# **Exam Scores Project**

## **Step 1: Define Objectives**

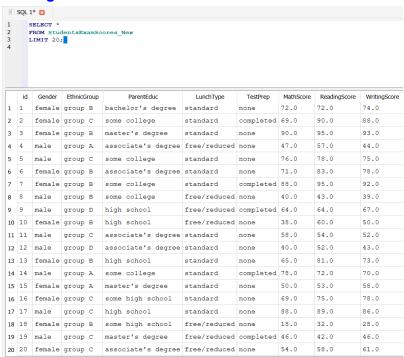
- Import Data into Database
- Showcase SQL abilities and techniques to analyze data
- Explore Patterns in Dataset
- Use SQL for data cleaning, summarizing, and querying
- Create visuals to showcase insights

# Step 2: Objective Questions Answered

- What type of impact is there for test preparation on exam scores?
- What are the correlations between a parent's education and a student's performance?
- What are some general statistics that can be displayed?

#### Step 3: Perform Data Exploration

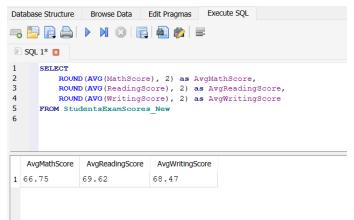
1. Viewing Basic Table Information



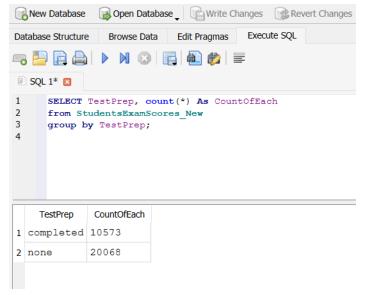
2. Checking for Null or missing values in Exam Scores

```
SQL 1* 
1
     SELECT
2
         COUNT (*) AS TotalRecords,
3
         SUM(CASE WHEN MathScore IS NULL THEN 1 ELSE 0 END) AS MissingMathScores,
4
         SUM (CASE WHEN ReadingScore IS NULL THEN 1 ELSE 0 END) AS MissingReadingScores,
5
         SUM(CASE WHEN WritingScore IS NULL THEN 1 ELSE 0 END) AS MissingWritingScores
6
     FROM StudentsExamScores New;
   TotalRecords
               MissingMathScores
                               MissingReadingScores
                                                   MissingWritingScores
              0
                              0
                                                 0
1 30641
Execution finished without errors.
Result: 1 rows returned in 14ms
At line 1:
SELECT
    COUNT(*) AS TotalRecords,
    SUM(CASE WHEN MathScore IS NULL THEN 1 ELSE 0 END) AS MissingMathScores,
    SUM(CASE WHEN ReadingScore IS NULL THEN 1 ELSE 0 END) AS MissingReadingScores,
   SUM(CASE WHEN WritingScore IS NULL THEN 1 ELSE 0 END) AS MissingWritingScores
FROM StudentsExamScores New;
```

#### 3. Summarize Data

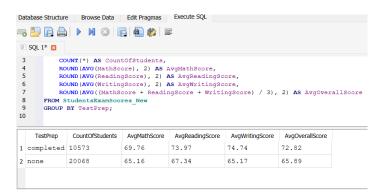


Avg score of each exam rounded to second decimal

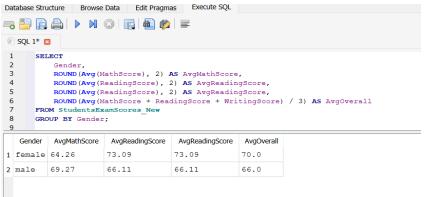


How many completed test prep and didn't. 1/3 of students completed.

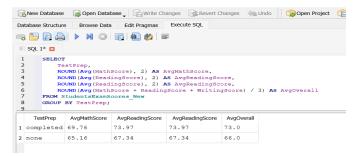
## 4. Analyze Data



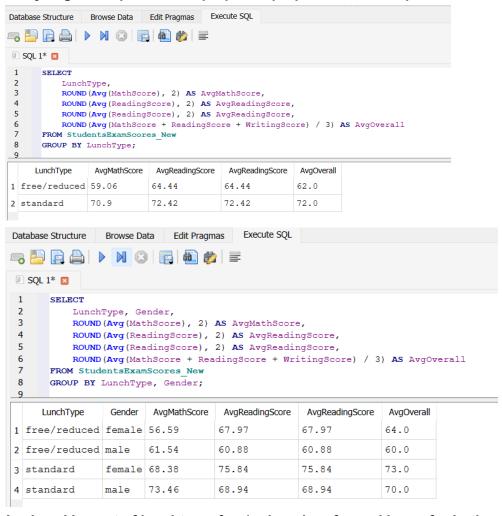
Query showing avg scores for those completed and did not(rounded). Also showing average exam scores for both completed and none.



