tragedy	Mary	Copper
Disaster	Mary	Copper
Trigonometry	Mike	Carpen
Wizard of Oz	Ryan	Smith
Creative Dramatics	Ryan	Smith
Modern Art	Ryan	Smith
Gravity	Ashley	Brown

c) Return the project names and the corresponding student details (first name, last name) for projects assigned to students in the "Maths" department. (2)

```
109 •   Select projectname as ' Project Name',
110             fname 'First Name',
111             lname as 'Last Name'
112     from project pro
113     join student stu
114     on pro.stdid=stu.stdid
115     where dept='Maths';
116
```

Result Grid | Filter Rows: | Export:

Project Name	First Name	Last Name
Trigonometry	Mike	Carpen

d) Return all students along with the project names (if any) they are assigned to. (2)

```
126 •   Select fname as ' First Name',
127             lname as 'Last Name',
128             projectname as ' Project Name'
129     from student stu
130     left join project pro
131     on stu.stdid=pro.stdid;
132
```

Result Grid | Filter Rows: | Export:

First Name	Last Name	Project Name
Mary	Copper	Disaster
Mary	Copper	Greek Tragedy
Mary	Copper	Shakespeare
Mike	Carpen	Trigonometry
Ryan	Smith	Modern Art
Ryan	Smith	Creative Dramatics
Ryan	Smith	Wizard of Oz
Tom	Randall	NULL
Ashley	Brown	Gravity

e) Return all students and the project names (if any) they are assigned to, but only for the students in the "Drama" department.

```
133 •   select fname as 'First Name',
134             lname as  'Last Name',
135             dept  as 'Department',
136             projectname as 'Project Name'
137     from student
138     left join project
139     on student.stdid=project.stdid
140     where dept='Drama';
141
```

Result Grid | Filter Rows: | Export:

First Name	Last Name	Department	Project Name
Mary	Copper	Drama	Disaster
Mary	Copper	Drama	Greek Tragedy
Mary	Copper	Drama	Shakespeare
Ryan	Smith	Drama	Modern Art
Ryan	Smith	Drama	Creative Dramatics
Ryan	Smith	Drama	Wizard of Oz

f) Return the total number of projects each student is assigned to, along with their details (first name, last name). (2)

```
145
146 •   select fname as 'First Name',
147             lname as 'Last Name',
148             count(project_id) as 'Project Count'
149     from student
150     left join project
151     on student.stdid=project.stdid
152     group by student.stdid;
153
```

Result Grid | Filter Rows: | Export: | Wra

First Name	Last Name	Project Count
Mary	Copper	3
Mike	Carpen	1
Ryan	Smith	3
Tom	Randall	0
Ashley	Brown	1

g) Return all students with the gender “F”, with their total credits (2)

```
155 •   select stdid as 'Student No',
156             fname as ' First Name',
157             lname as 'Last Name',
158             credits as 'Credits',
159             gender as 'Gender'
160     from student
161     where gender='F';
162
```

Result Grid | Filter Rows: | Export:

Student No	First Name	Last Name	Credits	Gender
100	Mary	Copper	6000	F
104	Ashley	Brown	5000	F

h) Return all students whose last name ends with "pen". (2)

```
164 •   select stdid as 'Student No',
165             fname as ' First Name',
166             lname as 'Last Name'
167     from student
168     where lname like'%pen';
```

Result Grid | Filter Rows:

Student No	First Name	Last Name
101	Mike	Carpen

i) Return the names of students with the gender “M”, with more than 4999 credits, sorted alphabetically by their first names. (2)

```
171 •   select stdid as 'Student No',
172             fname as ' First Name',
173             lname as 'Last Name',
174             gender as 'Gender'
175     from student
176     where gender ='M' and credits > '4999'
177     Order by fname;
```

Result Grid | Filter Rows: | Export:

Student No	First Name	Last Name	Gender
101	Mike	Carpen	M
102	Ryan	Smith	M

j) Return all students' details and sort them based on their credits in descending order. (2)

```
179 •   select  *from student
180     Order by credits desc;
181
182
```

Result Grid | Filter Rows: | Edit:

stdid	fname	lname	credits	dept	gender
102	Ryan	Smith	10000	Drama	M
100	Mary	Copper	6000	Drama	F
101	Mike	Carpen	5000	Maths	M
104	Ashley	Brown	5000	Science	F
103	Tom	Randall	4800	Maths	M
NULL	NULL	NULL	NULL	NULL	NULL

```
185     select credits as 'Credits',
186            stdid as 'Student ID',
187            fname as 'First Name',
188            lname as 'Last Name',
189            dept 'Department',
190            gender 'Gender'
191     from student
192     Order by credits desc;
193
```

Result Grid | Filter Rows: | Export: | Wrap Cell

Credits	Student ID	First Name	Last Name	Department	Gender
10000	102	Ryan	Smith	Drama	M
6000	100	Mary	Copper	Drama	F
5000	101	Mike	Carpen	Maths	M
5000	104	Ashley	Brown	Science	F
4800	103	Tom	Randall	Maths	M