

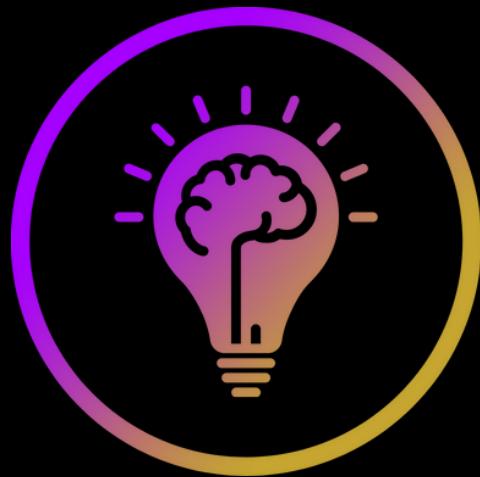
# AI-POWERED TEACHER ASSISTANT

RAHIQ ISSAM AL-HUSLAN  
BEYZA NUR ULU

**edulift!**

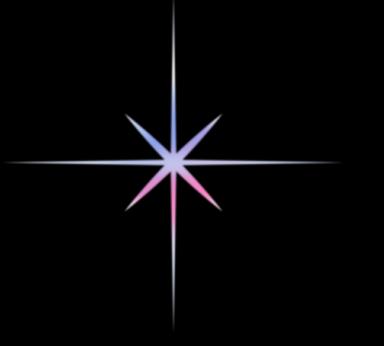
2025

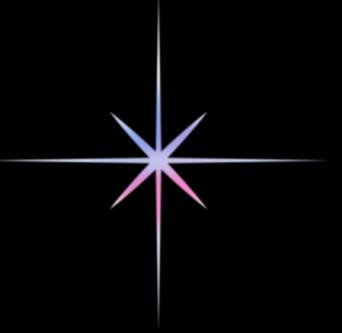




# Equipping Teachers with AI Tools"

Teachers face increasingly heavy administrative burdens, from grading assignments to lesson planning. This takes valuable time away from mentoring students and providing personalized instruction. Artificial intelligence (AI) can help streamline these administrative tasks, allowing teachers to focus more on what truly matters – guiding and empowering their students. In this presentation, we will explore how AI tools can transform the teaching experience and help educators achieve greater efficiency and impact.





# Ms. Smith's AI Grading Solution

Ms. Smith spends hours grading essays, often marking similar errors repeatedly. With our AI-powered tool, grading is automated, ensuring consistency and accuracy. Our bot can instantly analyze student work, provide feedback, and identify patterns, freeing Ms. Smith to focus on personalized guidance and one-on-one support.

