Project Report

Int 217

Project

LOVELY PROFESSIONAL UNIVERSITY

PHAGWARA, PUNJAB

A Data-Driven Dashboard for Analyzing AIR Quality Analysis

SUBMITTED BY - Sahil

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DECLARATION

I, Sahil, hereby declare that the work done by me on "Excel Project" is a record of original work for the partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Computer Science - Data Science, Lovely Professional University, Phagwara.

Signature
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Reg: No: 12309907

Signature
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ACKNOWLEDGMENT

First and foremost, I would like to express my deepest gratitude to my college for providing me with the opportunity and resources to undertake this project.

I extend my sincere thanks to my Teacher, **Mam Baljinder Kaur,** for his invaluable guidance, constructive feedback, and constant encouragement throughout the project. His expertise and support were instrumental in achieving the objectives of this work.

Thank you all

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1. Introduction:

In today's education system, maintaining an optimal balance between students and teachers is crucial for ensuring quality learning experiences. This project focuses on **S.T.A.R. (Student Teacher Analysis Ratio)**—an analytical dashboard developed in Microsoft Excel to study and visualize the ratio of students to teachers across different educational institutions.

Using a structured dataset that includes the number of students and teachers over various time periods and regions, the dashboard aims to provide a clear, interactive, and insightful representation of the student-teacher ratio. With the help of Excel features such as pivot tables, slicers, dynamic charts, and conditional formatting, the S.T.A.R. dashboard transforms raw data into a powerful decision-making tool.

This project can be particularly useful for educational planners, administrators, and policy makers to identify trends, allocate teaching resources effectively, and take data-driven steps to improve educational quality and equity across institutions.

1. Source of Dataset:- https://catalog.data.gov/dataset/ **Student Teacher Analysis Ratio**

2. Data Processing (S.T.A.R.):

1. **Data Collection:**
   Gathered data on students and teachers from educational reports or government sources.
2. **Data Cleaning:**
   Removed duplicates, filled missing values, and standardized text formats.
3. **Data Transformation:**
   Calculated **Student-Teacher Ratio (STR)** using:

STR=Number of Students Number of Teachers\text{STR} = \frac {\text {Number of Students}}{\text {Number of Teachers}}STR=Number of Teachers Number of Students

4. **Data Structuring:**
   Organized data in Excel tables; created pivot tables and helper columns.
5. **Validation:**
   Checked random entries to ensure STR values were accurate and logical.

2. Analysis on Dataset :-

OBJECTIVE 1 Compare Average Reading & Math Scores by Class Type

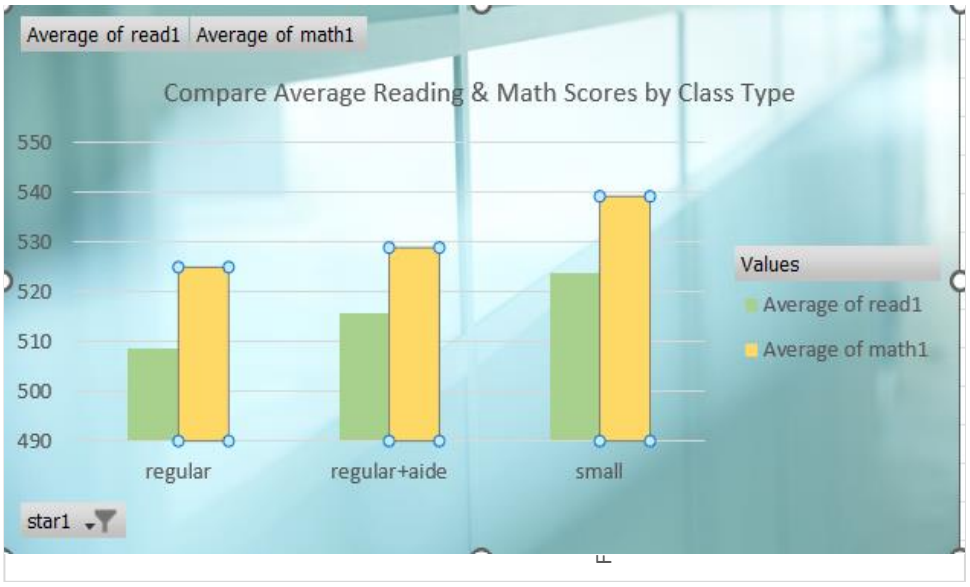
. To compare average reading and math scores across different class types.

