RELATIONAL ALGEBRA CALCULATOR

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Possible Queries

1. Project
   Syntax: **pro(table)(attr1,attr2,attr3,.....)**

2. Select
   Syntax: **sel(table)(conditions)**
   Supported operations are: & (and) , | (or) , = , > , < , ! (not)
   To use >=, use >, &, = in succession.Similarly,
   To use <=, use <, &, = in succession
   To use A!=B use !(A=B)

3. union
   Syntax: **uni(table1)(table2)**

4. Set Difference
   Syntax: **dif(table1)(table2)**

5. Cartesian product
   Syntax: **cro(table1)(table2)**

6. Rename
   Syntax: **ren(old_table)(new_attr1,new_attr2,new_attr3,.....)**
   Renaming the name of the table to something else is functionally useless in my implementation as each table is represented by a vector of vector of strings.Only attribute names are updated.

For nested queries,instead of giving the table name directly in the above syntax,you can insert another query which evaluates to a table.

For example,

Project within select

sel(pro(table)(attr1,attr2,attr3.....))(conditions)

Cross product after renaming the second table

cro(table1)(ren(table2)(new_attr1,new_attr2,new_attr3,....))

Union of certain projected attributes of table1 and table2

uni(pro(table1)(attr1,attr2,attr3,..))(pro(table2)(attr1,attr2,attr3,..))

The nested queries can be made as complex as we want by simply following the above syntax.

For example,

cro(pro(sel(table1)(A>5 & B=”apple”))(attr1,attr2,attr3...))(sel(pro(table1)(attr1,attr2,attr3,...))(!(C=D)))

- **Type ‘exit’ in the terminal to exit the program**.
- **The name of the existing tables in the database(db dump) cannot start with any of the following:**
  ‘pro’ , ‘sel’ , ‘ren’ , ‘uni’ , ‘dif’ , ‘cro’
- The existing tables(db dump) are present in the current directory itself.