**COLLEGE OF APPLIED BUSINESS**

Gangahity, Chabahil, Kathmandu-7, Nepal

**LAB ASSIGNMENT**

**CSIT 4TH SEMESTER | DATABASE MANAGEMENT SYSTEM (CSC 260)**

# Task 1: Retrieving Data using SQL SELECT statement

1. Determine the structure of the DEPARTMENTS table and contents.
2. Determine the structure of the employee table.
3. The HR department wants a query to display the last name, job code, hire date, and employee number for each employee, with the employee number appearing first. Provide an alias STARTDATE for the HIRE\_DATE column.
4. The HR department needs a query to display all unique job codes from the EMPLOYEES table.
5. The HR department wants a more descriptive column heading for its report on employees. Modify the Task\_1\_3 to name the column heading EMP #, Employee, Job, and Hire Date, respectively.
6. The HR department has requested a report of all employees and their job IDs. Display the last name concatenated with the job ID (separated by a comma and space) and name the column *Employee and Title*.

# Task 2: Restricting and sorting data

The HR department needs your assistance with creating some queries

1. Because of budget issues, the HR department needs a report that displays the last name and salary of employees earning more than $12,000.
2. Write a query that displays the last name and department number for employee number 176.
3. Run a query to display the last name, job ID, and start date for the employees whose last names are Matos and Taylor. Order the query in ascending order by start date.
4. Display the last name and department number of all employees in departments 20 or 50 in ascending alphabetical order by name.
5. Modify task\_2\_3 to list the last name and salary of employees who earn between $5,000 and $12,000 and are in department 20 or 50. Label the columns Employee and Monthly Salary, respectively.
6. The HR department needs a report that displays the last name and hire date for all employees who were hired in 1994.
7. Display the last name and job title of all employees who do not have a manager.
8. Display the last name, salary, and commission for all employees who earn commissions. sort data in descending order of salary and commissions.
9. Display all employee last names in which the third letter of the name is *a*.
10. Display the last names of all employees who have both an *a* and *e* in their last names.
11. Display the last name, job, and salary for all employees whose job is either that of a sales representative (SA\_REP) or a stock clerk (ST\_CLERK), and whose salary is not equal to $2,500, $3,500, or $7,000.
12. Modify lab\_02\_06.SQL to display the last name, salary, and commission for all employees whose commission amount is 20%.

# Task 3: Using Single-Row Functions to Customize Output

1. The HR department needs a report to display the employee number, last name, salary, and salary increase by 15.5% (expressed as a whole number) for each employee. Label the column New Salary.
2. Modify your task\_03\_01.sql query to add a column that subtracts the old salary from the new salary. Label the column **Increase**.
3. Write a query that displays the last name and the length of the last name for all employees whose name starts with letters J, A or M. Give each column an appropriate label. Sort the results by the employees' last names.

# Task 4: Using Conversion Functions and Conditional Expressions

1. Using the CASE function, write a query that displays the grade of all employees based on the value of the column JOB\_ID, using the following data:

|  |  |
| --- | --- |
| **Job** | **Grade** |
| AD\_PRES | A |
| ST\_MAN | B |
| IT\_PROG | C |
| SA\_REP | D |
| ST\_CLERK | E |
| None of the above | 0 |

**Task 5: Reporting Aggregated Data Using the Group Functions.**

1. Find the highest, lowest, sum, and average salary of all employees. Label the columns *Maximum, Minimum, Sum, and Average* respectively. Round your results to the nearest whole number.
2. Modify the query in task\_5\_1 to display the minimum, maximum, sum, and average salary for each job type.
3. Write a query to display the number of people with the same job.
4. Find the difference between the highest and lowest salaries. Label the column DIFFERENCE.
5. Create a query to display the manager number and the salary of the lowest-paid employee for the manager. Exclude anyone whose manager is not known. Exclude any groups where the minimum salary is $6,000 or less. Sort the output in descending order of salary.

# Task 6: Displaying Data from Multiple Tables

1. Write a query for the HR department to produce the addresses of all the departments. Use the LOCATIONS and COUNTRIES tables. Show the location ID, street address, city, state or province, and country in the output. Using inner join.
2. The HR department needs a report of all employees. Write a query to display the last name, department number, and department name for all employees.
3. The HR department needs a report of employees in Toronto. Display the last name, job, department number, department name, and city for all employees who work in Toronto.

# Task 7: Using subqueries to solve queries

1. Create a report that displays the employee number, last name, and salary of all employees who earn more than the average salary. Sort the results in ascending order by salary.
2. Write a query that displays the employee number and last name of all employees who work in a department with any employee whose last name contains a ***U***.
3. The HR department needs a report that displays the last name, department number, and job ID of all employees whose department location ID is 1700.
4. Create a report for the HR department that displays the last name and salary of every employee who reports to King.

# Task 8: Using Set Operators

1. The HR department needs a list of departments for departments that do not contain the job ID ST\_CLERK. Use set operators to create this report.
2. Create a report that lists the employee ID and job ID of those employees who currently have a job title that is the same as their job title when they were initially hired by the company (they changed jobs but have now gone back to doing their original job).

# Task 9: Creating a table using DDL statements and Data Manipulation

*The HR department wants you to create SQL statements to insert, update and delete employee data. As a prototype, you use the* MY\_EMPLOYEE *Table, before giving statements to the HR department.*

1. Create an MY\_EMPLOYEE table to use for the lab.

|  |  |  |
| --- | --- | --- |
| **Field** | **Data type** | **Constraint type** |
| id | number (4) | PRIMARY KEY, NOT NULL |
| last\_name | varchar2 (25) |  |
| first\_name | varchar2 (25) | NOT NULL |
| userid | varchar2 (25) | UNIQUE |
| salary | number (9,2) |  |

1. Create an INSERT statement to add the rows of data to the my\_employee table from the following sample data.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **Last\_name** | **First\_name** | **UserID** | **Salary** |
| 1 | Patel | Ralph | Rpatel | 895 |
| 2 | Dancs | Betty | Bdancs | 860 |
| 3 | Biri | Ben | Bbiri | 1100 |
| 4 | Newman | Chad | Crewman | 750 |
| 5 | Ropeburn | Audrey | Aropebur | 1550 |

1. Confirm your addition to the table.
2. Make the data addition permanent.

/\* *Update and delete data in the my\_employee table*. \*/

1. Change the last name of employee 3 to Drexler.
2. Change the salary to $1,000 for all employees with a salary less than $ 900.
3. Delete Betty Dancs from the my\_employee table.
4. Commit all pending changes.

**Task 10: Creating other Schema Objects.**

1. The staff in the HR department wants to hide some of the data in the EMPLOYEES table. They want a view called EMPLOYEES\_VU based on the employee numbers, employee last names, and department numbers from the EMPLOYEES table. They want the heading for the employee name to be EMPLOYEE.
2. Confirm that the view works. Display the contents of the EMPLOYEE\_VU view.
3. Using your EMPLOYEE\_VU view, write a query for the HR department to display all employee names and department numbers.
4. Create synonyms emp for the employee’s table.
5. Confirm that the synonyms work. Display the contents of the emp table using recently created synonyms.