



# **EPPS6354 Information Management Research Proposal**

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# 1 Database Purpose

## Impact of Online Classes on High School Students' Grades

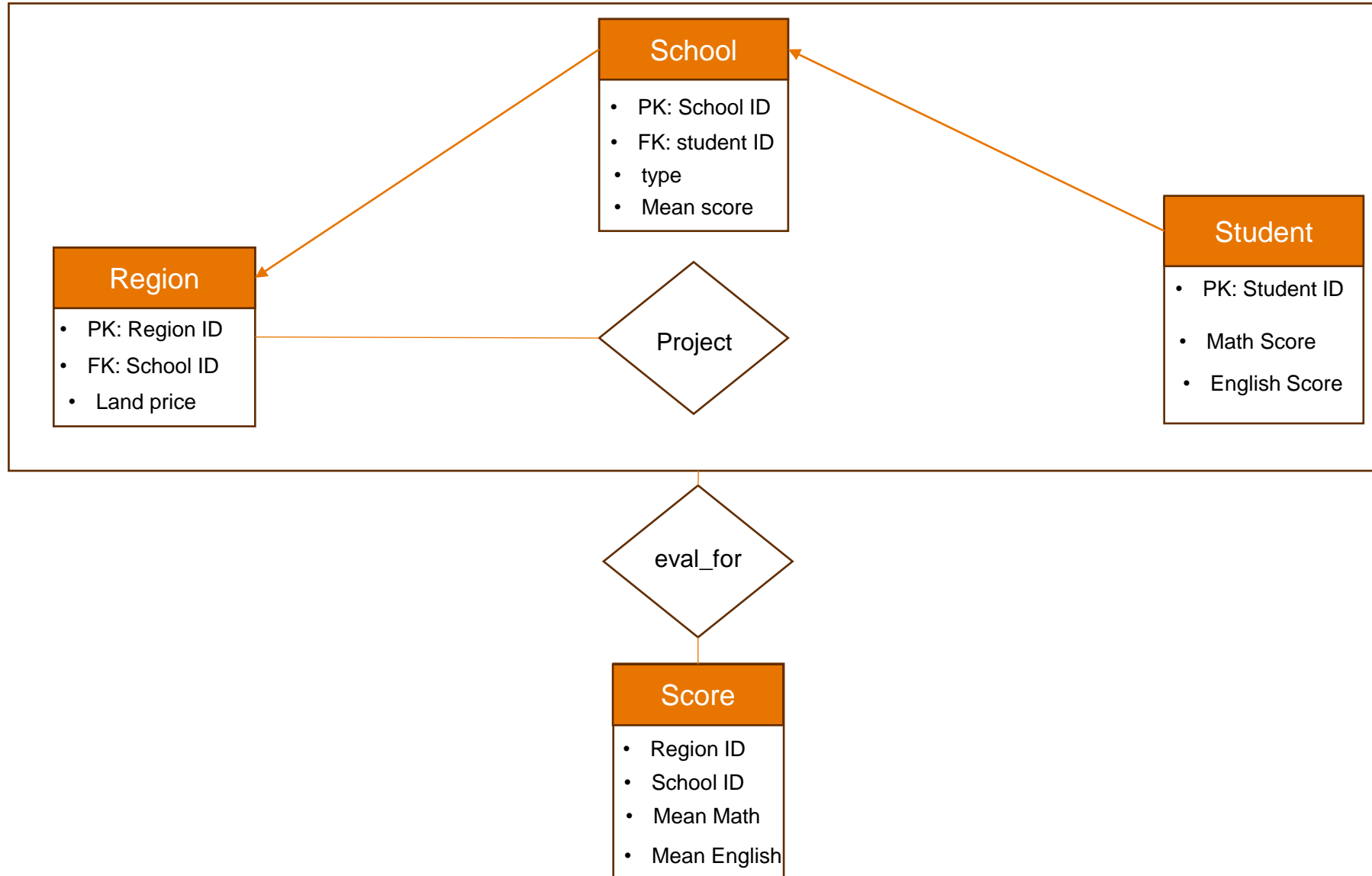
- *Transition to online classes* during the pandemic had *varied effects* on high school students' grades.
- Impact influenced by financial, organizational, and *characteristic features of schools*.
- *Regional differences* in support for schools also contributed to varying impacts.

