

## 2CS402 – DBMS INNOVATIVE ASSIGNMENT

### GROUP MEMBERS

20BCE034 Borad Sahil

20BCE075 Ginoya Yash

20BCE076 Gohel Yash

### Project Title:

SQL TO RA USING PYTHON WITH STREAMLIT GUI.

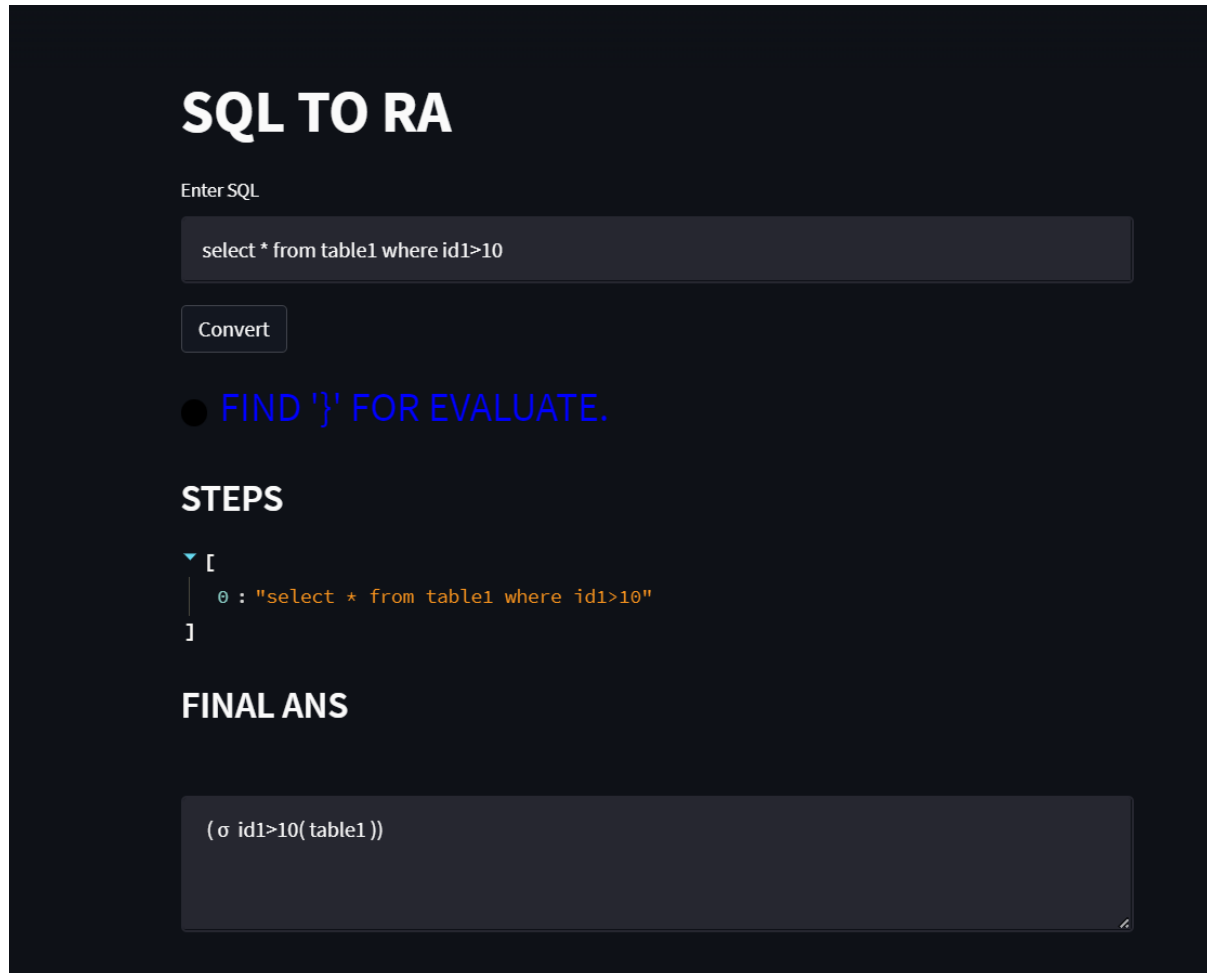
### **Explanation of assignment:**

#### **Features:**

- In this innovative we have add streamlit graphical user interface it.
- In this gui we have first inputbox for enter sql.
- Then we also put convert button in it.
- Then we can show step in it.
- Then we can put outputbox for show Relational Algebra.

Screenshots :

1)



- In this we have evaluate basic query using index of select, from and where we have convert the SQL to R.A.
- We have substitute select keyword with **pi** and **sigma**. We can different pi and sigma using where index in our program.

2)

## SQL TO RA

Enter SQL

```
select * from (select id,name from pqr) where id=10
```

Convert

- FIND '}' FOR EVALUATE.

### STEPS

```
▼ [
  0 : "select * from "
  1 : "{"
  2 : "select id,name from pqr"
  3 : "}"
  4 : " where id=10"
]

▼ [
  0 : "select * from ( π id,name ( pqr))"
  1 : " where id=10"
]
```

## FINAL ANS

```
( σ id=10( ( π id,name ( pqr)) ))
```

- In this we have first substitute simple bracket with curly bracket and then evaluate query as a basic query as above explains and another part of query evaluate we can show in steps.

