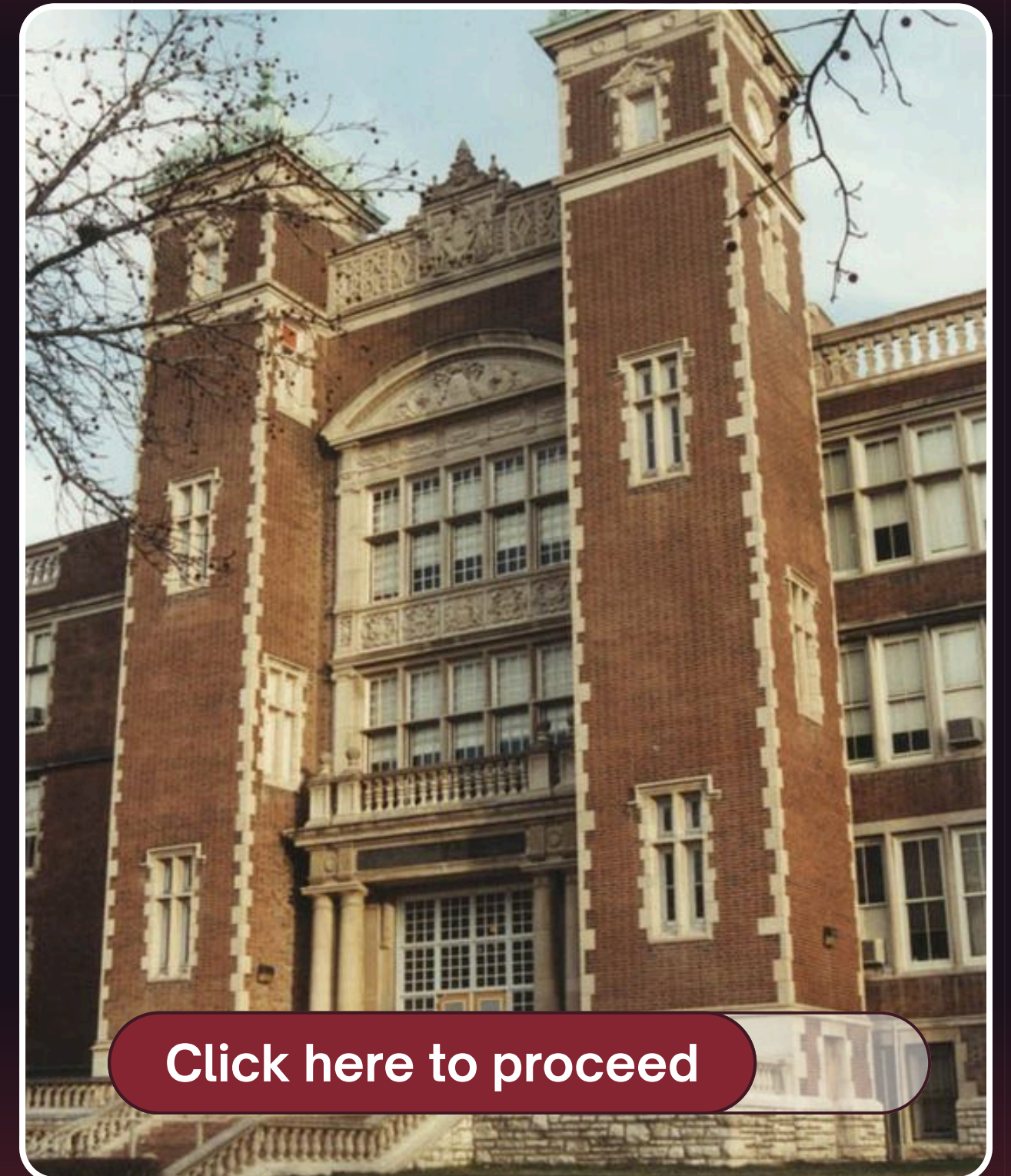
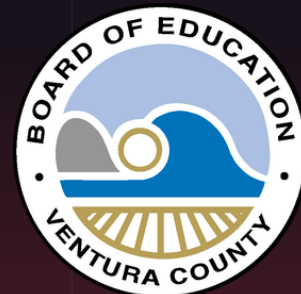


# Student Performance & Attendance Analysis

A data-driven exploration of student performance and attendance patterns to uncover actionable educational insights.

