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Experiment: 10

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Branch: MCA (Gen) **Section/Group: MCA-4/B**
Semester: 1st **Subject Code: 23CAP-507**
Subject Name: Linux Administration Lab
Date of Performance: 10/11/2023

1. **Aim/Overview of the practical:** To understand the concept of simplifying the queries in SQL.

2. **Task to be done:** You are given a query to simplify it to relational algebra and produce the same results as follows:

   SELECT ENAME,SAL FROM EMP,PROJ,ASG,PAY WHERE EMP.ENO = ASG.ENO
   AND EMP.TITLE = PAY.TITLE
   AND (BUDGET>200000 OR DUR>24)
   AND ASG.PNO = PROJ.PNO AND (DUR>24 OR PNAME = "CAD/CAM")

3. **Steps/Commands involved to perform practical:**

   The given query can be transformed into a sequence of relational algebra operations, and each step in the process corresponds to a specific operation or selection. Here are the steps of the process:

   1. **Selection on EMP Table:** Select rows where EMP.ENO matches ASG.ENO. This is achieved using the selection operation (σ) on the EMP table: σ (EMP.ENO = ASG.ENO)(EMP)

   2. **Selection on EMP Table (2nd Condition):** Select rows where EMP.TITLE matches PAY.TITLE. This is achieved using another selection operation (σ) on the result of step 1: σ (EMP.TITLE = PAY.TITLE)(σ (EMP.ENO = ASG.ENO)(EMP))

   3. **Selection on PROJ Table:** Select rows that satisfy the conditions (BUDGET > 200000 OR DUR > 24) AND (DUR > 24 OR PNAME = "CAD/CAM"). This is done

by applying a selection operation on the PROJ table: σ ((BUDGET > 200000 OR DUR > 24) AND (DUR > 24 OR PNAME = "CAD/CAM"))(PROJ)

4. **Result/Output/Writing Summary:**

π (ENAME, SAL)(σ (EMP.ENO = ASG.ENO)(EMP) ✂ σ (EMP.TITLE = PAY.TITLE)(EMP) ✂ σ (BUDGET > 200000 OR DUR > 24) AND (DUR > 24 OR PNAME = "CAD/CAM")(PROJ))

Learning outcomes (What I have learnt):

1. **To concatenate two columns.**
2. **To use multiple conditions.**
3. **To use Date data-type.**
4. **Understood relational algebra and its operators.**