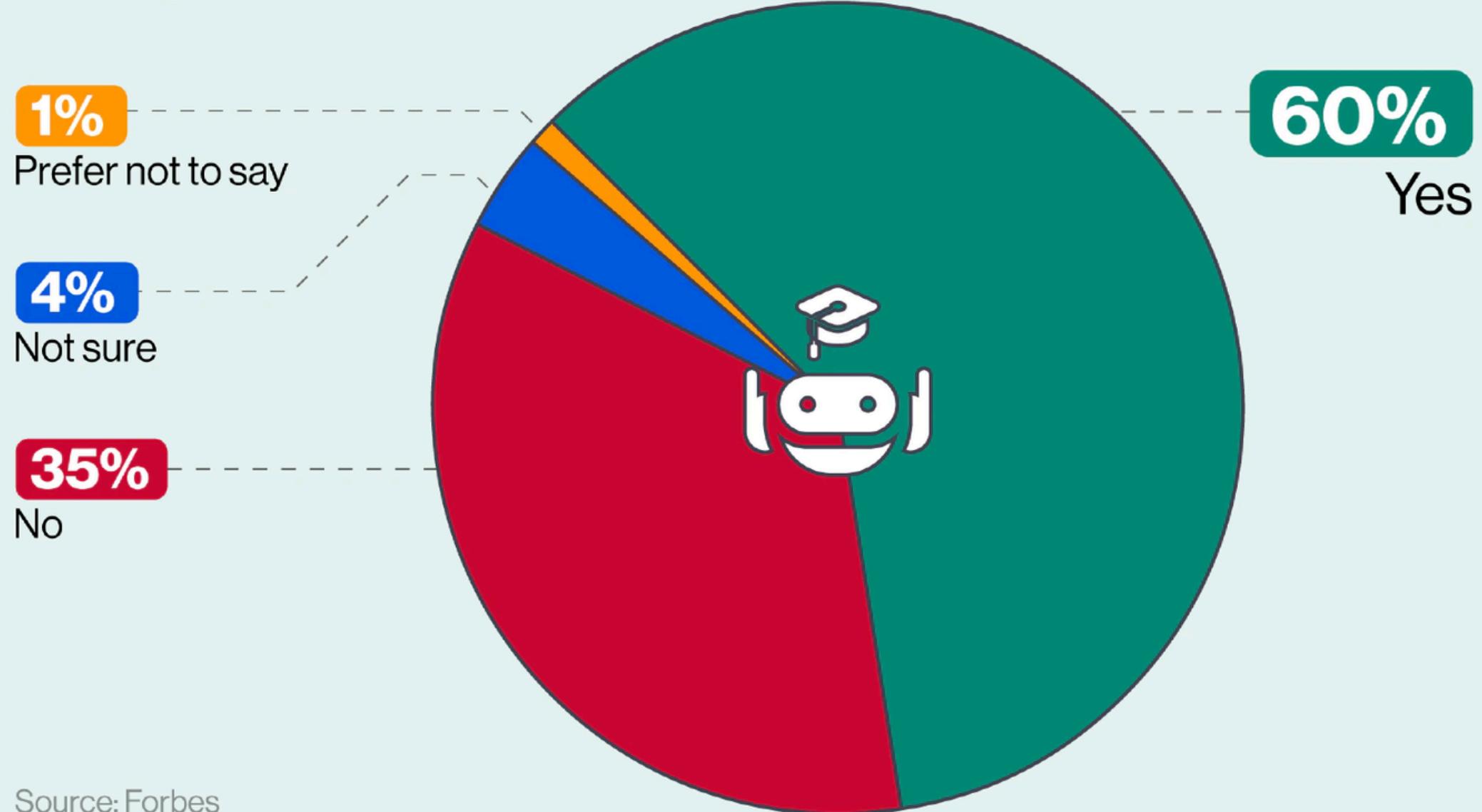


**Percentage of teachers who have integrated AI  
into their daily teaching practices(%)**

Global region

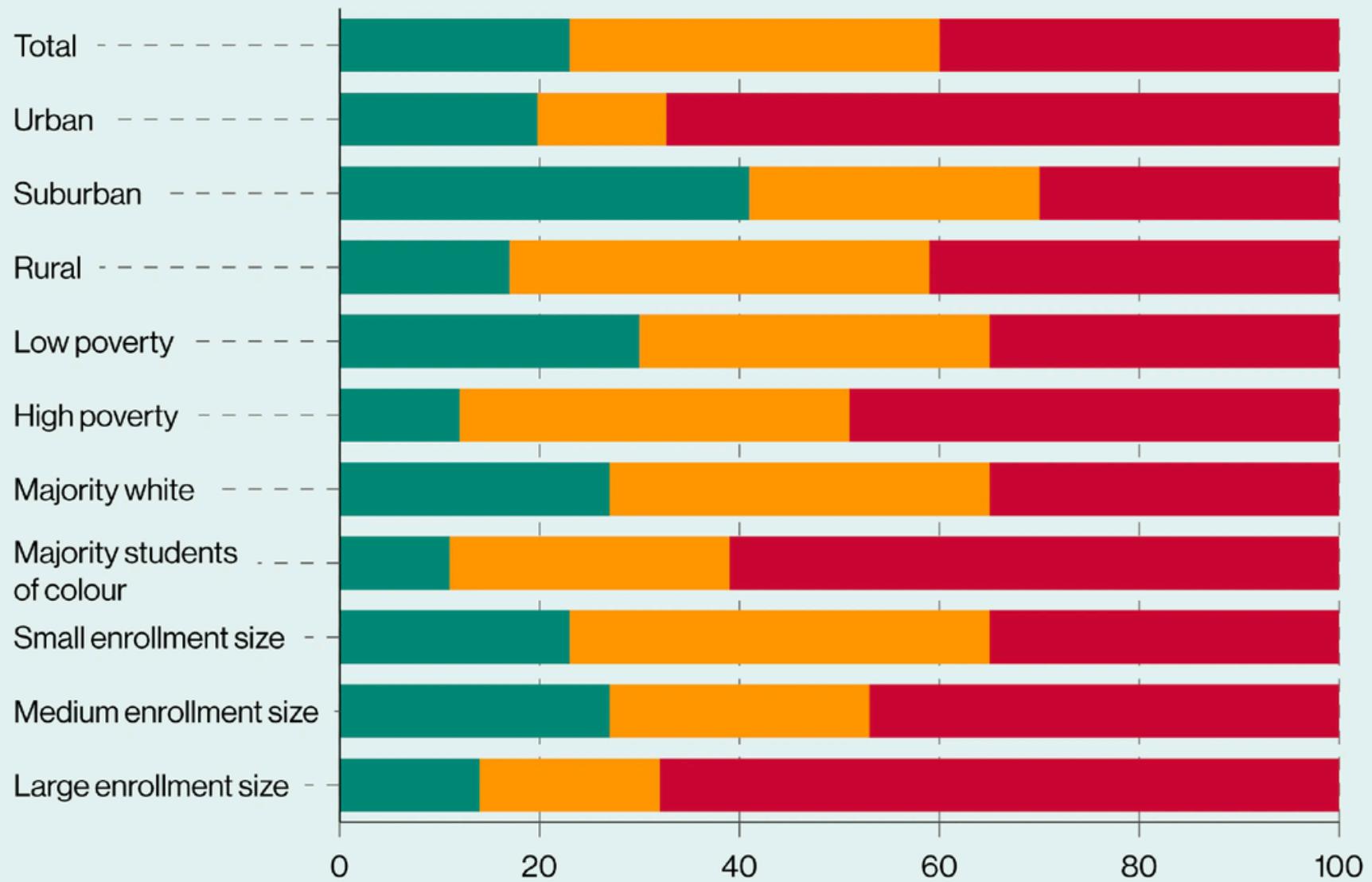


AIPRM

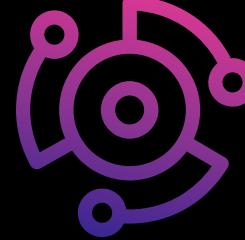
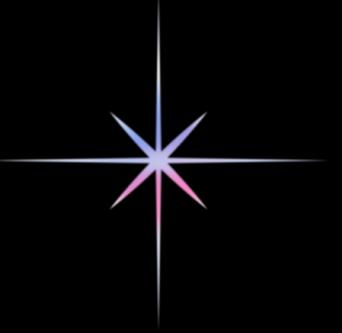


**Does your school provide AI training opportunities?  
(US primary schools (K-12))**

**Yes**   **Not yet (but plan to do so in 2023–24)**   **No**



Source: RAND, American School District Panel, and CRPE



# Problem Statement

Teachers spend a significant amount of time on administrative tasks such as grading, lesson planning, and providing feedback while trying to track student progress. This leaves them with less time to focus on personalized teaching, mentoring, and engaging with students on an individual level. As a result, the quality of education and student success may be impacted.



# Why EduLift?

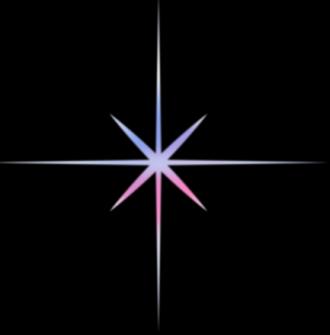
The name EduLift was chosen because it represents the core mission of the AI-powered teaching assistant:

## Meaning Behind "EduLift"

- ✓ "Edu" → **Short for Education**, representing our focus on empowering teachers and students with AI.
- ✓ "Lift" → Symbolizes elevation, improvement, and support, **showing how AI can lighten the workload for educators** and enhance learning experiences.



# How Edulift Benefits Teachers



## Time-Saving

Automates grading and report generation.

## Reduced Workload

Frees up time for lesson planning and individualized teaching.

## Increased Efficiency

Provides insights for real-time adjustments in teaching.

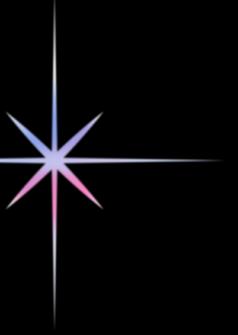
# Technical Process Overview

We used Microsoft Copilot Studio as the core of this project. Initially, we explored Azure Machine Learning (ML) for deeper student performance analysis, but due to technical limitations, we pivoted to Copilot AI for real-time analytics and recommendations.

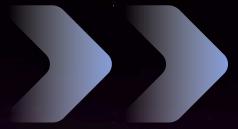
- 💡 However, we strongly believe that in future iterations, training the AI model on real student performance data will lead to more accurate and personalized insights for teachers.



