1. Write MySQL query for the following:

a) Create a table Employee with fields employee_id, first_name, last_name, salary, joining_date(Date data type) , department. Employee_id should be set as the primary key and an autoincrement column.

Ans=

```
mysql> create table Employee(employee_id int auto_increment primary key, first_name varchar(50), last_name varchar(50), salary int, joining_date date, depar
tment varchar(50));
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> desc employee;
+-------------+------------+------+-----+---------+----------------+
| Field       | Type       | Null | Key | Default | Extra          |
+-------------+------------+------+-----+---------+----------------+
| employee_id | int        | NO   | PRI | NULL    | auto_increment |
| first_name  | varchar(50)| YES  |     | NULL    |                |
| last_name   | varchar(50)| YES  |     | NULL    |                |
| salary      | int        | YES  |     | NULL    |                |
| joining_date| date       | YES  |     | NULL    |                |
| department  | varchar(50)| YES  |     | NULL    |                |
+-------------+------------+------+-----+---------+----------------+
6 rows in set (0.01 sec)
```

b) Create another table Reward with fields employee_id, date_reward(Date data type) and an amount column employee_id should be set as the foreign key referencing employee_id column of employee table.

Ans=

```
mysql> create table Reward(employee_id int, date_reward date, amount int, foreign key (employee_id) references Employee(employee_id));
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> desc Reward;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| employee_id | int  | YES  | MUL | NULL    |       |
| date_reward | date | YES  |     | NULL    |       |
| amount      | int  | YES  |     | NULL    |       |
+-------------+------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

c) Insert these rows into the Employee table

First_name	Last_name	Salary	Joining_date	department
Bob	Kinto	1000000	2019-01-20	Finance
Jerry	Jerry	6000000	2019-01-15	IT
Philip	Jose	8900000	2019-02-05	Banking
John	Abraham	2000000	2019-02-25	Insurance
Michael	Mathew	2200000	2019-02-28	Finance
Alex	Chreketo	4000000	2019-05-10	IT
Yohan	Soso	1230000	2019-06-20	Banking

Ans=

```
mysql> insert into employee(first_name,last_name,salary,joining_date,department)
    -> values("Bob","Kinto",1000000,'2019-01-20',"Finance"),
    -> ("Jerry","Jerry",6000000,
    -> '2019-01-15',"IT"),
    -> ("Philip","Jose",8900000,'2019-01-05',"Banking"),
    -> ("John","Abraham",2000000,'2019-02-25',"Insurance"),
    -> ("Michael","Mathew",2200000,'2019-02-28',"Finance"),
    -> ("Alex","Chreketo",4000000,'2019-05-10',"IT"),
    -> ("Yohan","Soso",1230000,'2019-06-20',"Banking");
Query OK, 7 rows affected (0.01 sec)
Records: 7  Duplicates: 0  Warnings: 0
```

```
mysql> select * from employee;
+-------------+------------+-----------+---------+--------------+------------+
| employee_id | first_name | last_name | salary  | joining_date | department |
+-------------+------------+-----------+---------+--------------+------------+
|           1 | Bob        | Kinto     | 1000000 | 2019-01-20   | Finance    |
|           2 | Jerry      | Jerry     | 6000000 | 2019-01-15   | IT         |
|           3 | Philip     | Jose      | 8900000 | 2019-01-05   | Banking    |
|           4 | John       | Abraham   | 2000000 | 2019-02-25   | Insurance  |
|           5 | Michael    | Mathew    | 2200000 | 2019-02-28   | Finance    |
|           6 | Alex       | Chreketo  | 4000000 | 2019-05-10   | IT         |
|           7 | Yohan      | Soso      | 1230000 | 2019-06-20   | Banking    |
+-------------+------------+-----------+---------+--------------+------------+
7 rows in set (0.00 sec)
```

Insert these rows into the Reward table

Employee_id	Date_reward	amount
1	2019-05-11	1000
2	2019-02-15	5000
3	2019-04-22	2000
1	2019-06-20	8000

Ans=