. To identify performance differences between regular and smaller/special classes.

.To analyse how class type may influence academic outcomes.

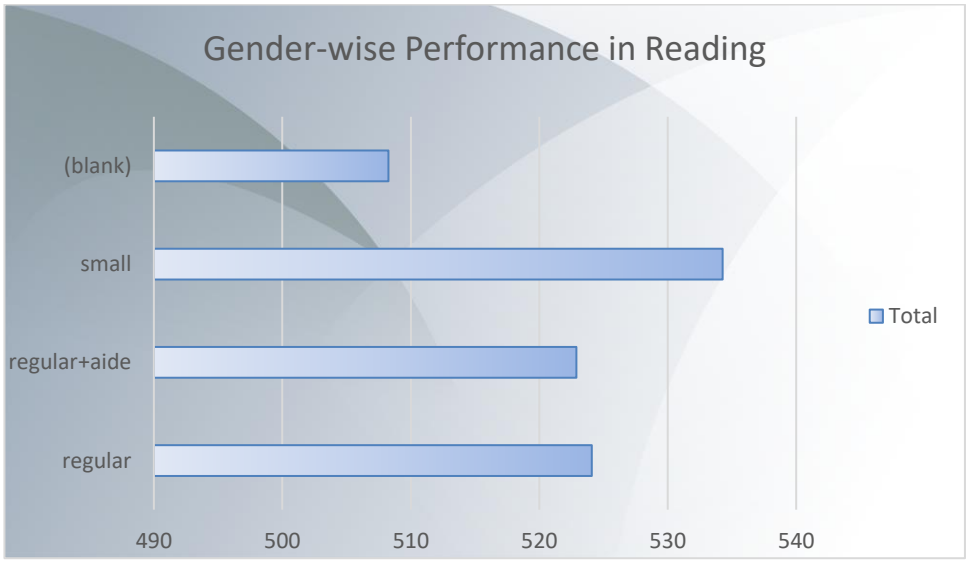
. To support data-driven decisions for improving teaching strategies.

. To help educators and policy makers understand the impact of class environment on student learning.



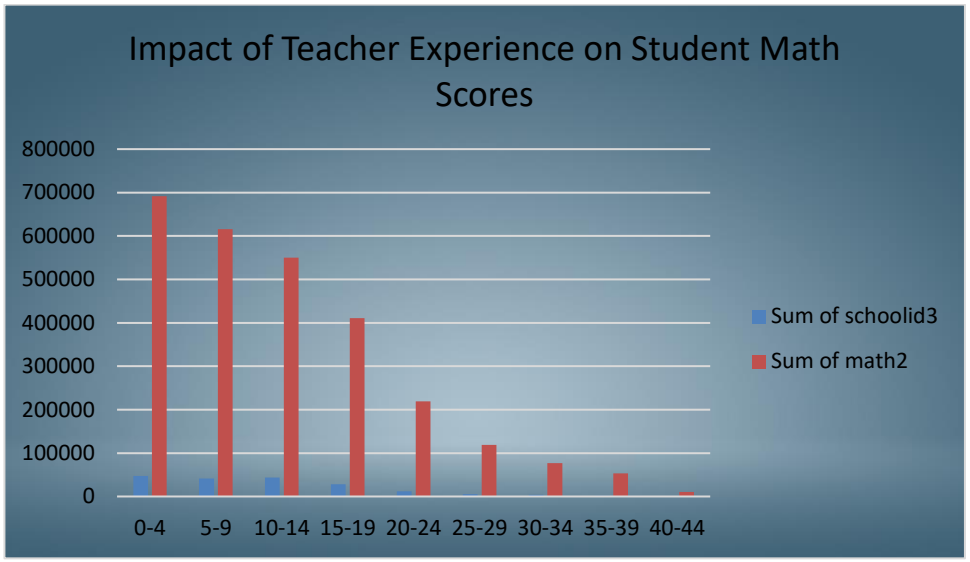
Objective 2:- Gender-wise Performance in Reading

. **To analyze and compare reading scores between male and female students**
. **To identify any performance gaps based on gender**
. **To understand how gender may influence reading comprehension and literacy levels**
. **To provide insights for designing gender-inclusive teaching strategies**
. **To help educators and policy makers address learning gaps effectively**



