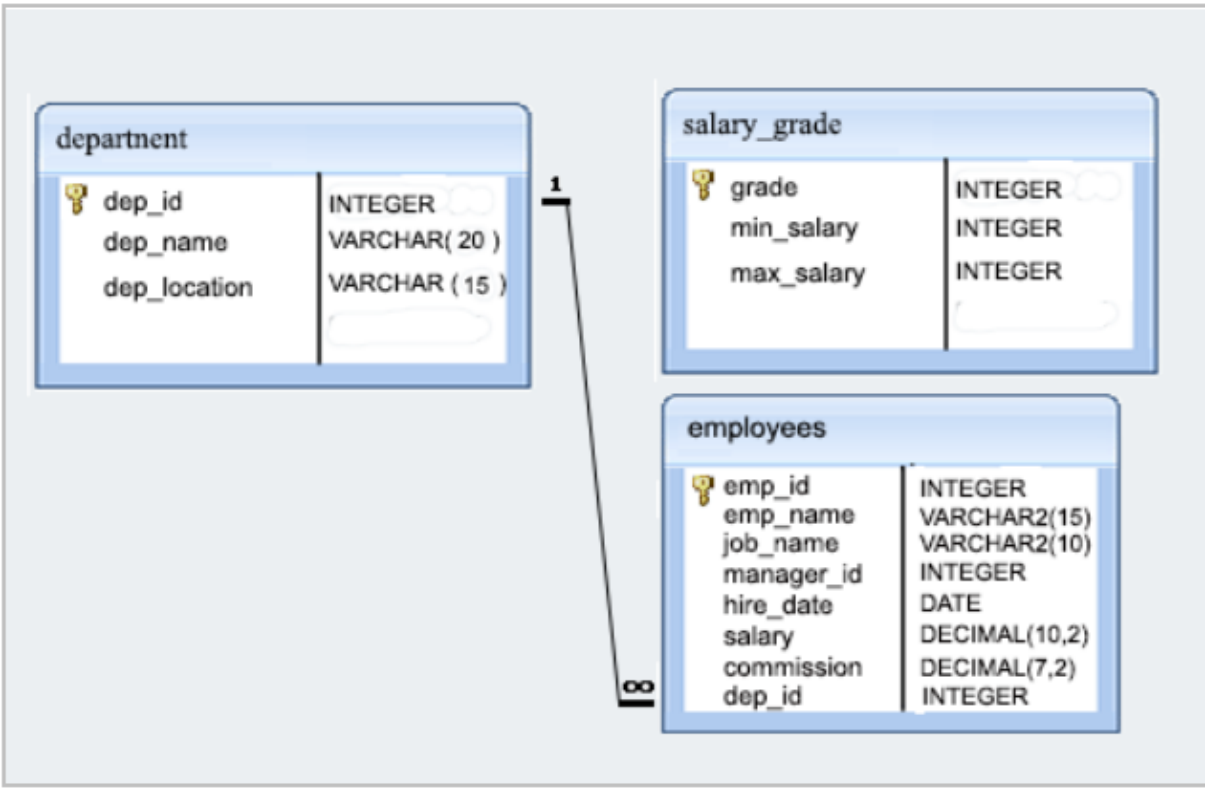
SQL

- Install SQL Server.
- Create database & 3 tables
    - Employees
    - Departments
    - Salary_grade