# Step 1: Understanding the Dataset

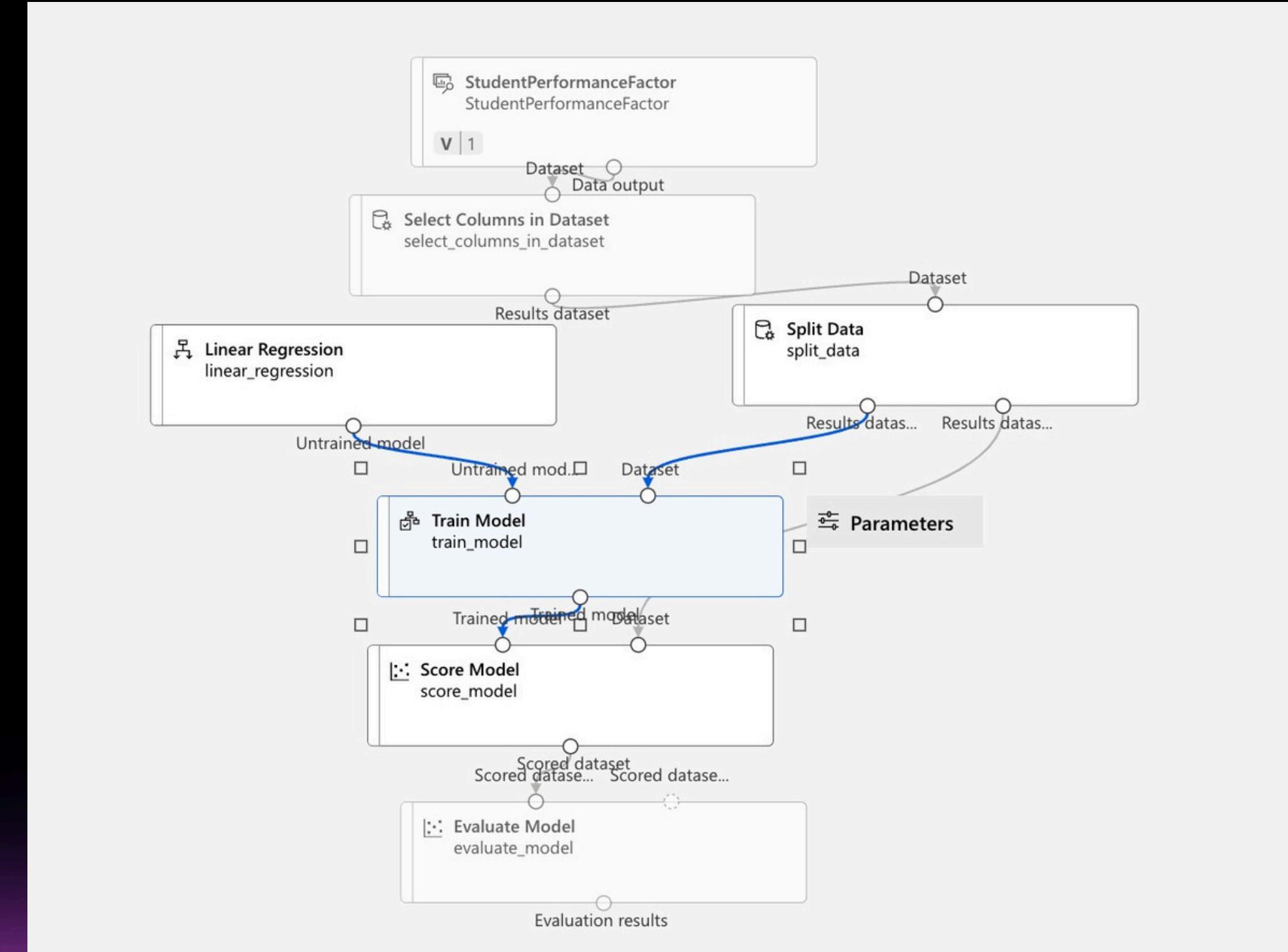


Our dataset consists of 20 features that influence student performance grouped into three main categories. Behavioral & Study Factors include metrics such as Hours\_Studied, Attendance, Sleep\_Hours, Previous\_Scores, Motivation\_Level, Tutoring\_Sessions, and Physical\_Activity, which directly impact a student's learning habits and academic engagement. Parental & Socioeconomic Factors cover aspects like Parental\_Involvement, Family\_Income, and Parental\_Education\_Level, reflecting the role of family background in academic success. School & External Factors account for elements such as Teacher\_Quality, School\_Type, Peer\_Influence, and Access\_to\_Resources, highlighting the broader educational environment. The target variable, Exam\_Score, represents the final exam performance, serving as the key measure of student outcomes.