Presenter

Miranda Insights



[Click here to proceed](#)



# Problem Statement

*This analysis examines how student subgroups differ in academic performance and attendance to identify potential equity gaps and improvement opportunities.*

## The Objective

*This project analyzes student performance and attendance data to identify patterns in academic outcomes across key student subgroups, including English Learners, Special Education students, grade levels, and schools.*

## Key Questions

- *Are certain student groups underperforming?*
- *How does attendance impact academic performance?*
- *Which schools or grades show the most variability?*

## Why it Matters

*Understanding these trends helps educators and stakeholders make informed decisions to improve student outcomes, allocate resources effectively, and identify at-risk populations early.*

# Data Overview

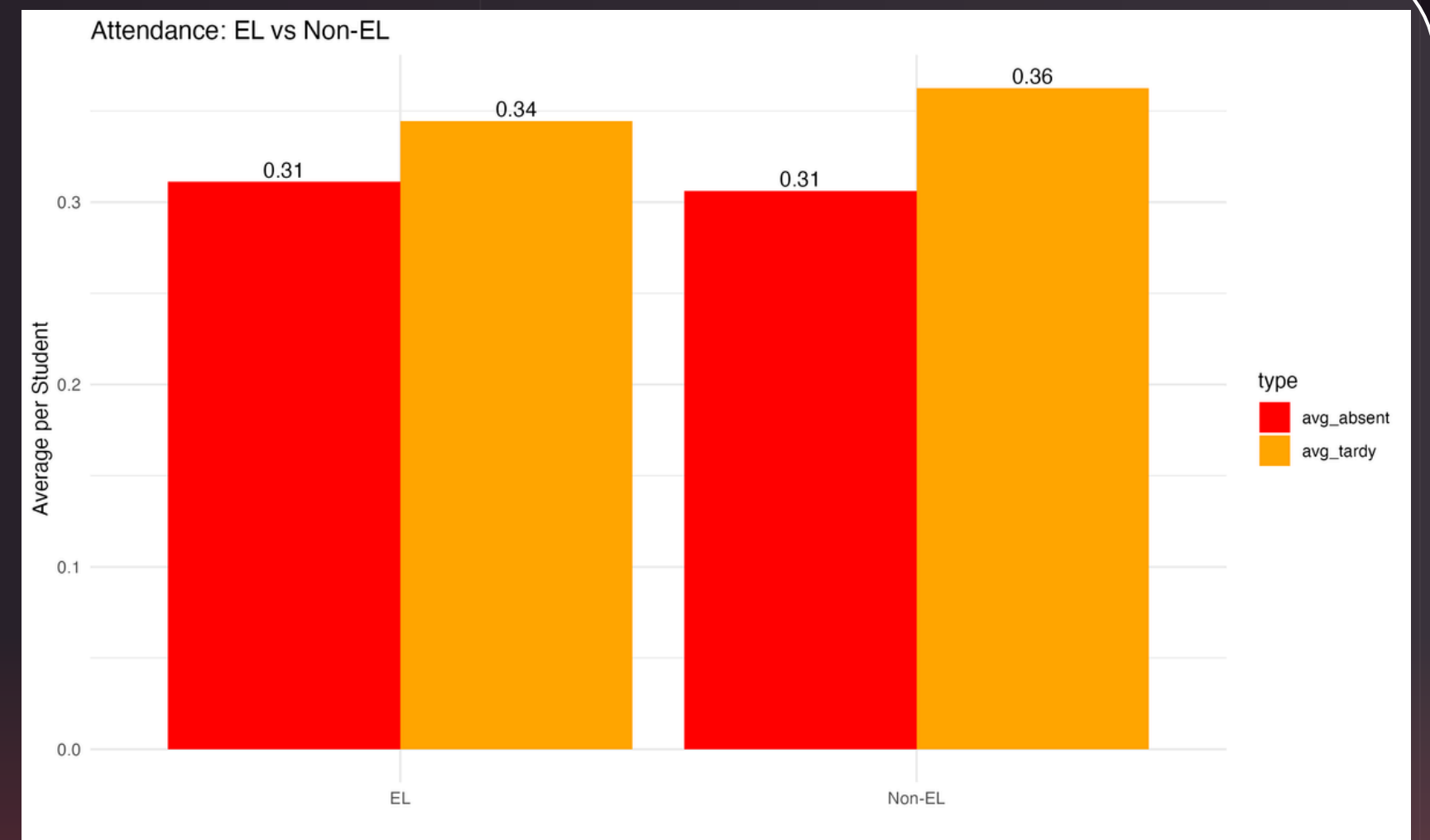
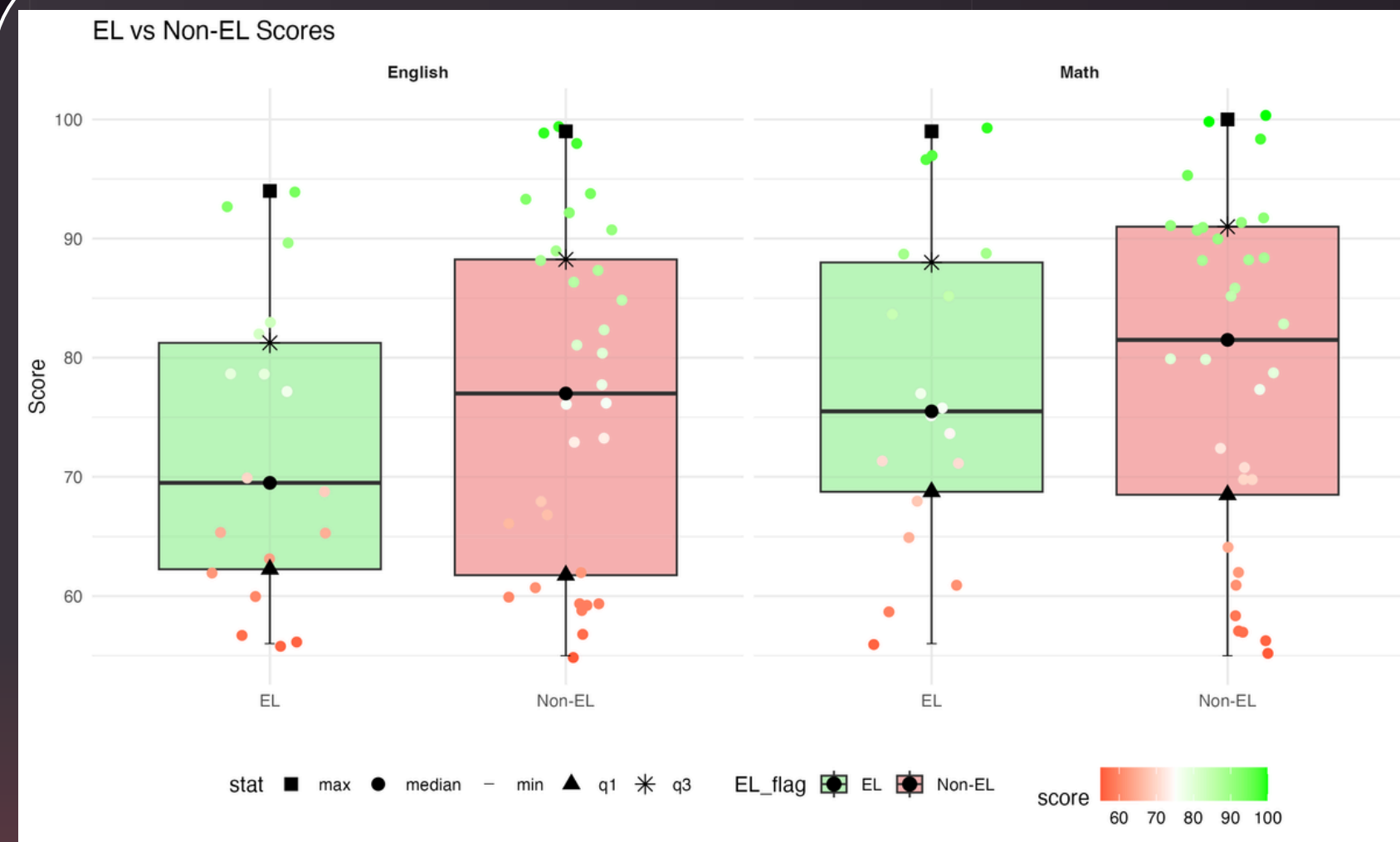
*This project uses a simulated Student Information System (SIS) dataset containing student demographics, attendance records, assessment scores, and school information. The data was structured into a relational database, allowing for efficient joins and scalable analysis across multiple dimensions such as grade level, program participation (EL/SPED), and subject performance.*

