Homework 3

Part 1

- SELECT COUNT(playerNum) FROM SuperBallScores;

  Execution time : 0.015 seconds

  It runs quickly as compared to others as this provides count.

- SELECT playerNum, MIN(score), MAX (score) FROM SuperBallScores GROUP BY playerNum;

  Execution time : 0.022 seconds

  It takes slightly more time than query1 as query has group by and min,max operations.

- SELECT T1.playerNum FROM SuperBallScores T1, SuperBallScores T2 WHERE T1.playerNum = T2.playerNum;

  Execution time : 0.086 seconds

  This query runs slower than query2 as it has joins on table and fetching all the records.

- UPDATE SuperBallScores SET score=score - 10;

  Execution time : 00:00:00.109 seconds

  This is DML query which is quite slower than wbove queries as all rows are updating in this query

Part2

1. R1<- Emp $\bowtie_{emp.eid = dept.managerid}$ Dept

   $\Pi_{ename,age}(\sigma_{dname=\text{"Hardware"} \wedge dname=\text{"Software"}}(R1))$

2. R1<- Dept $\bowtie_{dept.did = Works.did}$ Works

   $\Pi_{did,empcount}\ \gamma_{empcount = count(eid)}(R1)$

   $\sigma_{pct\_time > 100}$

3. R1<- Emp $\bowtie_{emp.eid = dept.managerid}$ Dept

   R2<- $_{dname,sum(budget)}R1$

   $\Pi_{ename}(\sigma_{salary > R1}(R2))$

4. $\Pi_{managerid}(Dept) - \Pi_{managerid}(\sigma_{budget <= 1000000}(Dept))$

5. R1<- Dept $\bowtie_{dept.managerid = emp.eid}$ Emp

   $\Pi_{ename}(\sigma_{dept.budget = (large\_budget = max(dept.budget)}(R1)))$