**Database Management Systems Lab CS691**

**Assignments**

1. Create the following tables:
2. Table Name: DEPT (representing Department)

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Size | Constraints |
| Dno | Number | 3 | Primary key |
| Dname | Varchar | 10 |  |

1. Table Name: EMP (representing Employee)

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Size | Constraints |
| Eno | Varchar | 5 | Primary key and first character must be ‘E’ |
| Ename | Varchar | 10 | Not null |
| City | Char | 10 | Cities allowed ‘delhi’,’kolkata’,’chennai’,’mumbai’ |
| Salary | Integer |  |  |
| JoinDate | Date |  |  |
| Dno | Number | 3 | Foreign key reference DEPT table |

1. Table Name: PROJECT (representing Project)

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Size | Constraints |
| Pno | Varchar | 5 | Primary key and first character must be ‘P’ |
| Eno | Varchar | 5 | Primary key and foreign key reference EMP |

1. Insert the following data into the corresponding table:
2. Table: DEPT

|  |  |
| --- | --- |
| Dno | Dname |
| 1 | research |
| 2 | finance |

1. Table: EMP

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Eno | Ename | City | Salary | JoinDate | Dno |
| E1 | ashim | kolkata | 18000 | 01-jan-14 | 1 |
| E2 | kamal | mumbai | 10000 | 01-jun-14 | 2 |
| E3 | tamal | chennai | 7000 | 01-jan-15 | 1 |
| E4 | asha | kolkata | 8000 | 01-jun-15 | 2 |
| E5 | timir | delhi | 7000 | 01-jan-16 | 1 |

1. Table: PROJECT

|  |  |
| --- | --- |
| Pno | Eno |
| P1 | E1 |
| P2 | E3 |
| P1 | E5 |
| P2 | E1 |

1. Write SQL for following queries:
2. Display the structure of table EMP.
3. Modify the data type size of Ename to varchar 15.
4. Display the user constraints of table EMP.
5. a) Add a new column Mobileno which is unique (candidate key) of table EMP.

b) Add the constraint for Mobileno which is exactly of 10 digit.

c) Drop all constraints of Mobileno.

d) Drop the column Mobileno of table EMP.

1. a) Add a new column MgrId (representing ManagerId) of data size varchar 5 and

MgrId values should reference from Eno of table EMP.

b) Update the table EMP with following MgrId values:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Eno | Ename | City | Salary | JoinDate | Dno | Mobileno | MgrId |
| E1 | ashim | kolkata | 18000 | 01-jan-14 | 1 | 9876543211 | E1 |
| E2 | kamal | mumbai | 10000 | 01-jun-14 | 2 | 9876543212 | E2 |
| E3 | tamal | chennai | 7000 | 01-jan-15 | 1 | 9876543213 | E1 |
| E4 | asha | kolkata | 8000 | 01-jun-15 | 2 | 9876543214 | E2 |
| E5 | timir | delhi | 7000 | 01-jan-16 | 1 | 9876543215 | E1 |

1. a) Display list of all employees in department no 2.

b) Display name and salary of employees in department number 1 and 2.

c) Display name of employees having ‘a’ as the second letter in their name.

d) Display list of all employees who have name exactly 4 characters.

e) Display employee names and department no for those who joined in the month of June.

f) Display the list of all employees who were joined during 2015.

g) Display the joining date of all employees in dd/mm/yy format.

1. a) Display names of all employees in the alphabetic order.

b) List the name and the salary of all employee sorted by salary descending order.

c) List all the employee names whose salary is greater than 7000 and less than 18000.

d) List of all employees who have salary between 7000 and 8000.

e) Display employee names and department nos of all employees who belong to either

‘chennai’,or ‘kolkata’, or ‘mumbai’.

1. a) Find the average salary of all employees.

b) Find the difference between highest and lowest salary of employee.

c) Display the department no and no. of employees in each department.

d) Display employee no, employee name and salary for employee with lowest salary.

e) List only the names of all other employees who get the same salary as that of ‘tamal’.

1. a) Find all department numbers that have more than two employees.

b) Display the names of all employees who engaged in two or more projects.

c) List no. of projects undertaken in the department 1.

d) Display name and salary for all employees who are engaged with at least one project.

e) Display employee names and department names of all employees who belong to either

‘chennai’,or ‘kolkata’, or ‘mumbai’.

1. a) Display employee name who get the highest salary.

b) Display employee name who get the 2nd highest salary.

c) Display department number having most number of employees.

d) Display employee name along with their manager name using self-join concept.

e) Display employee name along with their department name using natural join and inner join.

1. a) Create the following tables:

Table Name: STUDENT

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Size | Constraints |
| Rollno | Number | 3 | Primary key |
| Sname | Varchar | 10 |  |

Table Name: PLACEMENT

|  |  |  |  |
| --- | --- | --- | --- |
| Column Name | Data Type | Size | Constraints |
| Rollno | Number | 3 | Foreign key reference STUDENT |
| CompanyName | Varchar | 10 |  |
| CampusDate | Date |  |  |

b) Insert the following data into the corresponding table:

Table: STUDENT

|  |  |
| --- | --- |
| Rollno | Sname |
| 1 | Ram |
| 2 | Shyam |
| 3 | Rahim |

Table: PLACEMENT

|  |  |  |
| --- | --- | --- |
| Rollno | CompanyName | CampusDate |
| 1 | TCS | 10-Nov-19 |
| 1 | CTS | 20-Dec-19 |
| 2 | TCS | 10-Nov-19 |
| 3 | CTS | 20-Dec-19 |
|  | GOOGLE | 26-Dec-19 |

c) Display student rollno, sname, company name, campus date where they got job using left,

right and full outer join on student and placement table having common attribute rollno.

12. a) Display name of employees whose either salary>=8000 or resides in city kolkata using

union operation.

b) Display name of employees whose salary>=8000 and resides in city kolkata using intersect

operation.

c) Display employees name, salary and city whose salary>=8000 but not resides in city

kolkata using minus operation.

d) Display detail of employees who work in some project.

e) Display detail of employees who does not work in any project.

13. a) Execute a PL/SQL program to calculate factorial of a given number.

b) Execute a PL/SQL program to calculate area of a circle of a value of radius from 3 to 7 and Insert the radius and the corresponding values of calculated areas in table Circle(radius, area).

c) Add an extra column circumference to the table Circle and execute another PL/SQL

program to update the calculated circumference for respective radius values.

d) Execute a PL/SQL program to search a specific radius value from the table Circle. If the

radius found then show radius, area, circumference otherwise display “not found”.

14. a) Execute a PL/SQL procedure to calculate sum of two numbers.

b) Execute a PL/SQL function which returns maximum of three numbers.

c) Execute a PL/SQL program that will permanentlyincrease salary by 5,000 for employees if

total\_salary greater than 2,00,000 otherwise undo from savepoint.

15. a) Execute a PL/SQL cursor that will display the loanNo, loanBranch and loanAmount of the first 3 loans taking from the highest loanAmount.

b) Execute a PL/SQL trigger that will make a log table in audit\_account (accNo, accBranch,

amount, operation,sysdate) for operation like updation or deletion on account table.