*The workflow integrates multiple technologies to demonstrate a full data pipeline. Data was queried and secured using SQL, extracted via a Python API pipeline, analyzed using Python and R, and visualized through both Quarto dashboards and Excel. Final insights were compiled into presentation-ready visuals and reports, showcasing both technical execution and business communication.*



# EL vs Non-EL

*This view compares academic performance and attendance patterns between English Learner and non-EL student groups.*



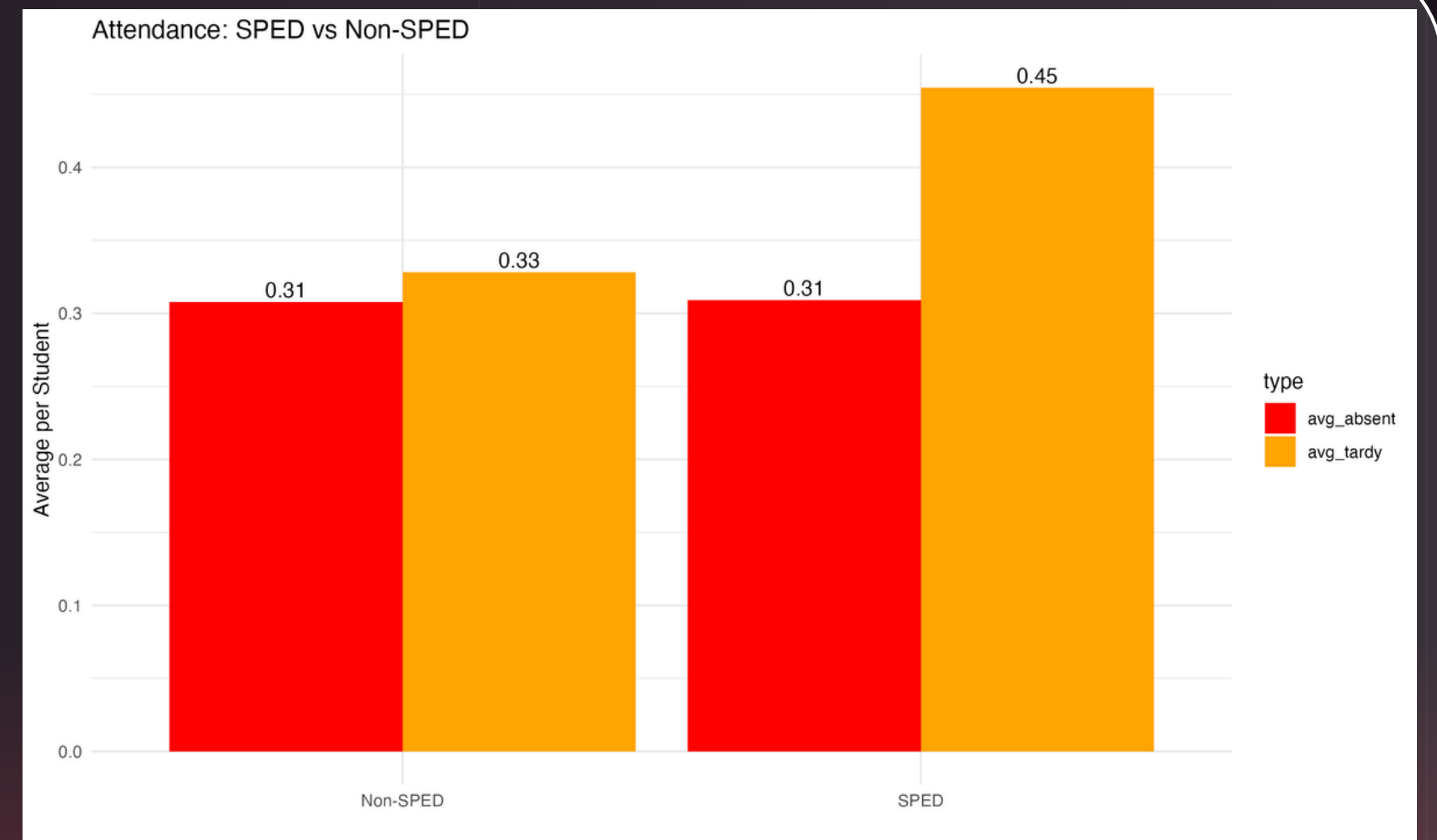
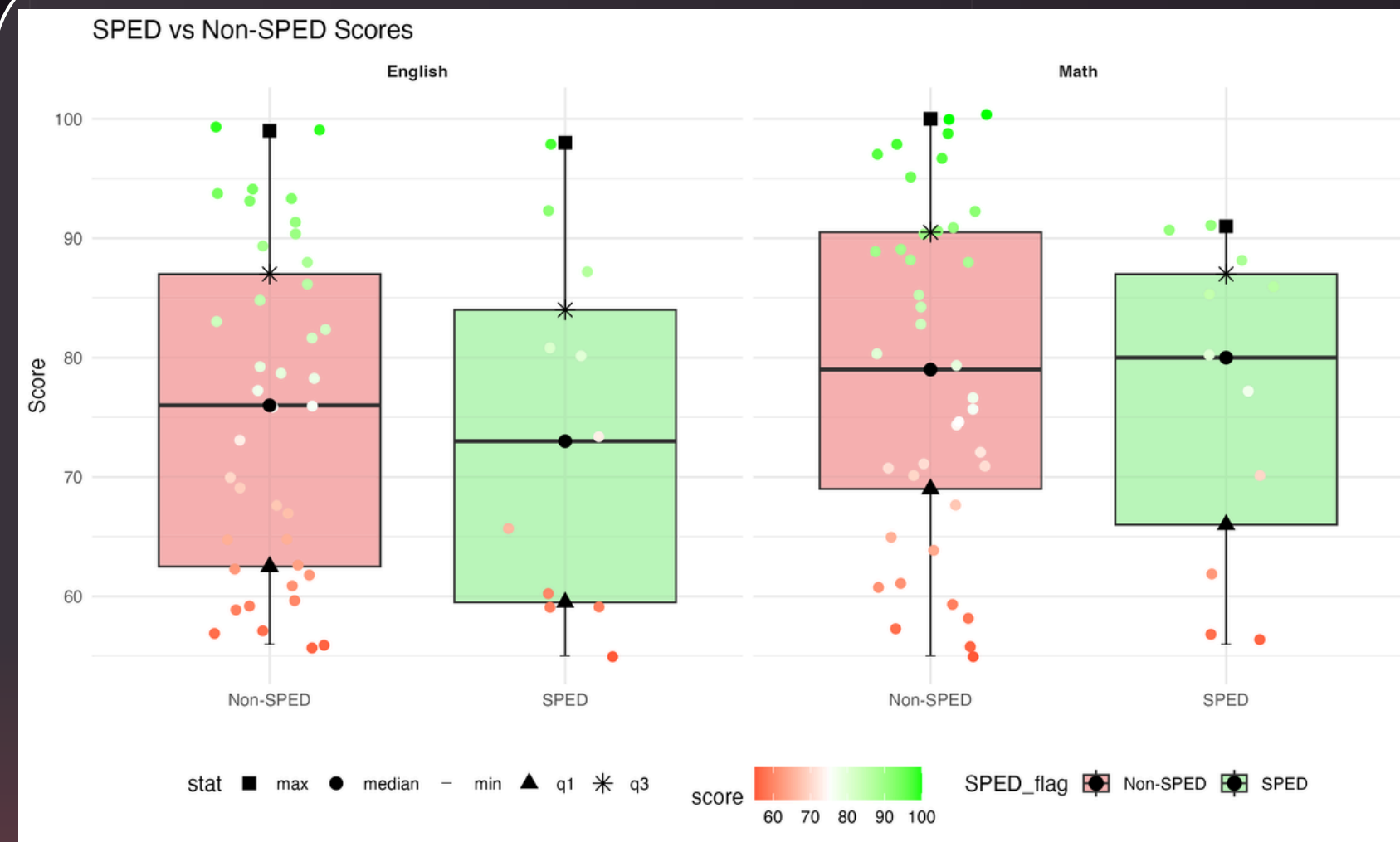
# EL vs Non-EL