emp_id	emp_name	job_name	manager_id	hire_date	salary	commission	dep_id
68319	KAYLING	PRESIDENT		1991-11-18	6000.00		1001
66928	BLAZE	MANAGER	68319	1991-05-01	2750.00		3001
67832	CLARE	MANAGER	68319	1991-06-09	2550.00		1001
65646	JONAS	MANAGER	68319	1991-04-02	2957.00		2001
67858	SCARLET	ANALYST	65646	1997-04-19	3100.00		2001
69062	FRANK	ANALYST	65646	1991-12-03	3100.00		2001
63679	SANDRINE	CLERK	69062	1990-12-18	900.00		2001
64989	ADELYN	SALESMAN	66928	1991-02-20	1700.00	400.00	3001
65271	WADE	SALESMAN	66928	1991-02-22	1350.00	600.00	3001
66564	MADDEN	SALESMAN	66928	1991-09-28	1350.00	1500.00	3001
68454	TUCKER	SALESMAN	66928	1991-09-08	1600.00	0.00	3001
68736	ADNRES	CLERK	67858	1997-05-23	1200.00		2001
69000	JULIUS	CLERK	66928	1991-12-03	1050.00		3001
69324	MARKER	CLERK	67832	1992-01-23	1400.00		1001

(14 rows)

1. From the above table return complete information about the employees.

Sample Output:

```
 emp_id | emp_name | job_name  | manager_id | hire_date  | salary  | commission | dep_id
--------+----------+-----------+------------+------------+---------+------------+--------
  68319 | KAYLING  | PRESIDENT |            | 1991-11-18 | 6000.00 |            |   1001
  66928 | BLAZE    | MANAGER   |      68319 | 1991-05-01 | 2750.00 |            |   3001
  67832 | CLARE    | MANAGER   |      68319 | 1991-06-09 | 2550.00 |            |   1001
  65646 | JONAS    | MANAGER   |      68319 | 1991-04-02 | 2957.00 |            |   2001
  ....
```

2. From the table, write a SQL query to find the salaries of all employees. Return salary.

Sample Output:

```
 salary
---------
 6000.00
 2750.00
 2550.00
 2957.00
 ....
```

3. From the table, write a SQL query to find the unique designations of the employees. Return job name.

Sample Output:

```
 job_name
-----------
 CLERK
 SALESMAN
 MANAGER
 PRESIDENT
 ANALYST
(5 rows)
```

4. From the following table, write a SQL query to list the employees' names, increase their salary by 15%, and express the number of Dollars.

Sample Output:

```
 emp_name |  Salary
----------+----------
 KAYLING  | $  6,900
 BLAZE    | $  3,163
 CLARE    | $  2,933
 JONAS    | $  3,401
 SCARLET  | $  3,565
 ....
```

5. From the following table, write a SQL query to list the employee's name and job name as a format of "Employee & Job".

Sample Output:

```
   Employee & Job
---------------------
 KAYLING   PRESIDENT
 BLAZE   MANAGER
 CLARE   MANAGER
 JONAS   MANAGER
 SCARLET   ANALYST
 ....
```

6. From the following table, write a SQL query to find those employees with a hire date in the format like February 22, 1991. Return employee ID, employee name, salary, hire date.

```
 emp_id | emp_name | salary  |      to_char
--------+----------+---------+--------------------
  68319 | KAYLING  | 6000.00 | NOVEMBER  18,1991
  66928 | BLAZE    | 2750.00 | MAY       01,1991
  67832 | CLARE    | 2550.00 | JUNE      09,1991
  65646 | JONAS    | 2957.00 | APRIL     02,1991
  67858 | SCARLET  | 3100.00 | APRIL     19,1997
  ....
```

7. From the following table, write a SQL query to count the number of characters except the spaces for each employee name. Return employee name length.

```
 length
--------
      7
      5
      5
      5
      7
          ....
```

8. From the following table, write a SQL query to find the employee ID, salary, and commission of all the employees.

```
 emp_id | salary   | commission
--------+---------+------------
  68319 | 6000.00 |
  66928 | 2750.00 |
  67832 | 2550.00 |
  65646 | 2957.00 |
  67858 | 3100.00 |
  ....
```

9. From the following table, write a SQL query to find the unique department with jobs. Return department ID, Job name.

```
 dep_id | job_name
--------+-----------
   3001 | MANAGER
   2001 | ANALYST
   3001 | SALESMAN
   1001 | MANAGER
   1001 | PRESIDENT
   ...
```

