Organised Access to Historical Student Data
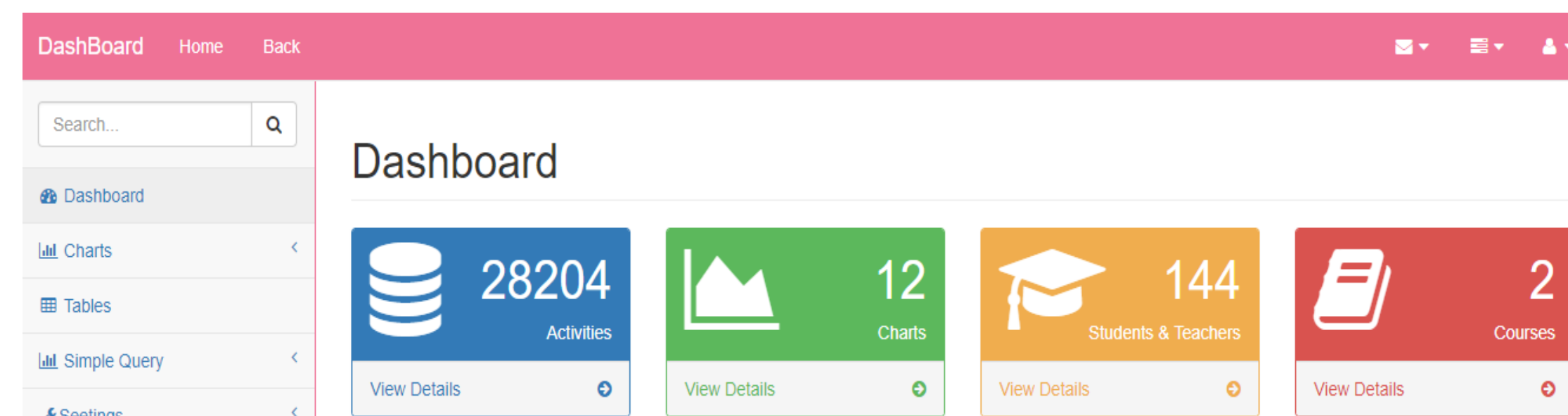
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Supervised by Nickolas Falkner, Claudia Szabo, Christoph Treude, Marian Mihailescu

