CMPE 272 - Database Team based Assignment

1) Created a Sample database and running a query after connecting to it

```
DB2 CLP - DB2COPY1 - C:\PROGRA~1\IBM\SQLLIB\BIN\db2setcp.bat  DB2SETCP.BAT DB2.EXE
(c) Copyright IBM Corporation 1993,2007
Command Line Processor for DB2 Client 11.1.1.1

You can issue database manager commands and SQL statements from the command
prompt. For example:
    db2 => connect to sample
    db2 => bind sample.bnd

For general help, type: ?.
For command help, type: ? command, where command can be
the first few keywords of a database manager command. For example:
 ? CATALOG DATABASE for help on the CATALOG DATABASE command
 ? CATALOG          for help on all of the CATALOG commands.

To exit db2 interactive mode, type QUIT at the command prompt. Outside
interactive mode, all commands must be prefixed with 'db2'.
To list the current command option settings, type LIST COMMAND OPTIONS.

For more detailed help, refer to the Online Reference Manual.

db2 => connect to Sample

   Database Connection Information

 Database server        = DB2/NT64 11.1.1.1
 SQL authorization ID   = SUCHISHR...
 Local database alias   = SAMPLE

db2 => select firstnme, salary from emp e,dept d where e.workdept = d.deptno and job = 'MANAGER' and salary > 90000 group by firstnme,salary

FIRSTNME     SALARY
------------ -----------
EVA             96170.00
MICHAEL         94250.00
SALLY           98250.00

  3 record(s) selected.

db2 =>
```

2) Created the Explain table using EXPLAIN.DDL and set the Explain mode on to capture the query processing.

```
db2 => SET CURRENT EXPLAIN MODE EXPLAIN
DB20000I  The SQL command completed successfully.
db2 => select firstnme, salary from emp e,dept d where e.workdept = d.deptno and job = 'MANAGER' and salary > 90000 group by firstnme,salary
SQL0217W  The statement was not executed as only Explain information requests
are being processed.  SQLSTATE=01604
db2 => SET CURRENT EXPLAIN MODE NO
DB20000I  The SQL command completed successfully.
db2 =>
```

3) Using db2exfmt, generated the query explain plan

```
DB2 Universal Database Version 11.1, 5622-044 (c) Copyright IBM Corp. 1991, 2015
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IBM DATABASE 2 Explain Table Format Tool


Enter Database Name ==> SAMPLE
Connecting to the Database.
Connect to Database Successful.
Enter up to 26 character Explain timestamp (Default -1) ==>
Enter up to 128 character source name (SOURCE_NAME, Default %%) ==>
Enter source schema (SOURCE_SCHEMA, Default %%) ==>
Enter section number (0 for all, Default 0) ==>
Enter outfile name. Default is to terminal ==> C:\Users\Suchishree\Downloads\Ranjan_Class_Notes\Assignment1\outfile
```

IBM DB2 Universal Database SQL and XQUERY Explain Tool

******************** DYNAMIC **

==================== STATEMENT ==

        Isolation Level   = Cursor Stability
        Blocking   = Block Unambiguous Cursors
        Query Optimization Class = 5

        Partition Parallel   = No
        Intra-Partition Parallel = No

        SQL Path   = "SYSIBM", "SYSFUN", "SYSPROC", "SYSIBMADM",
                                     "SUCHISHREE"

Statement:

  select firstnme, salary
  from emp e, dept d
  where e.workdept =d.deptno and job ='MANAGER' and salary > 90000
  group by firstnme, salary

Section Code Page = 1208

Estimated Cost = 6.820552
Estimated Cardinality = 0.653637

Access Table Name = SUCHISHREE.EMPLOYEE   ID = 2,6
| #Columns = 2
| Skip Inserted Rows
| Avoid Locking Committed Data
| Currently Committed for Cursor Stability
| May participate in Scan Sharing structures
| Scan may start anywhere and wrap, for completion
| Fast scan, for purposes of scan sharing management
| Scan can be throttled in scan sharing management
| Relation Scan
| | Prefetch: Eligible
| Lock Intents
| | Table: Intent Share
| | Row : Next Key Share
| Sargable Predicate(s)
| | #Predicates = 3
| | Insert Into Sorted Temp Table ID = t1
| | | #Columns = 2
| | | #Sort Key Columns = 2

```
|  |  | Insert Into Sorted Temp Table  ID = t1
|  |  |  #Columns = 2
|  |  |  #Sort Key Columns = 2
|  |  |  |  Key 1: FIRSTNME (Ascending)
|  |  |  |  Key 2: SALARY (Ascending)
|  |  |  Sortheap Allocation Parameters:
|  |  |  |  #Rows       = 1.000000
|  |  |  |  Row Width = 20
|  |  |  Piped
|  |  |  Duplicate Elimination
Sorted Temp Table Completion  ID = t1
Access Temp Table  ID = t1
|   #Columns = 2
|   Relation Scan
|  |  Prefetch: Eligible
|   Sargable Predicate(s)
|  |  Distinct Filter  #Columns = 2
|  |  Return Data to Application
|  |  |  #Columns = 2
Return Data Completion


End of section


Optimizer Plan:


    Rows
  Operator
    (ID)
    Cost

  0.653637
   RETURN
    ( 1)
  6.82055
     |
  0.653637
   GRPBY
    ( 2)
  6.82055
     |
  0.653637
   TBSCAN
    ( 3)
  6.82052
     |
  0.653637
    SORT
    ( 4)
  6.82042
```

```
0.653637
 TBSCAN
  ( 3)
 6.82052
    |
0.653637
  SORT
  ( 4)
 6.82042
    |
0.653637
 TBSCAN
  ( 5)
 6.82021
    |
   42
Table:
SUCHISHREE
EMPLOYEE
```

4) Attached is the output file that contains the query explain plan output from db2exfmt

Output file:

outfile