10. From the following table, write a SQL query to find those employees who do not belong to the department 2001. Return complete information about the employees. (Using **NOT IN**)

```
 emp_id | emp_name | job_name  | manager_id | hire_date  | salary  | commission | dep_id
--------+----------+-----------+------------+------------+---------+------------+--------
  68319 | KAYLING  | PRESIDENT |            | 1991-11-18 | 6000.00 |            |   1001
  66928 | BLAZE    | MANAGER   |      68319 | 1991-05-01 | 2750.00 |            |   3001
  67832 | CLARE    | MANAGER   |      68319 | 1991-06-09 | 2550.00 |            |   1001
  64989 | ADELYN   | SALESMAN  |      66928 | 1991-02-20 | 1700.00 |     400.00 |   3001
  ....
```

11. From the following table, write a SQL query to find those employees who joined before 1991. Return complete information about the employees.

```
 emp_id | emp_name | job_name | manager_id | hire_date  | salary | commission | dep_id
--------+----------+----------+------------+------------+--------+------------+--------
  63679 | SANDRINE | CLERK    |      69062 | 1990-12-18 | 900.00 |            |   2001
(1 row)
```

12. From the following table, write a SQL query to compute the average salary of those employees who work as 'ANALYST'. Return average salary.

```
          avg
-----------------------
 3100.0000000000000000
(1 row)
```

13. From the following table, write a SQL query to find the details of the employee 'BLAZE'.

```
 emp_id | emp_name | job_name | manager_id | hire_date  | salary  | commission | dep_id
--------+----------+----------+------------+------------+---------+------------+--------
  66928 | BLAZE    | MANAGER  |      68319 | 1991-05-01 | 2750.00 |            |   3001
(1 row)
```

14. From the following table, write a SQL query to find those employees whose salary exceeds 3000 after giving a 25% increment. Return complete information about the employees.

```
 emp_id | emp_name | job_name  | manager_id | hire_date  | salary  | commission | dep_id
--------+----------+-----------+------------+------------+---------+------------+--------
  68319 | KAYLING  | PRESIDENT |            | 1991-11-18 | 6000.00 |            |   1001
  66928 | BLAZE    | MANAGER   |      68319 | 1991-05-01 | 2750.00 |            |   3001
  67832 | CLARE    | MANAGER   |      68319 | 1991-06-09 | 2550.00 |            |   1001
  65646 | JONAS    | MANAGER   |      68319 | 1991-04-02 | 2957.00 |            |   2001
  ....
```

15. From the following table, write a SQL query to find those employees who joined in the month January. Return complete information about the employees.

```
 emp_id | emp_name | job_name | manager_id | hire_date  | salary   | commission | dep_id
--------+----------+----------+------------+------------+----------+------------+--------
  69324 | MARKER   | CLERK    |      67832 | 1992-01-23 | 1400.00 |            |   1001
(1 row)
```

16. From the following table, write a SQL query to find those employees who joined before 1st April 1991. Return employee ID, employee name, hire date and salary.

```
 emp_id | emp_name | hire_date  | salary
--------+----------+------------+---------
  63679 | SANDRINE | 1990-12-18 |  900.00
  64989 | ADELYN   | 1991-02-20 | 1700.00
  65271 | WADE     | 1991-02-22 | 1350.00
(3 rows)
```

17. From the following table, write a SQL query to find the name and salary of the employee FRANK. Salary should be equal to the maximum salary within his or her salary group.(Using **Between**)

Sample table: salary_grade

```
 grade | min_sal | max_sal
-------+---------+---------
     1 |     800 |    1300
     2 |    1301 |    1500
     3 |    1501 |    2100
     4 |    2101 |    3100
     5 |    3101 |    9999
(5 rows)
```

Sample Output:

```
 emp_name | salary
----------+---------
 FRANK    | 3100.00
(1 row)
```

