**LAB 5 SOLUTIONS**

**Exercise 1**

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| **Q1** | Find the names of all people who work in the Consulting department. |
|  | SELECT FIRSTNAME+' '+LASTNAME FROM EMPLOYEES WHERE  DEPTCODE IN( SELECT CODE FROM DEPARTMENTS WHERE  NAME='CONSULTING'); |
| **Q2** | Find the total percentage of time assigned to employee Abe Advice. |
|  | SELECT (SUM(ASSIGNEDTIME)/ (SELECT SUM(ASSIGNEDTIME) FROM  WORKSON))\*100 FROM WORKSON WHERE EMPLOYEEID =(SELECT  EMPLOYEEID FROM EMPLOYEES WHERE FIRSTNAME+' '+LASTNAME =  'ABE ADVICE') GROUP BY EMPLOYEEID; |
| **Q3** | Find the names of all departments not currently assigned a project. |
|  | SELECT NAME FROM DEPARTMENTS WHERE CODE NOT IN (SELECT  DISTINCT DEPTCODE FROM PROJECTS ); |
| **Q4** | Find the first and last names of all employees who make more than the average salary of the people in the Accounting department. |
|  | SELECT FIRSTNAME, LASTNAME FROM EMPLOYEES WHERE  SALARY>(SELECT AVG(SALARY) FROM EMPLOYEES E,DEPARTMENTS D  WHERE E.DEPTCODE=D.CODE AND D.NAME='ACCOUNTING'); |
| **Q5** | Find the descriptions of all projects that require more than 70% of an employee’s time. |

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|  | SELECT DESCRIPTION FROM PROJECTS  WHERE PROJECTID IN(  SELECT W1.PROJECTID  FROM WORKSON W1  WHERE (W1.ASSIGNEDTIME/(SELECT SUM(W.ASSIGNEDTIME)  FROM WORKSON W  WHERE W.EMPLOYEEID = W1.EMPLOYEEID  GROUP BY W.EMPLOYEEID)>.7)); |
| **Q6** | Find the first and last name of all employees who are paid more than someone in the Accounting department. |
|  | SELECT FIRSTNAME, LASTNAME FROM EMPLOYEES WHERE SALARY >  ANY(SELECT SALARY FROM EMPLOYEES E, DEPARTMENTS D WHERE  E.DEPTCODE=D.CODE AND D.NAME='ACCOUNTING'); |
| **Q7** | Find the minimum salary of the employees who are paid more than everyone in the Accounting department. |
|  | SELECT MIN(SALARY) FROM EMPLOYEES WHERE SALARY > ALL(SELECT  SALARY FROM EMPLOYEES E, DEPARTMENTS D WHERE  E.DEPTCODE=D.CODE AND D.NAME='ACCOUNTING'); |
| **Q8** | Find the first and last name of the highest paid employee(s) in the Accounting department. |
|  | SELECT FIRSTNAME,LASTNAME FROM EMPLOYEES WHERE SALARY=  (SELECT  MAX(SALARY) FROM EMPLOYEES E,DEPARTMENTS D WHERE  E.DEPTCODE=D.CODE AND D.NAME='ACCOUNTING'); |