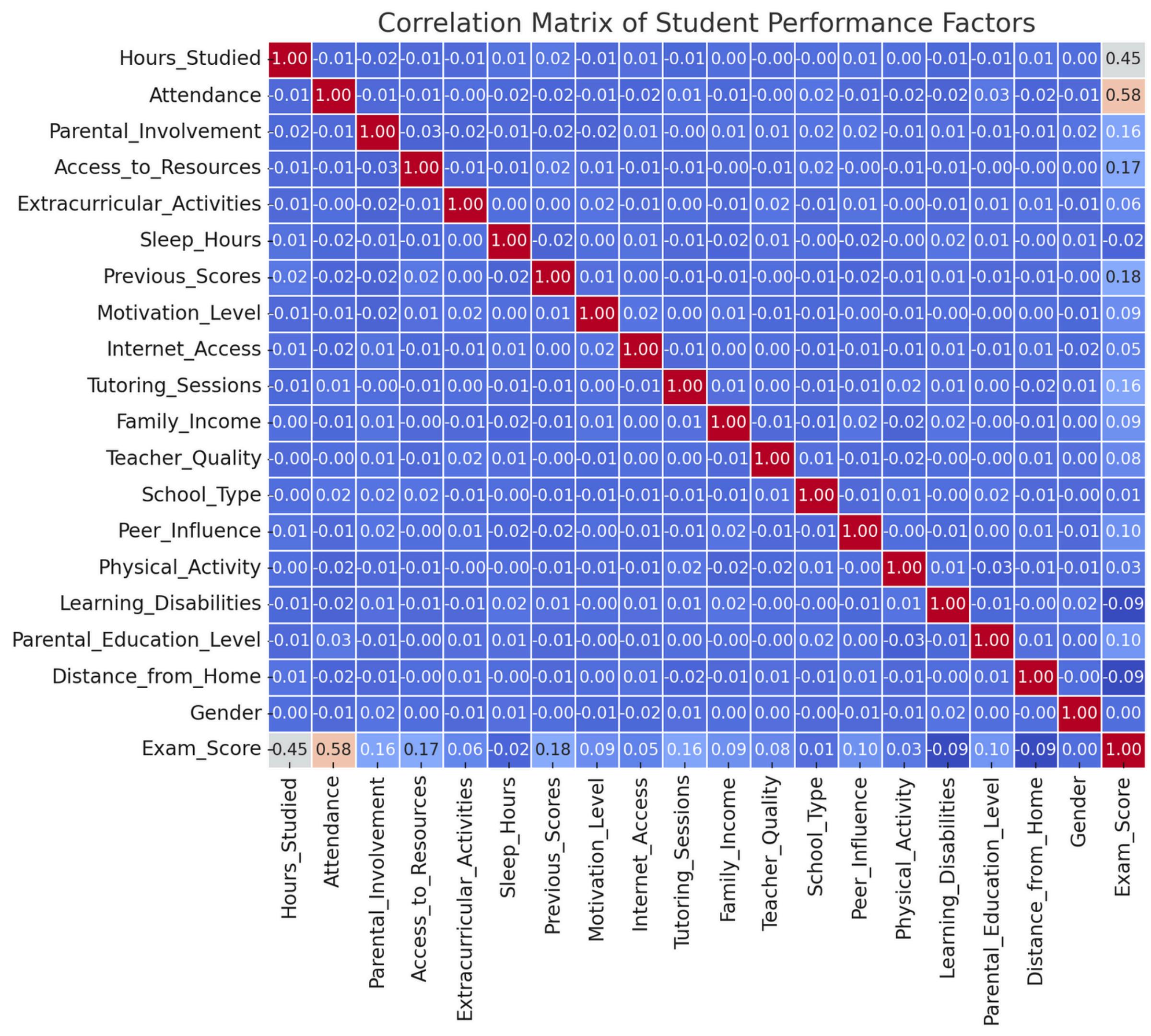


# Step 2: Model Training on Azure ML

With the preprocessed data, we used Azure ML for model training, leveraging its compute resources for efficient experimentation. We selected the model architecture based on the data and trained it on Azure's cloud for scalability and speed.



# Correlation Analysis



# Correlation Analysis- Key Findings



Insights for Performance  
Improvement



- Boost Attendance → The strongest predictor of better grades.
- Encourage More Study Time → A key factor in improving performance.
- Improve Learning Resources → Providing more tools enhances outcomes.
- Parental Support & Tutoring Help → Beneficial, but less impactful than attendance and study time.