School of Computer Science
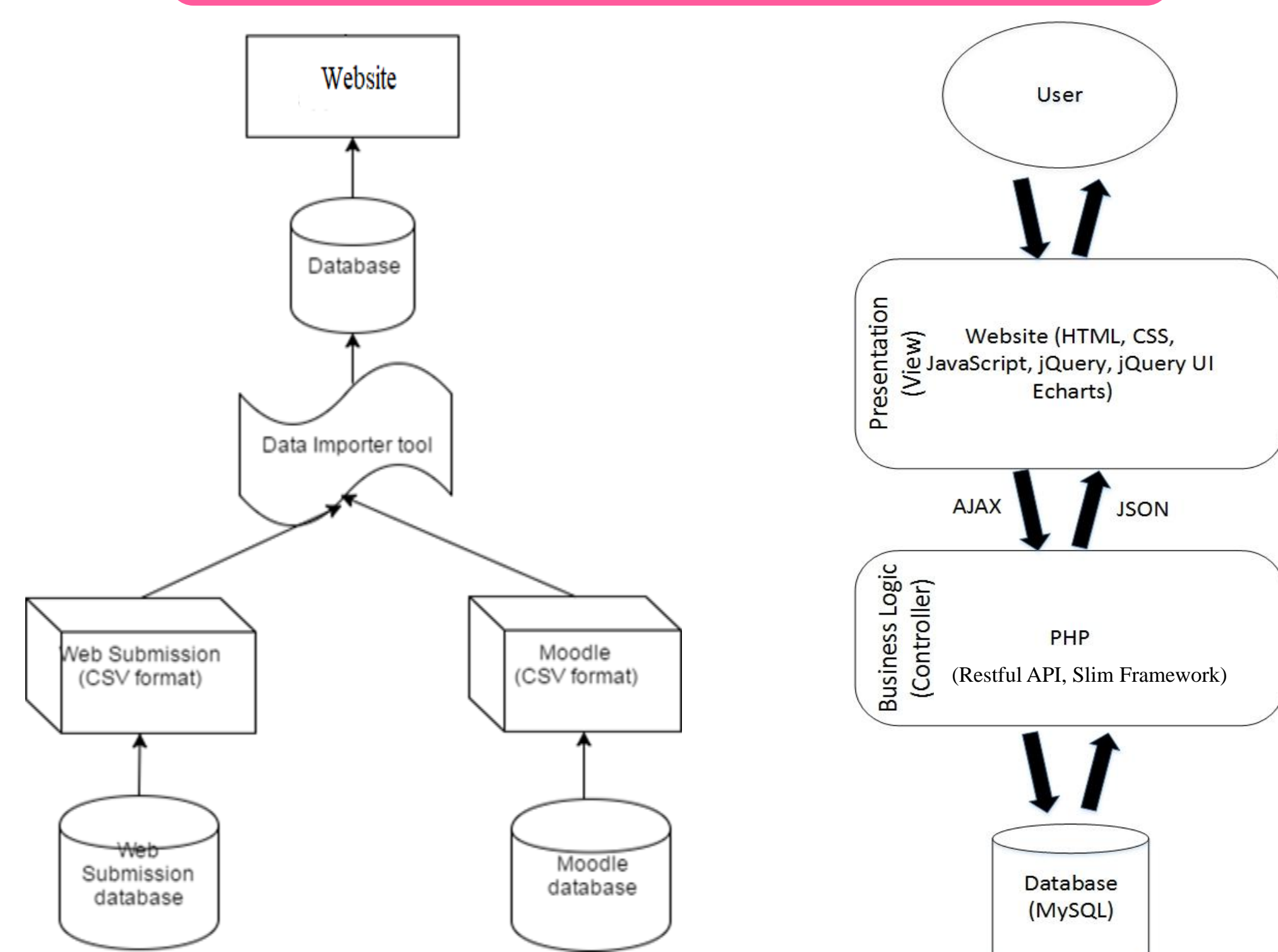
Project Introduction

