Exercise - Solutions

Pre-requisites

1. Attach **Employee.mdf** file located in the same directory as this document

Now the dev machine is ready (with the Employee Database with 1 table named Employee) for the fresher to work on this exercises listed below

Basic 'Select' exercises

1. Select firstname, lastname, title, age, salary for everyone in your employee table.
2. Select firstname, age and salary for everyone in your employee table.
3. Selct firstname and display as '**Name**' for everyone in your employee table
4. Select firstname and lastname as '**Name**' for everyone. Use " " (space) to separate firstname and last.

```
/* Basic Select Statements */
select firstname, lastname, title, age, salary from employee;

select firstname, age, salary from employee;

select firstname as Name from employee;

select firstname + ' ' +lastname as Name from employee;
```

Using 'where' clause

5. Select all columns for everyone with a salary over **38000**.
6. Select first and last names for everyone that's under **24** years old.
7. Select first name, last name, and salary for anyone with "**Programmer**" in their **title**.
8. Select all columns for everyone whose last name contains "**O**".
9. Select the lastname for everyone whose first name equals "**Kelly**".
10. Select all columns for everyone whose last name ends in "**Moore**".
11. Select all columns for everyone who are **35** and above.

```
/*Using where clause*/
select * from employee where salary > 38000;

select firstname, lastname from employee where age < 24;

select firstname, lastname, salary from employee where title = 'Programmer';

select * from employee where CHARINDEX('0', lastname) > 0;

select lastname from employee where firstname = 'Kelly';

select * from employee where lastname = 'Moore';

select * from employee where age >= 35;
```

Using multiple 'where' clauses

12. Select firstname ,lastname,age and salary of everyone whose age is above **24** and below **43**.
13. Select firstname, title and lastname whose age is in the range **28** and **62** and salary greater than **31250**
14. Select all columns for everyone whose age is not more than **48** and salary not less than **21520**
15. Select firstname and age of everyone whose firstname starts with "**John**" and salary in the range **25000** and **35000**

```
/* Using multiple where clauses */

select firstname, lastname, age, salary from employee where age > 24 AND age < 48;

select firstname, title, lastname from employee where age > 28 AND age < 62 AND salary > 31250;

select * from employee where age < 48 AND salary >= 21520;

select firstname, age from employee where firstname LIKE 'John%' AND (salary > 25000 AND salary <

35000);
```

Using 'Order By' clause

16. Select all columns for everyone by their **ages** in **descending** order.
17. Select all columns for everyone by their **ages** in **ascending** order.
18. Select all columns for everyone by their **salaries** in **descending** order.
19. Select all columns for everyone by their **salaries** in **ascending** order.
20. Select all columns for everyone by their **salaries** in **ascending** order whose **age** not less than **17**.
21. Select all columns for everyone by their **salaries** in **descending** order whose **age** not more than **34**.

```
/* using orderby clause */

select * from employee order by age desc;

select * from employee order by age;

select * from employee order by salary desc;

select * from employee order by salary;

select * from employee where age >= 17 order by salary;

select * from employee where age < 34 order by salary desc;
```

Miscellaneous(count, sum(), max(), min())

22. Select all columns for everyone by their length of **firstname** in **ascending** order.
23. Select the **number of employees** whose age is above **45**
24. Show the results by adding 5 to ages and removing 250 from salaries of all employees
25. Select the **number of employees** whose **lastname ends** with "**re**" or "**ri**" or "**ks**"
26. Select the **average salary** of all your employees
27. Select the **average salary** of **Freshers**
28. Select the **average age** of **Programmers**
29. Select the **average salary** of **employees** whose **age** is not less than **35** and not more than **50**

30. Select the **number of Freshers**
31. What percentage of programmers constitute your employees
32. What is the **combined** salary that you need to pay to the employees whose **age** is not less than **40**
33. What is the **combined** salary that you need to pay to all the **Freshers** and **Programmers** for 1 month
34. What is the **combined** salary that you need to pay to all the **Freshers** whose age is greater than 27 for 3years