Conclusion: Attendance and study hours have the most significant impact on exam performance, while other factors play a smaller role. Prioritizing these areas can lead to better student outcomes.



## **Strongest Positive Correlations (Significant Influence)**

- Attendance (0.58): Higher attendance leads to better scores.
- Hours Studied (0.45): More study time improves performance.

## **Moderate Influence (Some Effect)**

- Previous Scores (0.17): Past performance slightly predicts future performance.
- Access to Resources (0.16): More learning resources contribute to better outcomes.
- Parental Involvement (0.15): Supportive parents provide a slight boost.
- Tutoring Sessions (0.15): Additional tutoring has a small impact.

## **Weak or Negligible Impact (Minimal Effect)**

- Parental Education Level (0.10): Higher-educated parents help slightly.
- Motivation Level (0.08): Motivated students perform marginally better.
- Teacher Quality (0.07): Better teachers have a small effect.

## **Negative or No Impact (Little to No Correlation)**

- Distance from Home (-0.08): Students far from school may struggle.
- Learning Disabilities (-0.09): Challenges impact performance.
- Sleep Hours (-0.02): No clear effect on scores.
- Gender (0.002): No major difference between male and female students.

# Automating Teachers' Administrative Tasks with Power Automate

## Workflow Overview



### 1. Trigger-Based Automation

- Initiates actions based on specific teacher inputs or scheduled events.

### 2. Seamless File Retrieval

- Automatically fetches necessary files from the teacher's cloud drive.