```
mysql> insert into reward(employee_id, date_reward, amount) values
    -> (1,'2019-05-11',1000),
    -> (2,'2019-02-15',5000),
    -> (3,'2019-04-22',2000),
    -> (1,'2019-06-22',8000);
Query OK, 4 rows affected (0.01 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

```
mysql> select * from reward;
+-------------+-------------+--------+
| employee_id | date_reward | amount |
+-------------+-------------+--------+
|           1 | 2019-05-11  |   1000 |
|           2 | 2019-02-15  |   5000 |
|           3 | 2019-04-22  |   2000 |
|           1 | 2019-06-22  |   8000 |
+-------------+-------------+--------+
4 rows in set (0.00 sec)
```

d) Write a query to display the details of the employees who joined before March **1, 2019.**

Ans=

```
mysql> select * from employee where joining_date<'2019-03-01';
+-------------+------------+-----------+---------+--------------+------------+
| employee_id | first_name | last_name | salary  | joining_date | department |
+-------------+------------+-----------+---------+--------------+------------+
|           1 | Bob        | Kinto     | 1000000 | 2019-01-20   | Finance    |
|           2 | Jerry      | Jerry     | 6000000 | 2019-01-15   | IT         |
|           3 | Philip     | Jose      | 8900000 | 2019-01-05   | Banking    |
|           4 | John       | Abraham   | 2000000 | 2019-02-25   | Insurance  |
|           5 | Michael    | Mathew    | 2200000 | 2019-02-28   | Finance    |
+-------------+------------+-----------+---------+--------------+------------+
5 rows in set (0.01 sec)
```

e) Write a program to display the department and total salary, grouped by department and sorted by total salary in ascending order.

Ans=

```
mysql> select department, sum(salary) as total_salary from employee group by department order by total_salary ASC;
+------------+--------------+
| department | total_salary |
+------------+--------------+
| Insurance  |      2000000 |
| Finance    |      3200000 |
| IT         |     10000000 |
| Banking    |     10130000 |
+------------+--------------+
4 rows in set (0.01 sec)
```

2. Write MongoDB query for the following:

a) Create database library and create a collection named book.

Ans=

```
test> use library
switched to db library
library> db.createCollection("book")
{ ok: 1 }
```

b) Insert some documents to the collection with fields bookid, bookname, category and noofcopies.

Ans=

```
library> db.book.insertMany([{bookid: 1, bookname:"Wings of fire", category:"Autobiography", noofcopies: 10}, {bookid: 2, bookname:"Mritunjaya", category:"H
istory", noofcopies:7}, {bookid: 3, bookname:"Yayati", category:"History", noofcopies:3}, {bookid: 4, bookname:"Cosmos", category:"Science", noofcopies:2},
{bookid: 5, bookname:"Harry Potter and the Philosophers stone", category:"Fiction",noofcopies:4}, {bookid: 6, bookname:"The Catcher in the Ryc", catergory:"
Fiction",noofcopies:6}, {bookid: 7, bookname:"Dune", category:"Science",noofcopies:5}]);
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("654f5a7b13b95019758f804f"),
    '1': ObjectId("654f5a7b13b95019758f8050"),
    '2': ObjectId("654f5a7b13b95019758f8051"),
    '3': ObjectId("654f5a7b13b95019758f8052"),
    '4': ObjectId("654f5a7b13b95019758f8053"),
    '5': ObjectId("654f5a7b13b95019758f8054"),
    '6': ObjectId("654f5a7b13b95019758f8055")
  }
}
```

c) Display the book details of one particular category.

Ans=

```
library> db.book.find({category:"History"});
[
  {
    _id: ObjectId("654f5a7b13b95019758f8050"),
    bookid: 2,
    bookname: 'Mritunjaya',
    category: 'History',
    noofcopies: 7
  },
  {
    _id: ObjectId("654f5a7b13b95019758f8051"),
    bookid: 3,
    bookname: 'Yayati',
    category: 'History',
    noofcopies: 3
  }
]
```

d) Display the book details whose noofcopies is less than 5 by skipping the first 2 documents.

Ans=

```
library> db.book.find({noofcopies:{$lt:5}}).skip(2);
[
  {
    _id: ObjectId("654f5a7b13b95019758f8053"),
    bookid: 5,
    bookname: 'Harry Potter and the Philosophers stone',
    category: 'Fiction',
    noofcopies: 4
  }
]
```

e) Create an index using bookname field.

Ans=

```
library> db.book.createIndex({bookname:1});
bookname_1
```