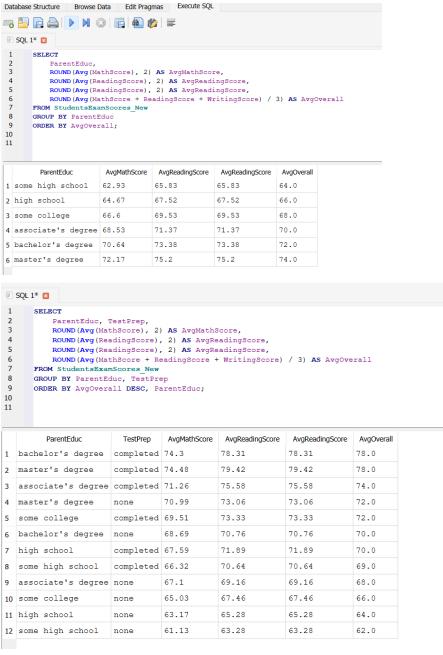
Analyzing Gender performance per exam and overall.



## Analyzing the impact of test prep, test prep seemed to help



Analyzed impact of lunchtype, free/reduced performed lower for both male and female



Parent education and student performance, higher ed for parents looks like high overall exam scores in those categories

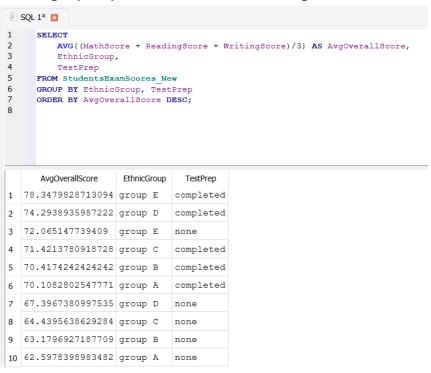
#### 5. Advanced/Additional Queries

```
U SQL I" M
    SELECT
    FROM StudentsExamScores_New
    WHERE MathScore > 90 AND ReadingScore > 90 AND WritingScore > 90
                        ParentEduc
   id Gender EthnicGroup
                                       LunchType TestPrep MathScore ReadingScore WritingScore
1 115 female group E bachelor's degree standard
                                                 completed 99.0 100.0
                                                                            100.0
                                                                             93.0
2 150 male group E associate's degree free/reduced completed 100.0 100.0
 166 female group C
                    bachelor's degree standard
                                                 completed 96.0
                                                                  100.0
                                                                             100.0
4 180 female group D
                    some high school standard completed 97.0
                                                                  100.0
                                                                             100.0
5 452 female group E some college standard none 100.0 92.0
                                                                             97.0
6 459 female group E bachelor's degree standard none
                                                          100.0 100.0
                                                                             100.0
  547 female group A
                    some high school
                                      standard
                                                  completed 92.0
                                                                   100.0
                                                                             97.0
                    bachelor's degree | free/reduced completed 92.0 | 100.0
                                                                             100.0
8 567 female group E
9 572 male group A
                    bachelor's degree standard none 91.0 96.0
                                                                             92.0
```

99.0

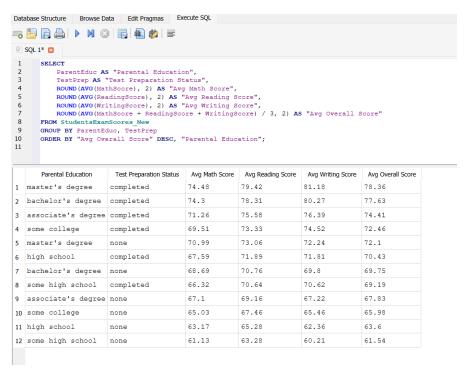
# Showing top 10 performers in all exam categories

10 595 female group C bachelor's degree standard completed 92.0 100.0



# Finding Correlations between ethnic groups and test prep

#### 6. Visualize Data



# Will export this queried tabled as csv into excel