*This view compares academic performance patterns between English Learner and non-EL student groups.*

EL_flag	subject	n	mean	median	q1	q3	min	max
EL	English	18	72.22	69.5	62.25	81.25	56	94
EL	Math	18	77.39	75.5	68.75	88	56	99
Non-EL	English	32	76.62	77	61.75	88.25	55	99
Non-EL	Math	32	78.94	81.5	68.5	91	55	100

# SPED vs Non-Sped

*This view compares academic performance and attendance patterns between English Learner and non-EL student groups.*



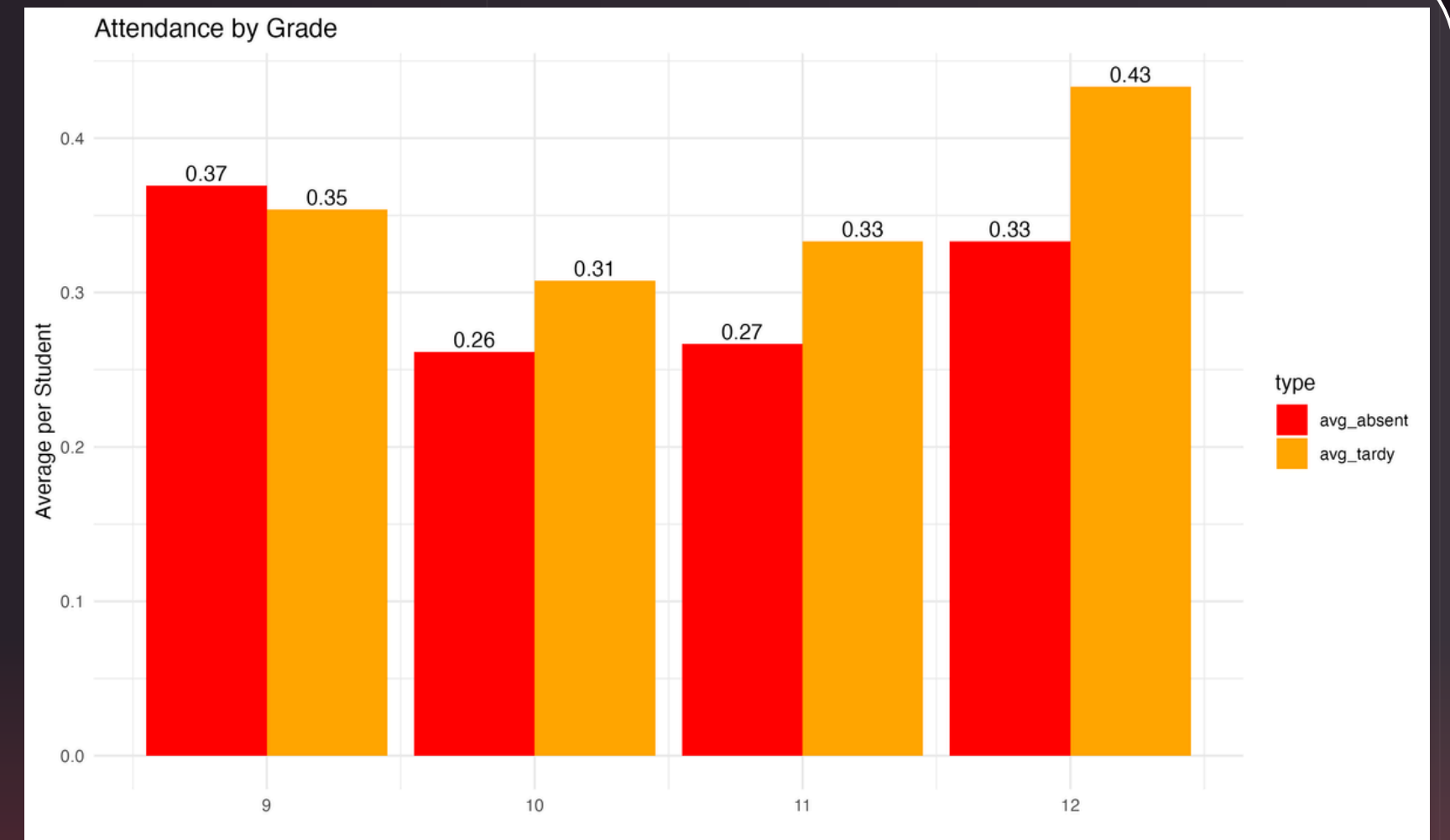