Objective 3:- Impact of Teacher Experience on Student Math Scores

- **To examine the relationship between teacher experience and student performance in math**
- **To analyze whether students taught by more experienced teachers score higher in math**
- **To identify trends in student achievement based on varying levels of teacher experience**
- **To provide insights for teacher training, hiring, and classroom planning**
- **To support data-driven decisions in improving math education outcomes**



Objective 4:- **Total**

. To analyze the Student-Teacher Ratio (S.T.A.R.) and its impact on education quality

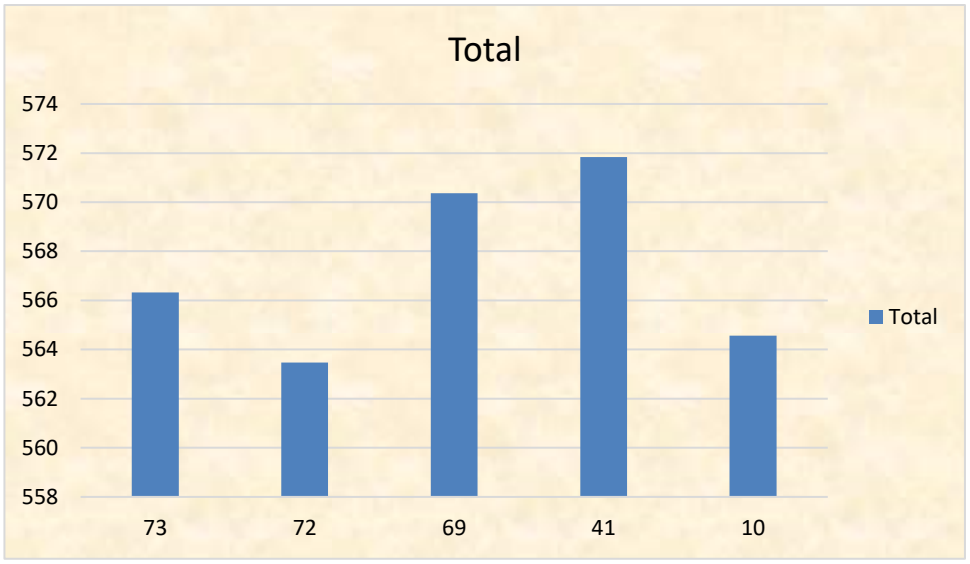
. To compare average reading and math scores across different class types

. To evaluate gender-wise performance in reading to identify any learning gaps

. To study the impact of teacher experience on students' math scores

. To provide meaningful insights for educators, policy makers, and administrators to make data-driven decisions

. To create a user-friendly and interactive Excel dashboard that presents all key metrics clearly and effectively



Objective 5:- Trend of Reading Scores Over Years

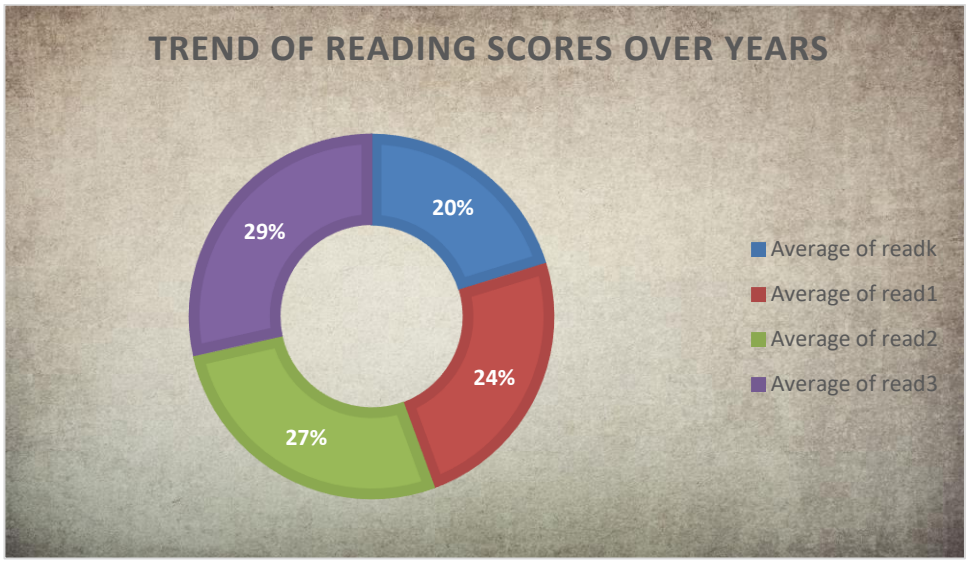
. To analyze the trend of reading scores over multiple years