The school of computer science has collected a large amount of student data over the years in a number of different sources. This project has assisted to present those collected data in neatly visualized forms for better and easier decision making.
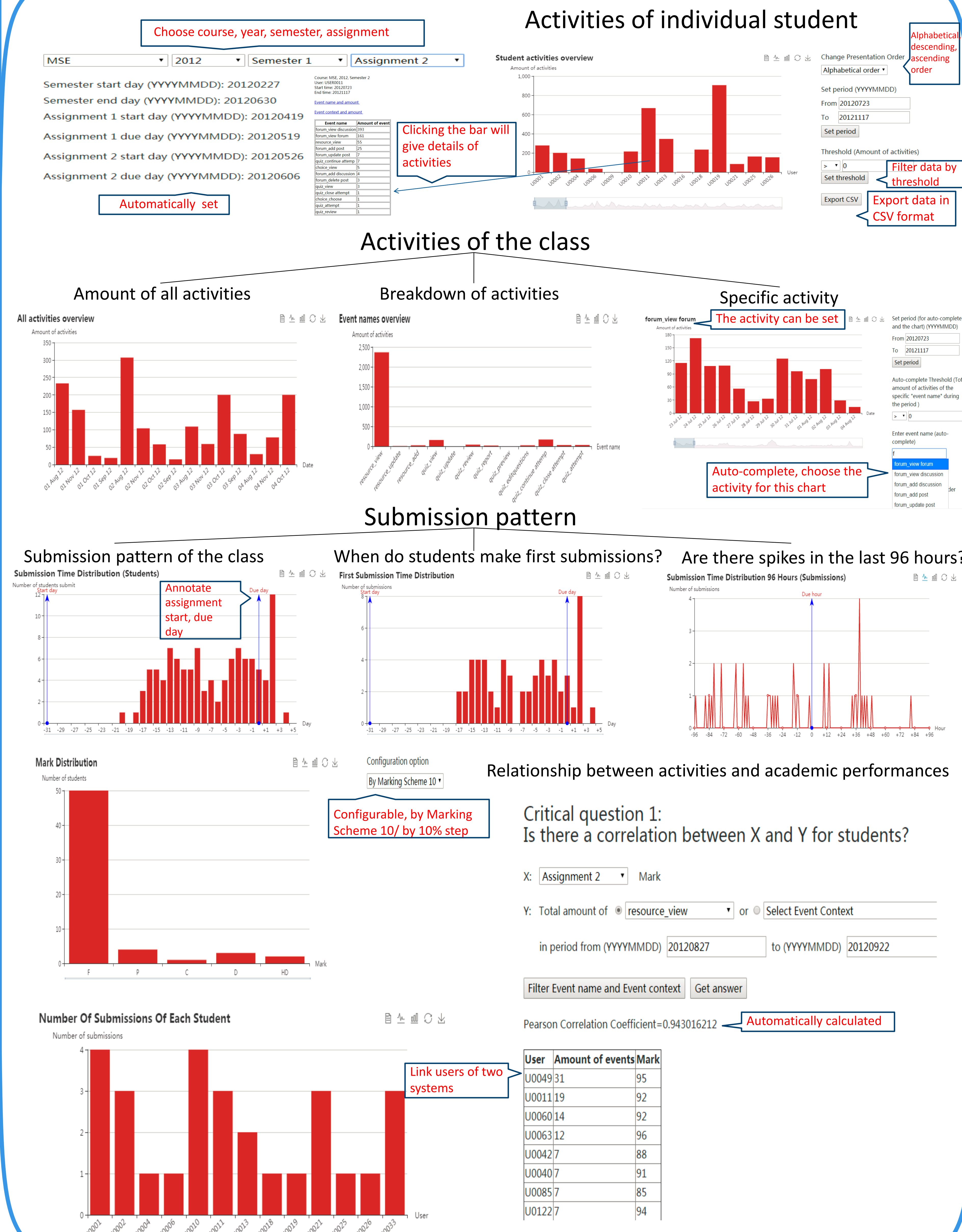

Project Objective

❖ To provide a flexible database schema linking two data sources (Moodle forum and WebSubmission system).

❖ To import data from file-based sources into the database.

❖ To visualize data by charts and make them configurable to allow users to manipulate and interact with data. Configuration options include: change presentation order, set start day and end day, set threshold, set activity, set course, year, semester and assignment.

❖ To analyze the relationship between the amount of students' activities and academic performances.