    Additional Mathematical operators

```
/* Micellanious (count, sum(), max(), min()) */
select * from employee order by LEN(firstname);

select count(*) from employee where age > 45;

select firstname, lastname, title, age+5 as age, salary-250 as salary from employee;

select count(lastname) as Numberofemployees from employee

where lastname LIKE '%re' or lastname LIKE '%ks' or lastname LIKE '%ri';

select SUBSTRING(lastname, LEN(lastname)-1, LEN(lastname)) as EndingString, count(lastname) as

Numberofemployees from employee

where lastname LIKE '%re' or lastname LIKE '%ks' or lastname LIKE '%ri' group by lastname;

select avg(salary) as AverageSalary from employee;

select avg(salary) as FreshersAverageSalary from employee where title='Fresher';

select avg(age) as FreshersAverageSalary from employee where title='Programmer';

select avg(age) as FreshersAverageSalary from employee where (age >= 35 AND age <= 50);

select count(*) as NumberofFreshers from employee where title='Fresher';

select (count(*)* 100 / (Select Count(*) From employee)) as PercentageofProgrammer from employee

where title = 'Programmer';

select sum(salary) as CombinedSalary from employee where age >= 40;

select sum(salary) as FresherAndProgrammerCombinedSalary from employee where (title='Fresher' OR

title='Programmer');

select sum(salary)*12*3 as FreshersCombinedSalary from employee where title='Fresher' AND age >

27;
```

Using Sub-Queries (and usage of 'in' and 'between')

35. Select the eldest employee's firstname, lastname and age whose **salary** is less than **35000**
36. Who is the **youngest** General Manager
37. Select the **eldest** fresher whose salary is less than **35000**
38. Select firstname and age of everyone whose firstname starts with "**John**" or "**Michael**" and salary in the range **17000** and **26000**

```
/* using subqueries */
select firstname, lastname, age from employee where age in (select max(age) from employee where salary < 35000);

select firstname + ' ' + lastname as EmployeeName from employee where age in (select min(age) from employee where title='General Manager') and title='General Manager';

select * from employee where age in (select max(age) from employee where title='Fresher' and salary < 35000) and title='Fresher' and salary < 35000;

select firstname, age from employee where (firstname like 'John%' or firstname like 'Michael%') and (salary > 17000 and salary < 26000);
```

Using 'Group By' and 'Having' clause

39. How many employees are having each unique title. Select the title and display the number of employees present in ascending order
40. What is the average salary of each unique title of the employees. Select the title and display the average salary of employees in each
41. What is the average salary of employees excluding Freshers
42. What is the average age of employees of each unique title.
43. In the age range of 25 to 40 get the number of employees under each unique title.
44. Show the average salary of each unique title of employees only if the average salary is not less than 25000
45. Show the sum of ages of each unique title of employee only if the sum of age is greater than 30

```
/* Using GroupBy and having clause */

select title, count(title) as NumberofEmployees from employee group by title order by NumberofEmployees;

select title, avg(salary) as AverageSalary from employee group by title;

select avg(salary) as AvgSalNonFresher from employee where title != 'Fresher';

select title, avg(age) as AvgAgeofemployees from employee group by title;

select title, count(title) as Numberofemployees from employee where (age > 25 and age < 40) group by title;

select title, avg(salary) as AvgSalaryfrom employee where salary >= 25000 group by title;

select title, sum(age) as SumofAges from employee group by title having sum(age) > 30;
```

Basic Data Modification

Using 'Update'

- **Lisa Ray** just got married to **Michael Moore**. She has requested that her last name be updated to **Moore**.
- Ginger Finger's birthday is today, add **1** to his **age** and a **bonus** of **5000**
- All 'Programmer's are now called "**Engineer**"s. Update all titles accordingly.
- Everyone whose making under 30000 are to receive a **3500** bonus.
- Everyone whose making over 35500 are to be deducted 15% of their salaries

```
/* Basic Data Modification */

update employee set lastname='Moore' where firstname='Lisa';

update employee set age+=1, salary += 5000 where firstname='Ginger' and lastname='Finger';

update employee set title = 'Engineer' where title='Programmer';

update employee set salary+=3500 where salary < 30000;

update employee set salary-=((salary*15)/100) where salary > 35500;
```