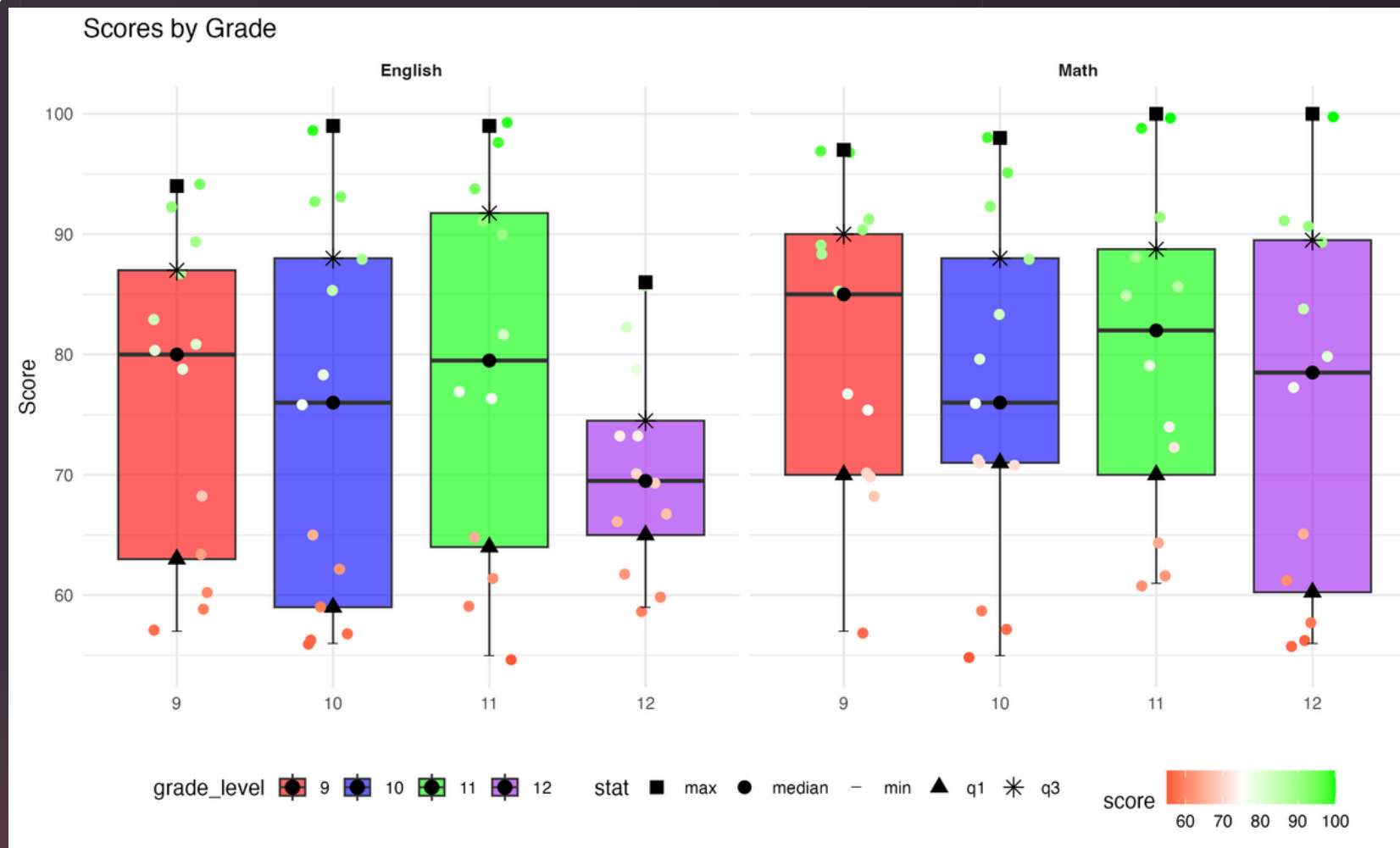
# SPED vs Non-Speed

*This view compares academic performance patterns between English Learner and non-EL student groups.*

sped_flg	subject	n	mean	median	q1	q3	min	max
Non	English	39	75.44	76	62.5	87	56	99
Non	Math	39	78.87	79	69	90.5	55	100
SPED	English	11	73.64	73	59.5	84	55	98
SPED	Math	11	76.64	80	66	87	56	91

# Grade Comparison

*This view compares academic performance and attendance patterns between English Learner and non-EL student groups.*