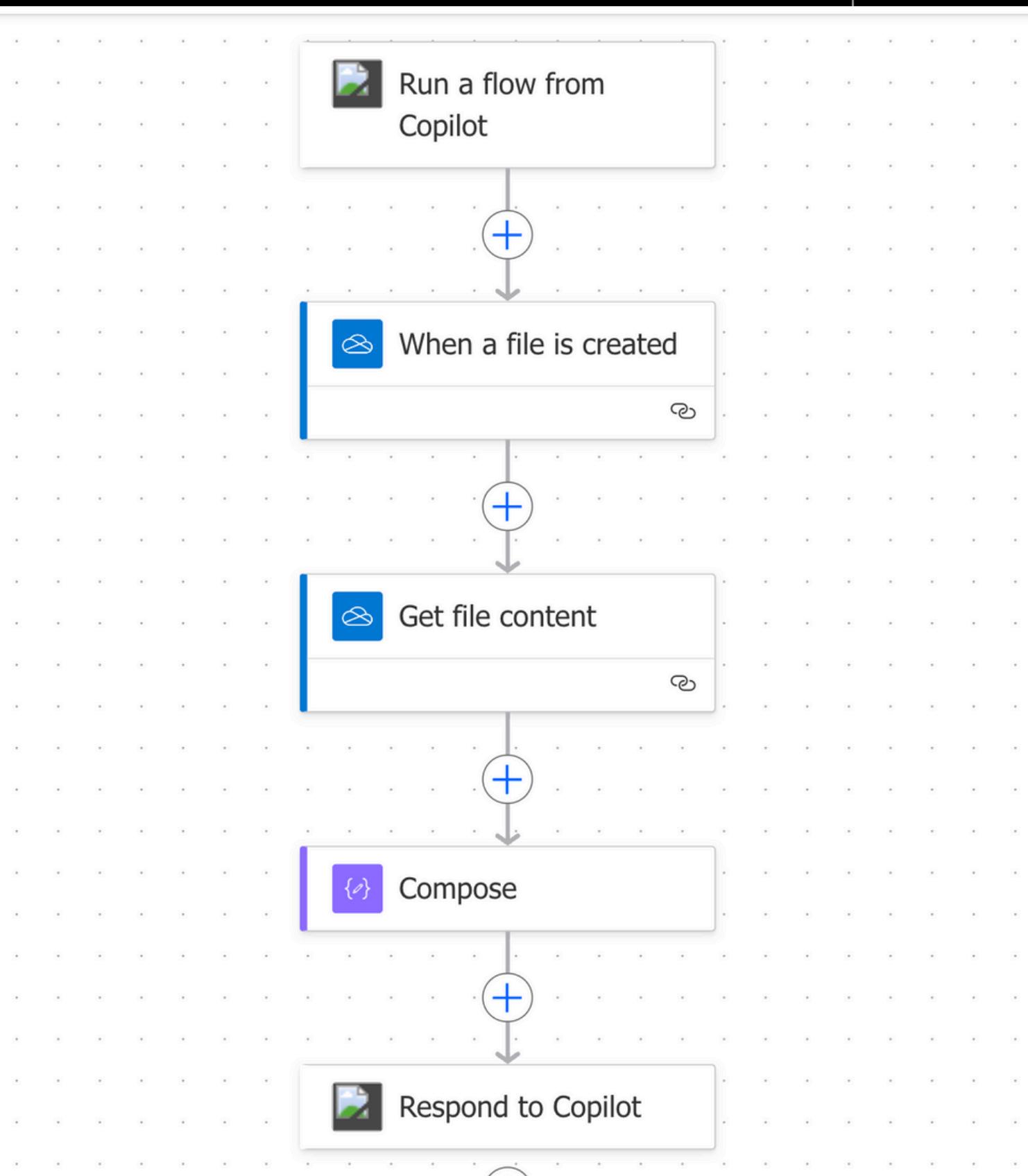
### 3. AI-Powered Processing

- Uses an intelligent agent to analyze, process, and complete tasks efficiently.

### 4. Effortless Task Delivery

- Saves the finalized tasks back to the teacher's drive and sends an email notification.

Outcome: Reduces administrative workload, allowing teachers to focus on personalized instruction and student engagement.



# AZURE MACHINE LEARNING REGRESSION MODEL FOR EXAM SCORE PREDICTION

Our model leverages Azure Machine Learning to predict student exam scores based on various input factors such as attendance, study hours, and previous scores.

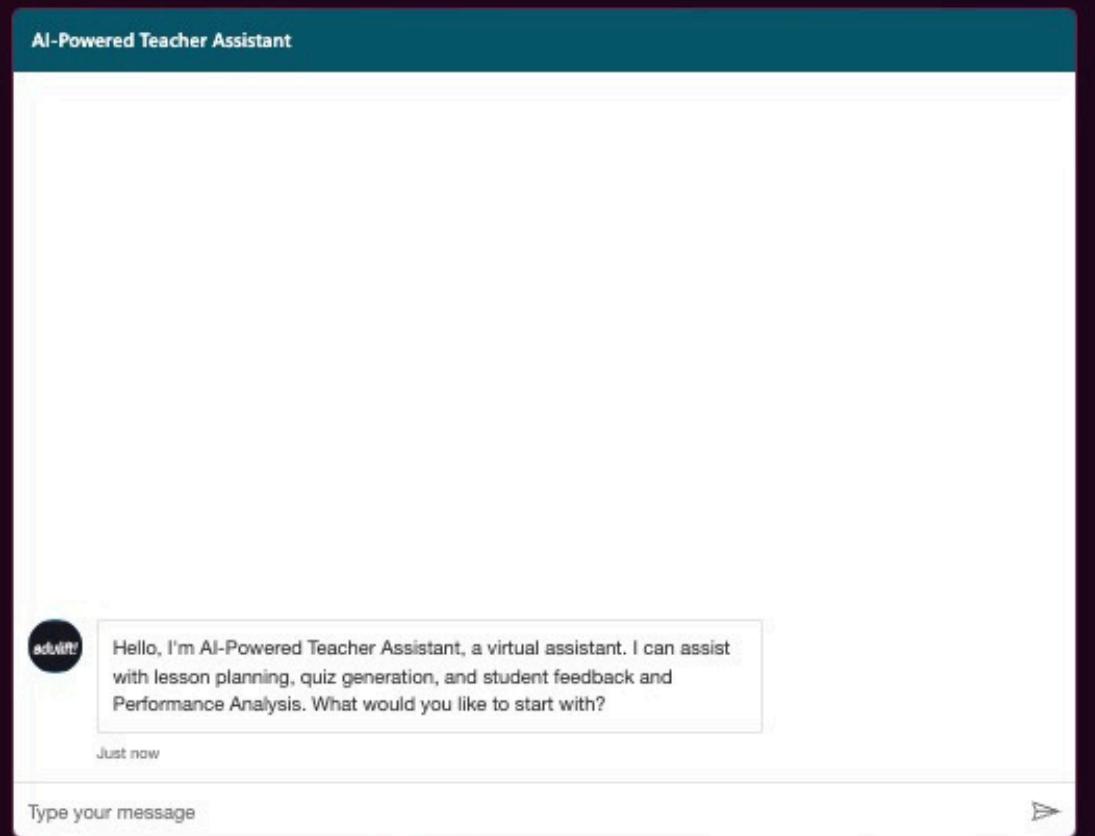
## Model Performance

- Mean Absolute Error (MAE): 1.16 → On average, the model's predictions deviate by 1.16 points from actual scores.
- R<sup>2</sup> Score: 0.67 → The model explains 67% of the variance in student exam scores based on the given input factors.