. To identify whether there is an improvement or decline in reading performance over time

. To compare yearly data to observe patterns or shifts in student achievement

. To explore the impact of educational interventions or curriculum changes on reading scores

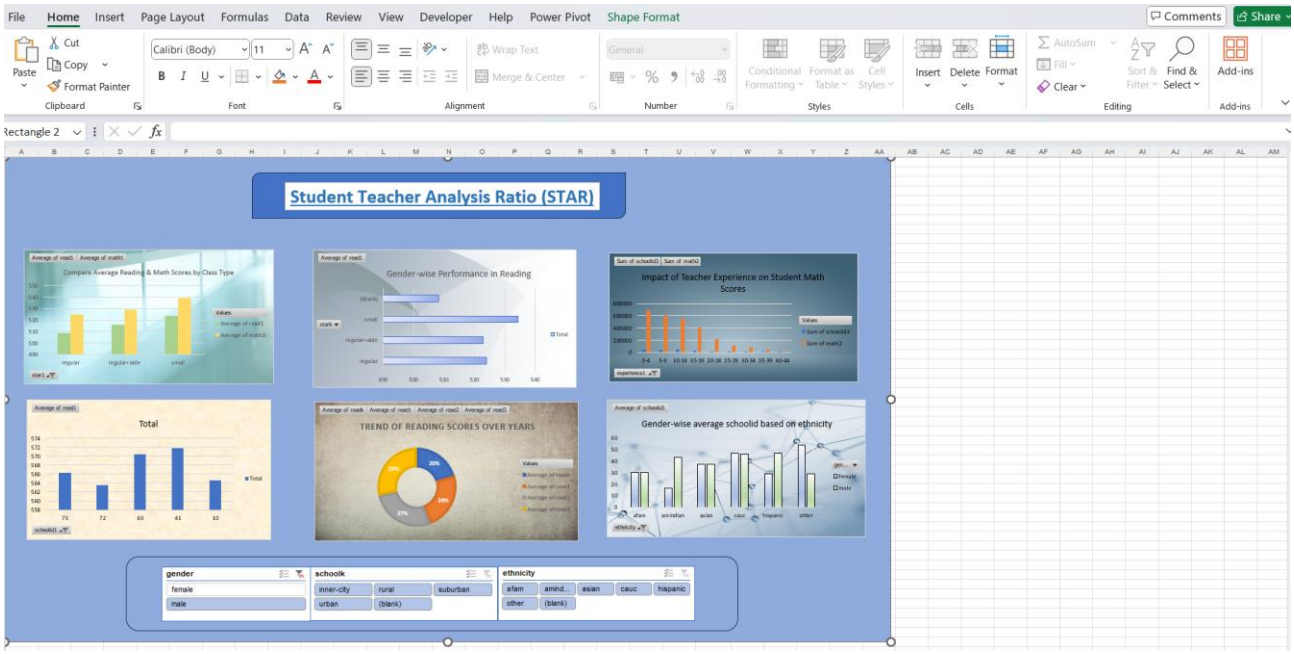
. To provide insights for educators and policy makers to adjust strategies based on long-term trends



3. Conclusion :-

The analysis of reading scores over the years highlights important trends in student performance. It shows whether reading skills have improved or declined over time, offering insights into the effectiveness of educational practices and external factors such as curriculum changes or teaching methodologies. Institutions that demonstrated consistent improvement in scores likely benefitted from specific educational interventions, while those with declining scores may require targeted strategies to address potential issues. Understanding these trends is crucial for educators and policymakers as it enables them to adapt their teaching methods and policies accordingly, ensuring that student learning outcomes continue to improve. Ultimately, this trend analysis provides a solid foundation for future decisions aimed at enhancing reading proficiency and overall educational quality

DASHBOARD SCREENSHOT:-



LINKED LINK :- https://www.linkedin.com/posts/sahil-sharma-6004362a3_excel-dashboard-activity-7317249120857927680-J16F?utm_source=share&utm_medium=member_desktop&rcm=ACoAAEk2fuABAx17hmAE2Quq51ha7cWoaYCWhAc