# 1 Database Purpose

## Improving Access to Data for Informed Decision-Making

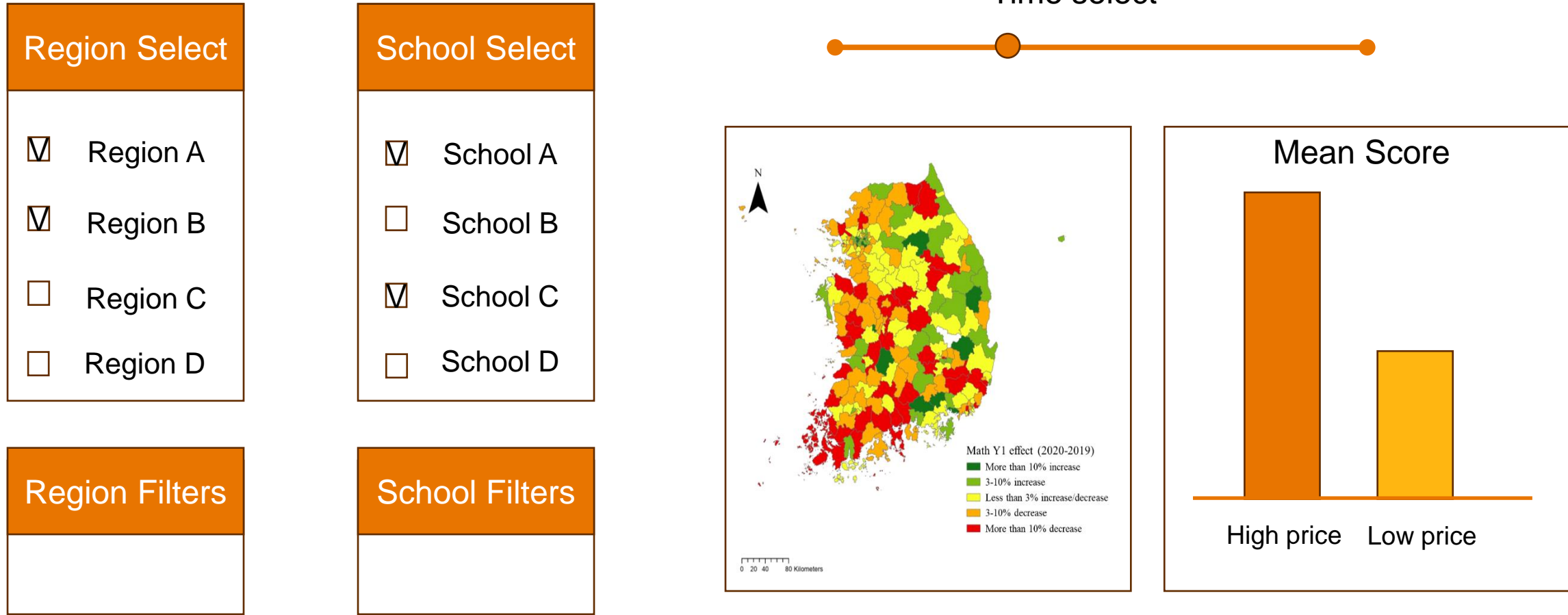
- **Challenge:** *Current data* on schools and students' grades provided individually, *making comparisons difficult*.
- **Solution:** Research aims to *create a comprehensive dataset* allowing easy comparison across schools and regions.
- **Benefits:** Enables policymakers, school administrators, parents, and students to *assess and compare impacts* of online classes effectively.

## 2 Schema



# 3 Interface

## Example Interface



# 4 Method

## Utilizing *R Shiny* for SQL Database Management

- Integration with SQL Database: R Shiny can be utilized to create user-friendly interfaces for managing SQL databases, providing a dynamic and interactive environment for database administration.

### *Advantages:*

- ***Real-Time Visualization***: R Shiny enables real-time visualization of SQL data, facilitating quick insights and decision-making.
- ***Flexibility and Customization***: R Shiny provides flexibility in designing the interface according to specific user requirements, allowing for customization of features and functionalities.

### *Challenges:*

- ***Performance Considerations***: As R Shiny applications run on a server, performance may be impacted by factors such as server capacity and network speed.

# 4 Method

## 1) Data Insertion (*INSERT*)

- Purpose: *To insert new data* into the student grade dataset, school information dataset, and regional information dataset.

## 2) Data Select (*SELECT*)

- Purpose: *To select data that meets specific conditions*. For example, one could look up the average grades of schools in a particular region or compare grade changes before and after the pandemic.

## 3) Conditional Retrieval (*WHERE*)

- Purpose: *To filter data according to certain conditions*, such as comparing grades before and after the pandemic or querying the grades of schools in a specific region.



## 4 Method

### 4) Joining (*JOIN*)

- Purpose: *To combine school information and student grade data* to analyze grades by school or by region.

### 5) Subqueries and Aggregate Functions (*SUBQUERY & AGGREGATE FUNCTIONS*)

- Purpose: For complex analyses, *to use the results of another query within a query* or to *perform calculations such as average*, maximum, and minimum using aggregate functions.



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THANK YOU