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| Exercise 2 | |
| Q2 | Find the names of all people who work in the Consulting department and who spend more than 20% of their time on the project with ID ADT4MFIA. |
|  | SELECT FIRSTNAME+' '+LASTNAME FROM EMPLOYEES WHERE  DEPTCODE IN(  SELECT CODE  FROM DEPARTMENTS  WHERE NAME='CONSULTING') AND EMPLOYEEID IN(  SELECT W1.EMPLOYEEID  FROM WORKSON W1  WHERE W1.PROJECTID='ADT4MFIA' AND W1.ASSIGNEDTIME/(SELECT  SUM(W.ASSIGNEDTIME)  FROM WORKSON W  WHERE W.EMPLOYEEID = W1.EMPLOYEEID GROUP BY W.EMPLOYEEID)>.2); |
| Q3 | For each employee in the department with code ACCNT, find the employee ID and number of assigned hours that the employee is currently working on projects for other departments. Only report an employee if she has some current project to which she is assigned more than 50% of the time and the project is for another department. Report the results in ascending order by hours. |
|  | SELECT W1.EMPLOYEEID , SUM(W1.ASSIGNEDTIME) FROM WORKSON W1  WHERE (EXISTS (SELECT PROJECTID FROM WORKSON W WHERE  W.EMPLOYEEID = W1.EMPLOYEEID AND 0.5 < (  W.ASSIGNEDTIME/(SELECT SUM(WO.ASSIGNEDTIME)  FROM WORKSON WO  WHERE W.EMPLOYEEID = WO.EMPLOYEEID AND  WO.PROJECTID NOT IN (  SELECT PROJECTID  FROM PROJECTS P, DEPARTMENTS D ,EMPLOYEES E  WHERE P.DEPTCODE=D.CODE AND E.DEPTCODE = D.CODE AND  W.EMPLOYEEID=E.EMPLOYEEID) |
| Q3 | Find all departments where all of their employees are assigned to all of their projects. |
|  | SELECT D.NAME FROM DEPARTMENTS D WHERE EXISTS (SELECT  E.FIRSTNAME FROM EMPLOYEES E WHERE E.DEPTCODE = D.CODE AND  NOT EXISTS ((SELECT PROJECTID FROM PROJECTS P1 WHERE  P1.DEPTCODE = D.CODE) EXCEPT (SELECT P.PROJECTID FROM  PROJECTS P, WORKSON W WHERE W.EMPLOYEEID = E.EMPLOYEEID AND  W.PROJECTID = P.PROJECTID))); |
| Q4 | Use correlated subqueries in the SELECT and WHERE clauses, derived tables, and subqueries in the HAVING clause to answer these queries. If they cannot be answered using that technique, explain why. |
| (a) | Find the names of all people who work in the Information Technology department. |
|  | SELECT FIRSTNAME+' '+ LASTNAME FROM EMPLOYEES WHERE DEPTCODE  IN(SELECT CODE FROM DEPARTMENTS WHERE NAME='INFORMATION  TECHNOLOGY'); |
| (b) | Find the names of all people who work in the Information Technology department and who spend more than 20% of their time on the health project. |
|  | SELECT FIRSTNAME+' '+ LASTNAME FROM EMPLOYEES WHERE DEPTCODE  IN(SELECT CODE FROM DEPARTMENTS WHERE NAME='INFORMATION  TECHNOLOGY') AND EMPLOYEEID IN  (SELECT EMPLOYEEID FROM WORKSON W,PROJECTS P  WHERE W.PROJECTID=P.PROJECTID AND P.DESCRIPTION='HEALTH'AND  W.ASSIGNEDTIME/(SELECT SUM(W1.ASSIGNEDTIME)  FROM WORKSON W1  WHERE W.EMPLOYEEID = W1.EMPLOYEEID GROUP BY W1.EMPLOYEEID)>.2  GROUP BY EMPLOYEEID); |
| (c) | Find the names of all people who make more than the average salary of the people in the Accounting department. |
|  | SELECT FIRSTNAME, LASTNAME FROM EMPLOYEES WHERE  SALARY>(SELECT AVG(SALARY) FROM EMPLOYEES E,DEPARTMENTS D  WHERE E.DEPTCODE=D.CODE AND D.NAME='ACCOUNTING'); |
| (d) | Find the names of all projects that require more than 50% of an employee’s time. |
|  | SELECT DESCRIPTION FROM PROJECTS  WHERE PROJECTID IN(  SELECT W1.PROJECTID  FROM WORKSON W1 |
|  | WHERE (W1.ASSIGNEDTIME/(SELECT SUM(W.ASSIGNEDTIME)  FROM WORKSON W  WHERE W.EMPLOYEEID = W1.EMPLOYEEID  GROUP BY W.EMPLOYEEID)>.5)); |
| (e) | Find the total percentage time assigned to employee Bob Smith. |
|  | SELECT (SUM(ASSIGNEDTIME)/ (SELECT SUM(ASSIGNEDTIME) FROM  WORKSON))\*100 FROM WORKSON WHERE EMPLOYEEID =(SELECT  EMPLOYEEID FROM EMPLOYEES WHERE FIRSTNAME+' '+LASTNAME = 'BOB  SMITH') GROUP BY EMPLOYEEID; |
| (f) | Find all departments not assigned a project. |
|  | SELECT CODE FROM DEPARTMENTS EXCEPT SELECT DEPTCODE FROM  PROJECTS ; |
| (g) | Find all employees who are paid more than someone in the Information Technology department. |
|  | SELECT FIRSTNAME+' '+LASTNAME FROM EMPLOYEES WHERE SALARY >  ANY(SELECT SALARY FROM EMPLOYEES E, DEPARTMENTS D WHERE  E.DEPTCODE=D.CODE AND D.NAME='INFORMATION TECHNOLOGY'); |
| (h) | Find all employees who are paid more than everyone in the Information Technology department. |
|  | SELECT FIRSTNAME+' '+LASTNAME FROM EMPLOYEES WHERE SALARY >  ALL(SELECT SALARY FROM EMPLOYEES E, DEPARTMENTS D WHERE  E.DEPTCODE=D.CODE AND D.NAME='INFORMATION TECHNOLOGY'); |
| (i) | Find the highest paid employee in the Information Technology department. |
|  | SELECT MAX(SALARY) FROM EMPLOYEES WHERE DEPTCODE IN (SELECT  CODE FROM DEPARTMENTS WHERE NAME='INFORMATION TECHNOLOGY'); |

*Note: Solutions provided are for your own reference and may have other possible variations or interpretations. In case of any query, kindly contact your lab instructors.*