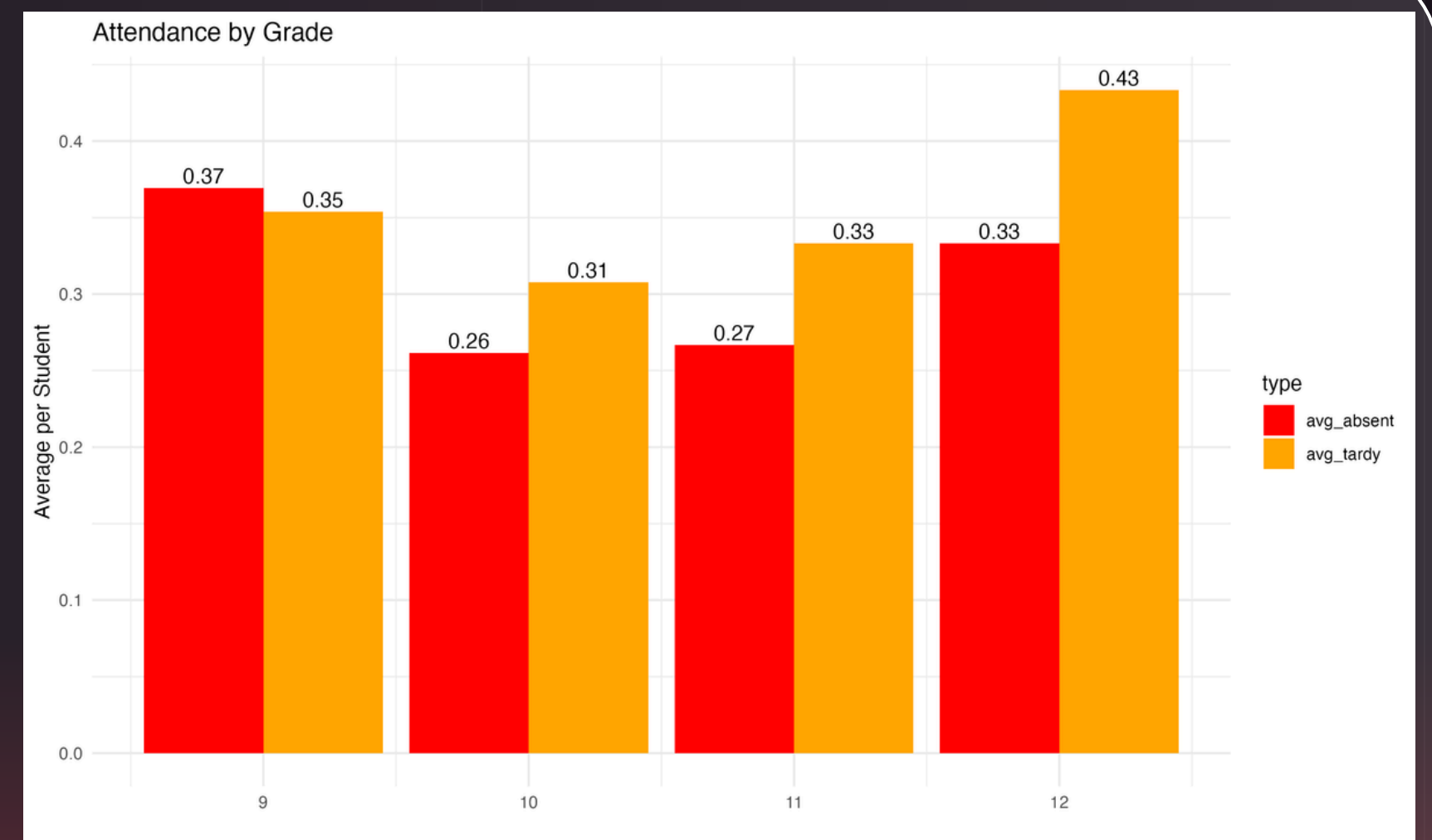
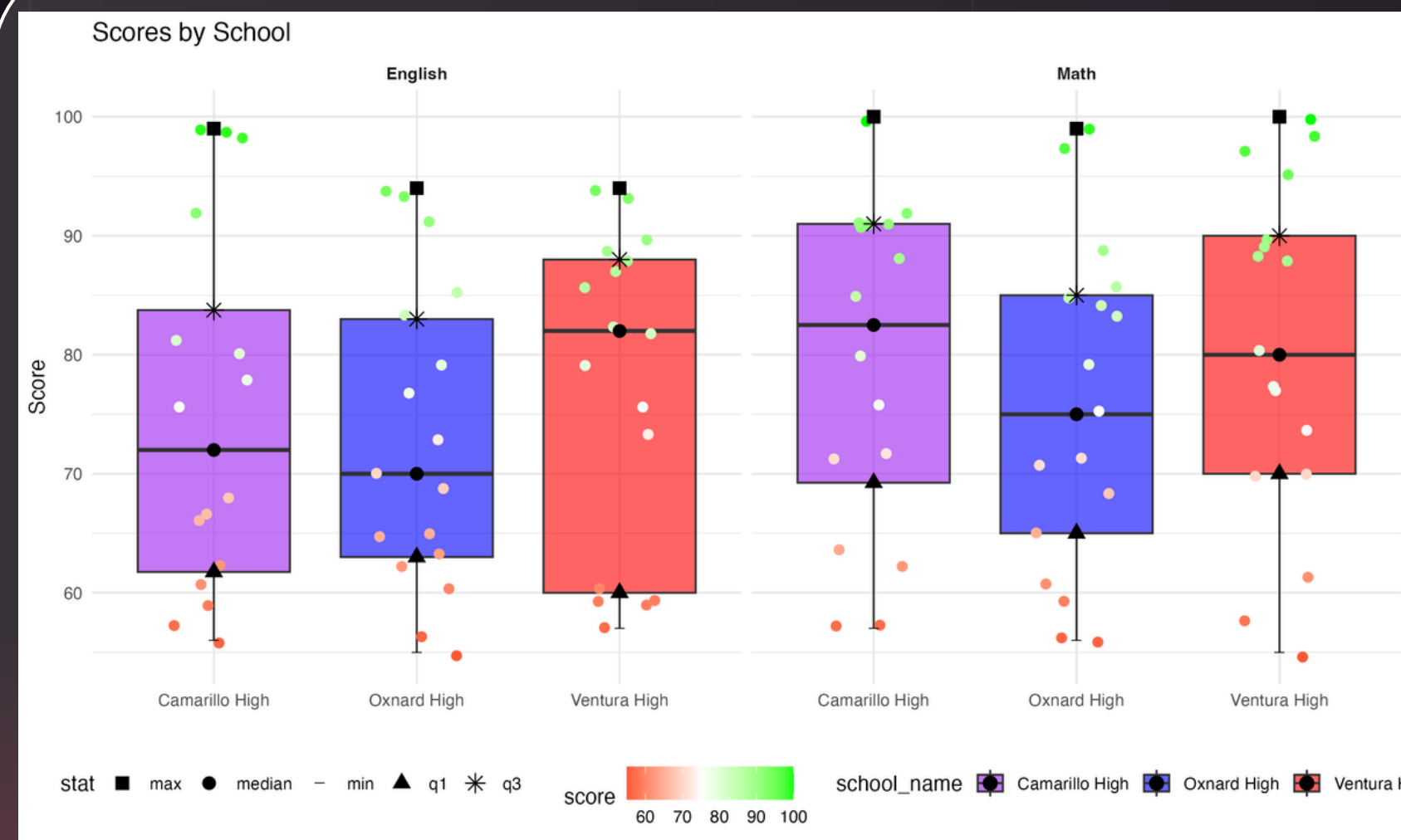
# Grade Comparison

