

Academic Performance Analysis Project

Project Introduction

Unveiling the Comprehensive Student Scores Dataset: Insights into Academic Performance and Student Behavior 

Hello Everyone ,

I'm excited to present the Comprehensive Student Scores Dataset, an extensive collection of academic and personal information from 2000 students. This dataset offers in-depth insights into student performance and related factors, making it an essential resource for educators, researchers, and analysts interested in educational outcomes and student behavior.

Dataset Link : <https://www.kaggle.com/datasets/markmedhat/student-scores>

Dataset Features:

-  **ID:** Unique identifier for each student.
-  **First Name & Last Name:** The names of the student.
-  **Email:** The student's email address.
-  **Gender:** The gender of the student (e.g., male, female).
-  **Part-Time Job:** Indicates if the student has a part-time job.
-  **Absence Days:** Number of days the student was absent.
-  **Extracurricular Activities:** Participation in extracurricular activities.
-  **Weekly Self-Study Hours:** Average hours spent studying per week.
-  **Career Aspiration:** The student's career goals (e.g., doctor, engineer).
-  **Math Score** through  **Geography Score:** Scores achieved in various subjects.

New Columns Added:

- **Total marks:** Sum of marks across all subjects for each student to measure aggregate academic performance.
- **% Percentage:** Derived from Total marks, representing student achievement as a percentage out of total possible marks.
- **Passing mark:** A constant value (40) used across the dataset to determine passing status per subject to facilitate pass/fail reporting.

Exploring This Dataset Can Help With:

-  Educational Analysis: Understanding student performance and identifying improvement areas.
-  Teaching Strategies: Insights on how behavior, habits, and demographics impact success.
-  Trend Identification: Analysis of demographic patterns and subject-wise performance trends.
-  Academic Research: Providing a robust foundation for educational studies.
-  Student Support: Insights to improve academic aid targeting.

This dataset is a crucial resource to explore multifaceted aspects that influence educational outcomes and student success.

SQL Query Questions :

Basic Level :

1. Write a query to list all students and their marks in each subject.
2. Find the total marks scored by each student.
3. Display the names of students having a percentage greater than or equal to a specified value (e.g., 75).

Medium Level :

1. Calculate the average marks for each student and display their names along with the average.
2. List students who have scored above the overall average mark in at least one subject.
3. Retrieve the name of the student who scored the maximum mark in the math subject.

Advanced Level :

1. Write a query to display students who have the highest marks in minimum 3 subjects among their peers (across all subjects).
2. Find students who failed in at least one subject, assuming the pass mark is 40.
3. Generate a comprehensive performance report showing student name, total marks, percentage, and whether they passed all subjects (using CASE, JOINs, and aggregate functions).

About the Attached SQL File

The attached SQL file, Sql_Query-s.sql, is the core implementation script for the Academic Performance Analysis project. It encompasses the following:

- **Database Setup:** Creation of the database Academic_Performance and selection of it for subsequent operations.
- **Table Definition:** Detailed schema of the Student_info table, defining student demographics, personal attributes, and scores across multiple subjects.
- **Data Import Instruction:** A placeholder comment guides users to import the dataset from a CSV file named student-scores.csv using the table data import wizard or a similar method.
- **Basic Level Queries:** These include listing student marks, creating new columns (Total marks and Percentage), and filtering students by performance percentage thresholds.
- **Medium Level Queries:** Cover calculations of average marks, filtering students who scored above average in subjects, and identifying top scorers in mathematics.
- **Advanced Level Queries:** Introduce complex logic for identifying students excelling in multiple subjects, adding a standard Passing mark column, querying students who failed any subject, and generating a comprehensive pass/fail performance report.
- **Data Manipulation Techniques:** The script demonstrates SQL features such as ALTER TABLE to add columns, updates with SET and UPDATE, subqueries for averages and maximums, CASE statements for conditional logic, and concatenation for full student names.

This SQL file is a complete, modular resource for learning and applying SQL queries in a real-world academic dataset context, demonstrating practical data analysis and reporting skills through incremental query complexity.

Student Academic Dashboard Overview (Power BI)

The Power BI Student Academic Dashboard provides a comprehensive and interactive visualization of student performance and key academic insights. It enables educators and analysts to quickly understand and explore detailed educational data in a user-friendly format.

Key Features of the Dashboard

- **Title and Filters:**
The dashboard is titled "Student Academic Report" with interactive slicers for filtering students based on part-time job status and extracurricular activities, allowing customized data views.
- **Summary Cards:**
Total students (2000) and total passed students (1980) are prominently displayed as cards, providing immediate high-level metrics.
- **Student Count by Grade:**
A combination of pie and bar charts illustrates the distribution of students across different grades, highlighting key performance groups such as the majority in Grade 2.
- **Subject-wise Total Marks:**
A stacked bar chart presents the total marks achieved in various subjects including Biology, Math, Chemistry, Physics, and more, facilitating clear subject comparisons.
- **Top Performers Table:**
A tabular section lists the top-scoring students with their full names, email addresses, and percentage scores, highlighting academic excellence.
- **Career Aspirations Insight:**
A bar chart visualizes student career goals, revealing interests like Software Engineering, Business Ownership, and Medicine, which can inform future counseling and support strategies.
- **Average Score Gauges:**
Circular gauge visuals display average scores for key subjects such as Math, English, and Biology, providing a quick snapshot of overall academic strengths.

