Assignment 3

● Graded

Group

Nipun Sanjay Khivansara
Krishiv Shreyans Dakwala
View or edit group

Total Points

100 / 100 pts

Autograder Score

100.0 / 100.0

Failed Tests

7) List the equipment ids and descriptions for equipment that is currently in use (0/0)
8) Find names of all employees in ARC (0/0)
9) Retrieve the names of all members who have attended an event in the yoga studio (0/0)
10) Find all family members who have attended Summer Splash Fest (0/0)

Passed Tests

1) Retrieve the names and genders of all people associated with ARC (i.e., members, employees, etc.) (15/15)
2) List the names and departments of all faculty members who are also members of ARC (15/15)
3) Find all the people who were present in either the weight room or the cardio room on 2023-04-01 (20/20)
4) Find the names of people who have attended all events (15/15)
5) List the events whose capacity have reached the reached maximum capacity of their associated space. (15/15)
6) Find the students who have used all the equipment located in the cardio room (20/20)

Autograder Results

1) Retrieve the names and genders of all people associated with ARC (i.e., members, employees, etc.) (15/15)

2) List the names and departments of all faculty members who are also members of ARC (15/15)

3) Find all the people who were present in either the weight room or the cardio room on 2023-04-01 (20/20)

4) Find the names of people who have attended all events (15/15)

5) List the events whose capacity have reached the reached maximum capacity of their associated space. (15/15)

6) Find the students who have used all the equipment located in the cardio room (20/20)

7) List the equipment ids and descriptions for equipment that is currently in use (0/0)

Test Failed: 'Expressions' object has no attribute 'expression7'

8) Find names of all employees in ARC (0/0)

Test Failed: 'Expressions' object has no attribute 'expression8'

9) Retrieve the names of all members who have attended an event in the yoga studio (0/0)

Test Failed: 'Expressions' object has no attribute 'expression9'

10) Find all family members who have attended Summer Splash Fest (0/0)

Test Failed: 'Expressions' object has no attribute 'expression10'

Submitted Files

relational_algebra_expressions.py

Download

```python
from relational_algebra import *
import sqlite3
class Expressions():

    # The following query is the solution to: Retrieve the name of all Trainers who have the credentials CNS
    sample_query = Projection(NaturalJoin(Selection(Relation("Trainer"),Equals("credentials","CNS")),Relation("person")), ["name"])

    expression1 = Projection(Relation("Person"), ["name", "gender"])

    expression2 = Projection(
        NaturalJoin(
            NaturalJoin(
                Selection(Relation("non_student"), Equals("member_type", "Faculty")),
                Relation("university_affiliate")), Relation("person")), ["name", "department"])

    expression3 = Projection(
        ThetaJoin(
            Relation("person"),
            Selection(
                NaturalJoin(
                    Relation("space"),
                    Selection(Relation("location_reading"), Equals("timestamp", "2023-04-01 00:00:00"))
                ), Or(Equals("space_description", "cardio room"), Equals("space_description", "weight room"))
            )
            ,
            Equals("location_reading.person_id", "person.card_id")
        ), ["name"]
    )

    expression4 = Projection(
            NaturalJoin(
                Division(
                    Relation("attends"),
                    Projection(Relation("events"), ["event_id"])
                ),
                Relation("person")
            ),
            ["name"]
    )

    expression5 = Projection(
        Selection(
            ThetaJoin(Relation("space"), Relation("events"), Equals("space.space_id", "events.space_id")),
            GreaterEquals("capacity", "max_capacity")
        ),
```

```
        ["event_id"]
    )

    expression6 = Projection(
                NaturalJoin(Relation("person"),
                    NaturalJoin(
                        Projection(NaturalJoin("usage_reading",
                            NaturalJoin(Relation("equipment"),
                                Selection(Relation("space"),Equals("space_description","cardio room")))),
["card_id","equipment_id"]) / (Projection(NaturalJoin(Relation("equipment"),
                                    Selection(Relation("space"),Equals("space_description","cardio room"))),
["equipment_id"])) , Relation("student"))),["name"])


    # sql_con = sqlite3.connect("sample220P.db")

    # result = sample_query.evaluate(sql_con=sql_con)
    # print(result.rows)
```