❖ To assist the staff to query, aggregate and export data with functionalities such as copying data to clipboard; printing and exporting data to Excel, CSV, PDF.
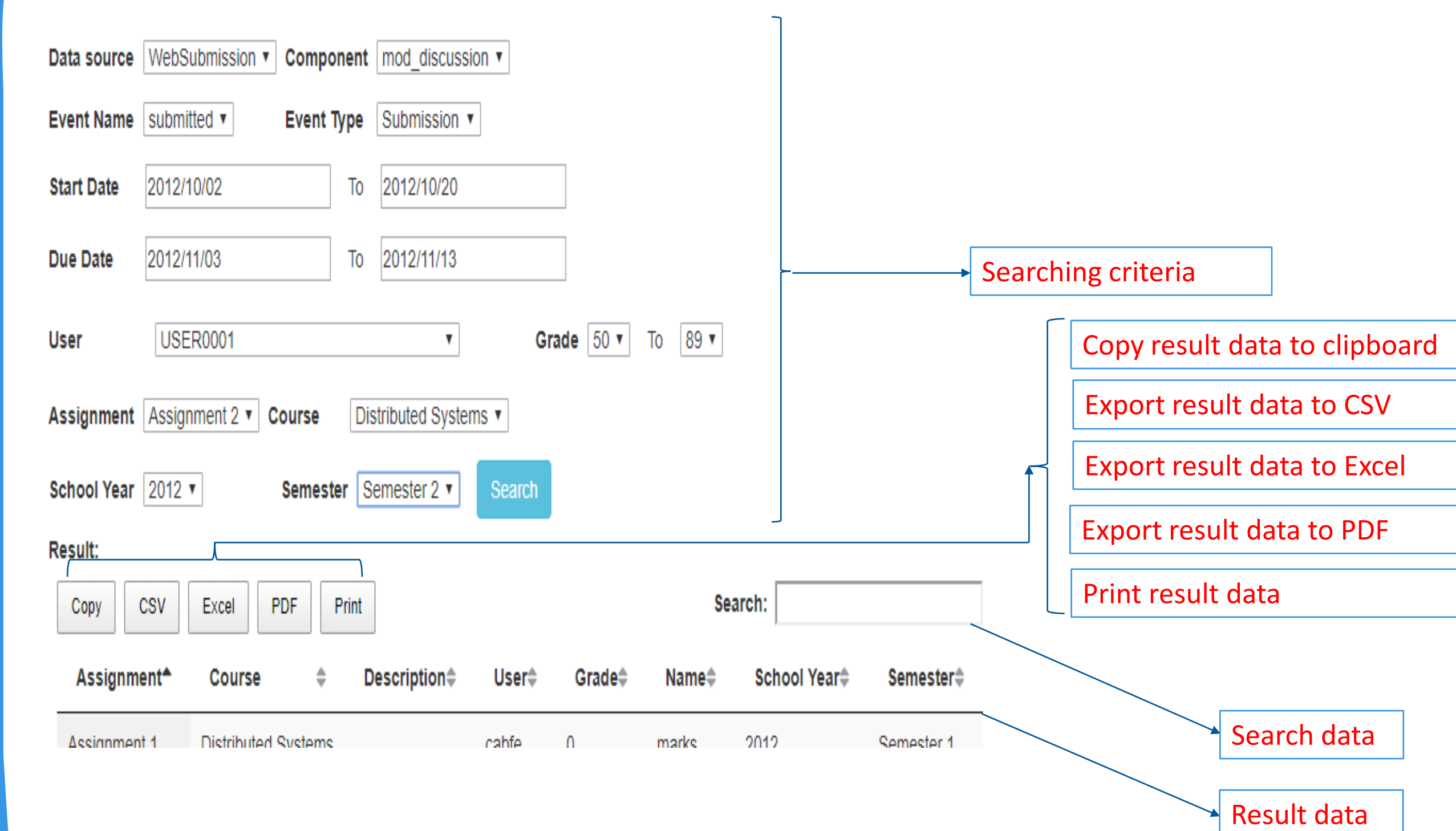
System Architecture

Charts and analysis module

Activities of individual student

Activities of the class

Amount of all activities   Breakdown of activities   Specific activity

Submission pattern

Submission pattern of the class   When do students make first submissions?   Are there spikes in the last 96 hours?

Relationship between activities and academic performances

Critical question 1:
Is there a correlation between X and Y for students?

Pearson Correlation Coefficient=0.943016212

Data query module

Advantages

❖ Analyze complicated data in visualized forms.

❖ Provide data of individual student as well as the class.

❖ Query, aggregate, extract and export data in several formats such as excel, pdf, csv or printing.

❖ Combine data of several data sources.

❖ Link data of many data sources.

Future work

❖ Modify the schema to work with new data sources (Canvas).

❖ Add new data sources (e.g. student GPA) for further cross data analysis.

❖ Provide charts (across semesters) of the same course for trend analysis and comparison.

Acknowledgement

This project was supported by the School of Computer Science. We gratefully acknowledge the feedback and contribution of Nickolas Falkner, Claudio Szabo, Christoph Treude and Marian Mihailescu.