Benefits :

This dashboard combines key educational metrics, demographic segmentation, and academic performance visualizations in an interactive, visually appealing format. It empowers stakeholders to make data-driven decisions to enhance learning outcomes and student support programs.

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Student Academic Report

Part-Time Job

FALSE	TRUE
Extra-Cur Activity's	TRUE

Student Count

Career Aspiration

Subject's

Topper's

Full Name	Email	Percentage
Lisa Mitchell	lisa.mitchell.797@gslingacademy.com	96.00
Mary Arnold	mary.arnold.1430@gslingacademy.com	96.00
Paul Shaffer	paul.shaffer.552@gslingacademy.com	96.00
Paula Hernandez	paula.hernandez.1574@gslingacademy.com	96.00
Todd Howard	todd.howard.780@gslingacademy.com	96.00

Average Score

Visualizations Quick measure Filters Data

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Table: student_info (2,000 rows) Column: student_id (2,000 distinct values)

student_id	first_name	last_name	email	gender	part_time_job	absence_days	extracurricular_activities	weekly_self_study_hours	career_aspiration
7	Anthony	Smith	anthony.smith.7@gslingacademy.com	male	FALSE	3	TRUE	23	Software Engineer
18	Maxwell	Davison	maxwell.davison.18@gslingacademy.com	male	FALSE	2	TRUE	28	Software Engineer
25	Cassandra	West	cassandra.west.20@gslingacademy.com	female	FALSE	4	FALSE	27	Software Engineer
31	Angie	Miller	angie.miller.31@gslingacademy.com	female	FALSE	0	FALSE	35	Software Engineer
41	Emily	Holloway	emily.holloway.41@gslingacademy.com	female	FALSE	4	FALSE	14	Software Engineer
56	Jennifer	Murphy	jennifer.murphy.56@gslingacademy.com	female	FALSE	6	FALSE	31	Software Engineer
59	Jacob	Hanson	jacob.hanson.59@gslingacademy.com	male	FALSE	7	FALSE	26	Software Engineer
60	Casey	May	casey.may.60@gslingacademy.com	male	FALSE	4	FALSE	23	Software Engineer
67	Anthony	Smith	anthony.smith.67@gslingacademy.com	male	FALSE	3	FALSE	27	Software Engineer
69	Henry	Davis	henry.davis.69@gslingacademy.com	male	FALSE	4	FALSE	14	Software Engineer
75	Anna	Li	anna.li.75@gslingacademy.com	female	FALSE	2	FALSE	20	Software Engineer
76	Andrea	Case	andrea.case.76@gslingacademy.com	female	FALSE	7	TRUE	27	Software Engineer
77	Jennifer	Garcia	jennifer.garcia.77@gslingacademy.com	female	FALSE	3	FALSE	24	Software Engineer
80	Shawn	Chase	shawn.chase.80@gslingacademy.com	male	FALSE	3	FALSE	16	Software Engineer
86	Dennis	Kim	dennis.kim.86@gslingacademy.com	male	FALSE	1	FALSE	24	Software Engineer
88	Yvette	Bridges	yvette.bridges.88@gslingacademy.com	female	FALSE	3	TRUE	14	Software Engineer
90	William	Brown	william.brown.90@gslingacademy.com	male	FALSE	3	FALSE	29	Software Engineer
93	Robert	Parsons	robert.parsons.93@gslingacademy.com	male	FALSE	5	FALSE	37	Software Engineer
96	Victoria	Jones	victoria.jones.96@gslingacademy.com	female	FALSE	2	TRUE	34	Software Engineer
102	Abigail	Perez	abigail.perez.102@gslingacademy.com	female	FALSE	2	FALSE	25	Software Engineer
119	Andrew	Dixon	andrew.dixon.119@gslingacademy.com	male	FALSE	1	TRUE	19	Software Engineer
133	Tina	Perkins	tina.perkins.133@gslingacademy.com	female	FALSE	4	FALSE	27	Software Engineer
139	Jessica	Boyd	jessica.boyd.139@gslingacademy.com	female	FALSE	4	FALSE	23	Software Engineer
141	James	Singh	james.singh.141@gslingacademy.com	male	FALSE	0	FALSE	16	Software Engineer
144	Adam	Mitchell	adam.mitchell.144@gslingacademy.com	male	FALSE	3	TRUE	18	Software Engineer
155	Nancy	Moore	nancy.moore.155@gslingacademy.com	female	FALSE	1	FALSE	33	Software Engineer

Data

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