*This view compares academic performance between English Learner and non-EL student groups.*

grade	subject	n	mean	median	q1	q3	min	max	grade	subject	n	mean	median	q1	q3	min	max
9	English	13	76.31	80	63	87	57	94	11	English	12	78.92	79.5	64	91.75	55	99
9	Math	13	81.08	85	70	90	57	97	11	Math	12	80.08	82	70	88.75	61	100
10	English	13	74.38	76	59	88	56	99	12	English	12	70.5	69.5	65	74.5	59	86
10	Math	13	76.62	76	71	88	55	98	12	Math	12	75.67	78.5	60.2	89.5	56	100

# School Comparison

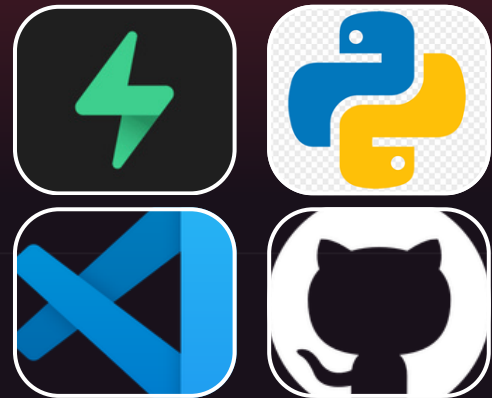
*This view compares academic performance and attendance patterns between English Learner and non-EL student groups.*



# School Comparison

*This view compares academic performance patterns between English Learner and non-EL student groups.*

school	subject	n	mean	median	q1	q3	min	max	school	subject	n	mean	median	q1	q3	min	max
ACHS	English	16	74.94	72	61.7	83.75	56	99	ACHS	Math	16	79.25	82.5	69.2	91	57	100
OHS	English	17	72.94	70	63	83	55	94	OHS	Math	17	75.53	75	65	85	56	99
VHS	English	17	77.24	82	60	88	57	94	VHS	Math	17	80.41	80	70	90	55	100



# Technical Stack



## Supabase & SQL

### Data Infrastructure

Designed and managed a relational database using SQL, including schema creation, data validation, and row-level security policies for controlled access.

## VS & Python

### Data Engineering & Analysis

Built a Python-based pipeline to extract data from Supabase APIs, transform datasets, and prepare them for analysis and export across multiple platforms.

## Quarto & R

### Visualization & Reporting

Developed publication-quality visualizations and a fully self-contained HTML dashboard using R and Quarto, enabling professional and shareable reporting.

## Excel & Github

### Business Tools & Delivery

Delivered insights through Excel dashboards with pivot tables and KPIs, while maintaining version control and project transparency via GitHub.

*“End-to-End Data Pipeline: From Raw Data to Decision-Ready Insights”*