PROJECT2 - DBMS

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Files Description

- data - Directory contains all files related to saved table.
  - For each table there are two files *table_name_data.txt* which contains all tuples of table and *table_name_desc.txt* which contains information about table columns or attributes first line contains table name, second line names of all column and third line contains code for table columns data type.

- code.cpp - Complete documented c++ code for this project.
- queries.txt - Contains various queries which can be performed for tables stored in data file like *Customer* and *CustomerPhone*.
- Readme.pdf - Contains description related to input format and how to set up this program running and install dependencies .

Setup

- Extract the zip folder in CD.
- Open shell and go inside this folder using cd command in terminal.
- Run the code.cpp using command “g++ -std=c++11 code.cpp -o code” for compiling and then “./code” for execution.
- If not able to compile then directly run compiled file by “./code” .

- “Welcome to SQL..” message appears then enter any query command from queries.txt or making you own command.
- After performing all queries enter exit to move out of the program “Good bye...” message appears.

Queries:

- Project : P([*col1, col2, col3*], *table_name*);
  - *col1, col2, col3* and so on..are name of columns present in table.
  - *table_name* name of table on which projection has to be applied
  - In place of *table_name* nested queries can be given.

  Examples:
  - P([Name,Age,Sex],Customer);
  -P([Name,Age,Sex],S([Age<=20],Customer));

- Select: S([*cond1, cond2, cond3*], *table_name*);
  - *cond1, cond2, cond3* and so on..are condition to be applied on table_name.
  - *Cond1 is like Age > 30 or it may be like Name = Arpit* or can compare two columns like Id=Cust_Id.

    List of operators are:- >, < , >=, <=, != .

  - *table_name* name of table on which selection has to be applied
  - In place of *table_name* nested queries can be given.

  Examples:
  - S([Age>20,Sex=F],Customer);

- S([Age<=22,Sex=F],P([Name,Age,Sex],Customer));

- Rename: R(new_name, [*col1, col2, col3*], *table_name*);
  - *col1, col2, col3* and so on..are name of new columns to replace earlier columns in table.
  - new_name is new name of table.
  - *table_name* name of table on which Rename has to be done.
  - In place of *table_name* nested queries can be given.

  Examples:

  -R(new_Customer,[],Customer);
  -R(new_Customer,[Cust_Name,Cust_Age,Cust_Sex],P([Name,Age,Sex],Customer));

- Union: U(*table_name1* , *table_name2*);
  - *table_name1* and *table_name2* are names of two table on which union has to be performed .
  - *table_name1* and *table_name2* has to Union compatible.
  - In place of *table_name1* and *table_name2* nested queries can be given.

  Examples:
  - U(Customer,Customer);
  - U(S([Age<20],Customer), S([City=Delhi],Customer));

- Cartesian Product: C(*table_name1* , *table_name2*);

- *table_name1* and *table_name2* are names of two table on which cartesian product has to be performed .
- In place of *table_name1* and *table_name2* nested queries can be given.

Examples:

- C(Customer, R(Customer2,[ ],Customer));

- Set Difference: D(*table_name1* , *table_name2*);
  - *table_name1* and *table_name2* are names of two table on which set difference operation has to be performed .
  - It perform set difference operation *Table1 - Table2*.
  - *table_name1* and *table_name2* has to Union compatible.
  - In place of *table_name1* and *table_name2* nested queries can be given.

  Examples:

  - D(S([Age>20],Customer),S([Sex=F],Customer));

- exit : for exit the Interface.

  Examples:

  -exit

Error Handling

Error codes and their description :-

- *error_code* 0 : Table not present.
- *error_code* 1 : Column name not present in table.
- *error_code* 2 : No of column does not match.
- *error_code* 3 : Condition specified not present in table.
- *error_code* 4 : Wrong condition operation.
- *error_code* 5 : Insert semicolon at the end of parse_query.
- *error_code* 6 : Syntax error in query.
- *error_code* 7 : Multiple columns with same name please perform Rename operation.
- *error_code* 8 : Relations are Union incompatible.