3)

## SQL TO RA

Enter SQL

```
select * from table1 where id1 = (select id2 from table2 where id2 = (select id3 from table3 where colour = 'red'))
```

Convert

- FIND '}' FOR EVALUATE.

### STEPS

```
▼ [
  0 : "select * from table1 where id1 = "
  1 : "{"
  2 : "select id2 from table2 where id2 = "
  3 : "{"
  4 : "select id3 from table3 where column2='op'"
  5 : "}"
  6 : "}"
]
```

```
▼ [
  0 : "select * from table1 where id1 = "
  1 : "{"
  2 : "select id2 from table2 where id2 = ( π id3 ( σ column2='op'( table3 )))"
  3 : "}"
]
```

```
▼ [
  0 :
  "select * from table1 where id1 = ( π id2 ( σ id2 = ( π id3 ( σ column2='op'(
  table3 ))) ( table2 )))"
]
```

### FINAL ANS

```
( σ id1 = ( π id2 ( σ id2 = ( π id3 ( σ column2='op'( table3 ))) ( table2 ))) ( table1 ))
```

- In this SQL query we have lots inner query in it. So they can evaluate all inner query's one by one we have get proper RA output.

4)

## SQL TO RA

Enter SQL

```
select max(salary),department from table group by department having op=10
```

Convert

- FIND '}' FOR EVALUATE.

### STEPS

```
▼ [
  0 : "select max"
  1 : "{"
  2 : "salary"
  3 : "}"
  4 : ",department from table group by department having op=10"
]
```

```
▼ [
  0 : "select max(salary)"
  1 : ",department from table group by department having op=10"
]
```

### FINAL ANS

```
( g ( department ) max(salary),department ( σ op=10( table )))
```

- In this program we can also put aggregate function SQL query in it. Also we can get related R.A. form it.

5)

## SQL TO RA

Enter SQL

```
select hotelname,count(room_no) from hotel inner join room group by hotelname
```

Convert

● FIND '}' FOR EVALUATE.

### STEPS

```
▼ [
  0 : "select hotelname,count"
  1 : "{"
  2 : "room_no"
  3 : "}"
  4 : " from hotel inner join room group by hotelname"
]
▼ [
  0 : "select hotelname,count(room_no)"
  1 : " from hotel inner join room group by hotelname"
]
```

### FINAL ANS

```
(g ( hotelname) hotelname,count(room_no) ( hotel |X| room ))|
```

- In this program we have use aggregate function and inner join complex SQL query in it and we can get R.A. form of it.

6)

# SQL TO RA

Enter SQL

: room set price = price \* 1.05 where hotelno = (select hotelNo from hotel where hotelname='Holiday')

Convert

FIND '}' FOR EVALUATE.

## STEPS

[  
0 : "update room set price = price \* 1.05 where hotelno = "  
1 : "{ "  
2 : "select hotelno from hotel where hotelname='holiday' "  
3 : "}"  
]

[  
0 :  
"update room set price = price \* 1.05 where hotelno = ( π hotelno ( σ  
hotelname='holiday'( hotel ))) "  
]

[  
0 :  
"update room set price = price \* 1.05 where hotelno = ( π hotelno ( σ  
hotelname='holiday'( hotel ))) "  
]

FINAL ANS

room <- ( π all\_other\_attributes, price \* 1.05 ( σ hotelno = ( π hotelno ( σ hotelname='holiday'( hotel ))) ( room ))) U ( π all\_other\_attributes, price ( σ hotelno != ( π hotelno ( σ hotelname!='holiday'( hotel ))) ( room )))

- In this program we can use update SQL query also in it and we can show in steps first we

evaluate inner query in it and then we can evaluate update function in it.

7)

## SQL TO RA

Enter SQL

```
SELECT DISTINCT users.uid FROM users JOIN opinion o, opinion o2 WHERE users.uid = o.authorid AND
```

Convert

- FIND '}' FOR EVALUATE.

### STEPS

```
[
  θ :
  "select distinct users.uid from users join opinion o, opinion o2 where
  users.uid = o.authorid and users.uid = o2.authorid and o2.statementid = $sid2
  and o.statementid = $sid1"
]
```

### FINAL ANS

```
( π distinct users.uid ( σ users.uid = o.authorid^users.uid = o2.authorid^o2.statementid =
$sid2^o.statementid = $sid1( users[X|opinion o X opinion o2 )))
```

- In this program we can get output of join SQL query and also we use AND,OR etc.. in it and we can get respect output of R.A..



8)

# SQL TO RA

Enter SQL

delete temp where id=(select id2 from pqr,xyz)

Convert

## STEPS

▼

[  
0 : "delete temp where id="  
1 : "{"  
2 : "select id2 from pqr,xyz"  
3 : "}"  
]  
1

▼

[  
0 : "delete temp where id=( π id2 ( pqr X xyz))"  
]  
1

## FINAL ANS

temp <- temp - ( σ id=( π id2 ( pqr X xyz))( temp ))

- In this program we can also get output of delete SQL query and also we get output of cartesian SQL query in it.

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