

COL362/662 Assignment 2

Operations of Relational Algebra

Due Date: 22 Feb 2016

Feb 3, 2016

Assignment In-charge: Ovia

Programming

Questions:

1. Implement Creation, Deletion, Insertion, modification using b+ trees.
2. Implement relational algebra operations, select, project, union, intersection and set-difference on b+ tree structures.

Guidelines

- Assignment is to be done individually.
- Copying from web or from each other will result in penalty as per institute rules. Moss will be run on submitted code.
- All operations discussed above are set theoretic
- Document your code properly and make it modular for readability and debugging convenience.
- Use piazza for doubts and clarification. TAs will clarify doubts on the assignment till 9th Feb only.
- Marking scheme of the assignment is 20 marks. Evaluation is based on code efficiency during demo.
- You may use C/C++, java or python for implementation.
- You should be strictly following the input specification written below, otherwise you will be penalized.
- Submit your code in a single zipped file

Input and Output Specification

Input File Format:

```
#number of tables
Table1_name
#number of attributes in the Table1_name
attribute1_name,attribute2_name,attribute3_name,attribute4_name, ... $
#number of tuples in Table1_name
val1,val2,val3,val4, ... $
val1,val2,val3,val4, ... $
val1,val2,val3,val4, ... $
.
.
.
.
.
.
val1, val2, val3, val4, ... $
$ --- end table data
Table2_name
#number of attributes in the Table2_name
attribute1_name,attribute2_name,attribute3_name,attribute4_name, ... $
#number of tuples in Table2_name
val1,val2,val3,val4, ... $
val1,val2,val3,val4, ... $
val1,val2,val3,val4, ... $
.
.
.
.
.
.
val1, val2, val3, val4, ... $
$
.
.
.
.
.
.
$# ---end file
```

Output File Format:

```
#number of attributes in the result
attribute1_name,attribute2_name,attribute3_name,attribute4_name, ... $
#number of tuples in result
val1,val2,val3,val4, ... $
val1,val2,val3,val4, ... $
val1,val2,val3,val4, ... $
.
.
.
val1, val2, val3, val4, ... $
$ --- end table data
```

Query Input Format:

Type 1:

Individual row operation

QUERY → <KEYWORD> <table> (opt <attribute_list separated by '>'> <conditions separated by '>'> <values separated by '>'> <set value>)

KEYWORD → insert|delete|modify

Eg: insert student name,age raju,21

delete student age<18

update student name='rani' age=25 –sets age 25 where name is rani

Type 2:

QUERY--> project (<SUB_QUERY>)

SUB_QUERY --> select <attribute_list separated by '>'> <table_list separated by '>'> <conditions separated by '>'> |

(<SUB_QUERY>) <KEYWORD> (<SUBQUERY>)

Keywords - union|intersection|difference

Eg: project (

(Select name,age student cgpa>8)

Union

(select name,age student age<20)

)