18. From the following table, write a SQL query to list all the employees except PRESIDENT and MANAGER in ascending order of salaries. Return complete information about the employees. (Using **Order By**)

Sample Output:

```
 emp_id | emp_name | job_name | manager_id | hire_date  | salary  | commission | dep_id
--------+----------+----------+------------+------------+---------+------------+--------
  63679 | SANDRINE | CLERK    |      69062 | 1990-12-18 |  900.00 |            |   2001
  69000 | JULIUS   | CLERK    |      66928 | 1991-12-03 | 1050.00 |            |   3001
  68736 | ADNRES   | CLERK    |      67858 | 1997-05-23 | 1200.00 |            |   2001
  66564 | MADDEN   | SALESMAN |      66928 | 1991-09-28 | 1350.00 |    1500.00 |   3001
  ....
```

19. From the following table, write a SQL query to find the highest salary. Return the highest salary.

Sample Output:

```
   max
---------
 6000.00
(1 row)
```

20. From the table, write a SQL query to find the average salary and average total remuneration (salary and commission) for each type of job. Return name, average salary and average total remuneration. (Using **GROUP BY**)

Sample Output:

```
 job_name  |          avg          |          avg
-----------+-----------------------+-----------------------
 CLERK     | 1137.5000000000000000 |
 SALESMAN  | 1500.0000000000000000 | 2125.0000000000000000
 MANAGER   | 2752.3333333333333333 |
 PRESIDENT | 6000.0000000000000000 |
 ANALYST   | 3100.0000000000000000 |
(5 rows)
```

21. From the following table, write a SQL query to find those employees who work in the department ID 1001 or 2001. Return employee ID, employee name, department ID, department location, and department name.(Using **IN** clause)

Sample table: department

```
--------+------------+-------------
   1001 | FINANCE    | SYDNEY
   2001 | AUDIT      | MELBOURNE
   3001 | MARKETING  | PERTH
   4001 | PRODUCTION | BRISBANE
(4 rows)
```

Sample Output:

```
emp_id | emp_name | dep_id | dep_location | dep_name
--------+----------+--------+--------------+----------
  68319 | KAYLING  |   1001 | SYDNEY       | FINANCE
  67832 | CLARE    |   1001 | SYDNEY       | FINANCE
  65646 | JONAS    |   2001 | MELBOURNE    | AUDIT
  68736 | ADNRES   |   2001 | MELBOURNE    | AUDIT
  ....
```

22. From the table, write a SQL query to list the managers and number of employees work under them. Sort the result set in ascending order on manager. Return manager ID and number of employees under them.(Using **GROUP BY & ORDER BY**)

Sample Output:

```
  manager_id | count
------------+-------
       65646 |     2
       66928 |     5
       67832 |     1
       67858 |     1
       68319 |     3
       69062 |     1
(6 rows)
```

23. From the table, write a SQL query to find those departments where at least two employees work. Return department id, number of employees.(**GROUP BY** & **HAVING**)

Sample Output:

```
 dep_id | count
--------+-------
   3001 |     6
   1001 |     3
   2001 |     5
(3 rows)
```

24. From the table, write a SQL query to find those employees whose names contain the character set 'AR' together. Return complete information about the employees. (using **'like'**)

Sample Output:

```
 emp_id | emp_name | job_name | manager_id | hire_date  | salary  | commission | dep_id
--------+----------+----------+------------+------------+---------+------------+--------
  67832 | CLARE    | MANAGER  |      68319 | 1991-06-09 | 2550.00 |            |   1001
  67858 | SCARLET  | ANALYST  |      65646 | 1997-04-19 | 3100.00 |            |   2001
  69324 | MARKER   | CLERK    |      67832 | 1992-01-23 | 1400.00 |            |   1001
(3 rows)
```

25. Add a column for “Gender” in the employee table and update each row accordingly.