These results indicate a reasonably accurate predictive capability, suggesting that student performance can be effectively estimated using behavioral, socioeconomic, and school-related factors.

# EduLift

Your AI-Powered Teaching Assistant



# System Overview

## ★ What This App Can Do

### 📘 AI-Generated Lesson Planning

Plan smarter, not harder! Our AI helps teachers generate structured lesson plans in seconds:

- ✓ Custom lesson structures based on subject & grade level
- ✓ Adaptive learning paths tailored to student needs
- ✓ Editable & reusable lesson templates

### 🎮 AI-Powered Quiz Generation

Create quizzes in seconds! Our AI designs engaging and effective assessments with:

- ✓ Multiple-choice, fill-in-the-blanks, and open-ended questions
- ✓ Auto-generated quizzes based on curriculum topics
- ✓ Custom difficulty levels to match student needs

### ⌚ Automatic Grading & Instant Feedback

Save time with AI grading! No more manual corrections:

- ✓ Instant quiz grading with AI-based accuracy
- ✓ Detailed feedback for students on wrong answers
- ✓ Auto-generated score reports for teachers

### 🎓 Student Performance & Progress Analysis

Get real-time insights on student progress!

- ✓ AI-driven performance reports with personalized insights
- ✓ Identifies struggling students & recommends extra help
- ✓ Subject-wise strength and weakness analysis



## ✨ What This App Can Do

### 📘 AI-Generated Lesson Planning

Plan smarter, not harder! Our AI helps teachers generate structured lesson plans in seconds:

- ✓ Custom lesson structures based on subject & grade level
- ✓ Adaptive learning paths tailored to student needs
- ✓ Editable & reusable lesson templates

### 🤖 AI-Powered Quiz Generation

Create quizzes in seconds! Our AI designs engaging and effective assessments with:

- ✓ Multiple-choice, fill-in-the-blanks, and open-ended questions
- ✓ Auto-generated quizzes based on curriculum topics
- ✓ Custom difficulty levels to match student needs

### ⌚ Automatic Grading & Instant Feedback

Save time with AI grading! No more manual corrections:

- ✓ Instant quiz grading with AI-based accuracy
- ✓ Detailed feedback for students on wrong answers
- ✓ Auto-generated score reports for teachers

### 🎓 Student Performance & Progress Analysis

Get real-time insights on student progress!

- ✓ AI-driven performance reports with personalized insights
- ✓ Identifies struggling students & recommends extra help
- ✓ Subject-wise strength and weakness analysis

# EduLift

Your AI-Powered Teaching Assistant

AI-Powered Teacher Assistant



Hello, I'm AI-Powered Teacher Assistant, a virtual assistant. I can assist with lesson planning, quiz generation, and student feedback and Performance Analysis. What would you like to start with?

Just now

Type your message





Certainly! Here are some excellent resources for students who are struggling with math:

### Online Learning Platforms

1. **Khan Academy**: Offers comprehensive lessons and practice exercises in various math topics, from basic arithmetic to advanced calculus.
  - [Khan Academy](#) ↗
2. **IXL**: Provides personalized learning in math with interactive questions and real-time feedback.
  - [IXL](#) ↗
3. **Mathway**: An online problem solver that provides step-by-step solutions to math problems.
  - [Mathway](#) ↗

### Interactive Tools and Apps

1. **Desmos**: A powerful online graphing calculator that helps visualize math problems and concepts.
  - [Desmos](#) ↗
2. **Photomath**: An app that allows you to take pictures of math problems and provides step-by-step solutions.
  - [Photomath](#) ↗
3. **Wolfram Alpha**: A computational engine that can solve a wide range of math problems and provide detailed explanations.
  - [Wolfram Alpha](#) ↗

## Real-Life Example: eduLift's Resource Suggestions for Improving Math Skills

# Future Improvements for eduLift

- Incorporate More Student Data
- Integrating past performance, study habits, and engagement levels for a more personalized approach.
- Fine-tune Feature Selection
- Enhance accuracy by optimizing the features used in the model.
- Use Deep Learning Models
- Implement deep learning for better generalization and handling complex patterns.
- Experiment with Ensemble Methods
- Test models like Random Forest and XGBoost to improve prediction robustness.



# THANK YOU!