Experiment No. 6

Consider the following query on our Engineering database:

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")

Compose the selection predicate corresponding to the WHERE clause and transform it, using the idempotency rules, into the simplest equivalent form. Furthermore, compose an operator tree corresponding to the query and transform it, using relational algebra transformation rules, to three equivalent forms

**Objective:** To understand and implement the concept of query optimization

## Solution:

The selection predicate of this query is the following:

(BUDGET > 200000∨DUR > 24)(DUR > 24∨PNAME = “CAD/CAM”)

Note that this is in conjunctive normal form. If it is converted to disjunctive normal form and then simplify for the two DUR > 24, it becomes

DUR > 24∨(BUDGET > 200000𝖠PNAME = “CAD/CAM”)

The generic operator tree corresponding to the simplified query is given in Figure below:

