Return on Investment on a University Education: Development of an Analytical Software Tool

By: Kinsey West, Ante Lučev, Kristians Kanders, Joshua Love

Faculty Advisors: Dr. José Sánchez, Dr. David Olawale, Dr. Steve Spicklemire, Dr. Paul Talaga, Dr. Rashedul Sarker

INTRODUCTION

Introduction
Universities have access to numerous amounts of student data, but do not have any analytical software that is able to analyze it.

Objectives
Develop an analytical software, known as University Analytics, that uses student and state employment data to compare the average salary of different majors.

Motivation
Motivation for the project originates from the amount of data that being collected but is going unused. The team wants to provide universities with a tool to utilize this data in order to make an influential impact.

Significance
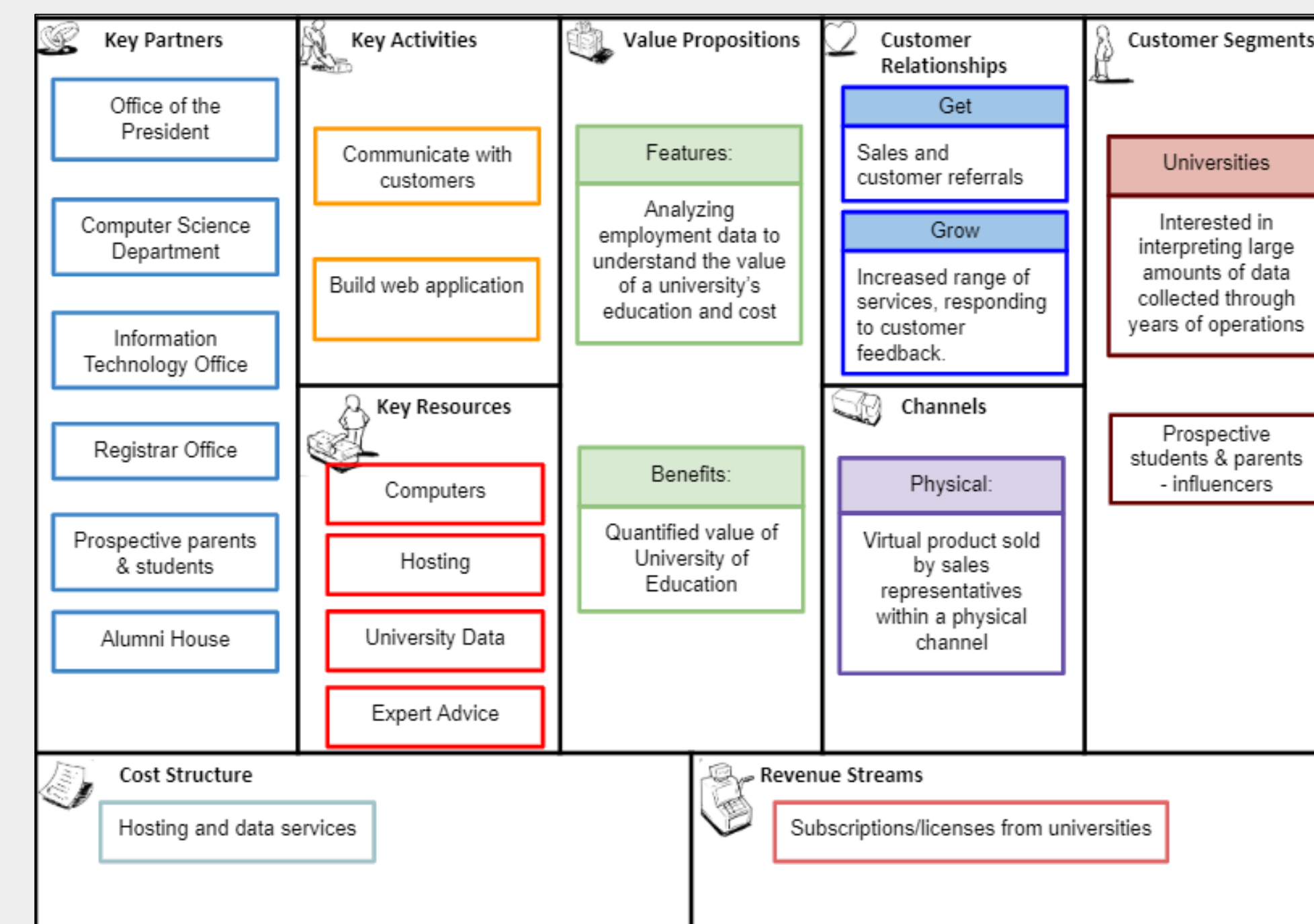University Analytics identifies the value and return of investment of a university education.

UNIVERSITY of INDIANAPOLIS

R.B. Annis School of Engineering

METHODS

Customer Discovery
The team conducted interviews to gauge the likelihood of people being interested in implementing the analytical software. The BMC to identify the key aspects used to develop University Analytics.
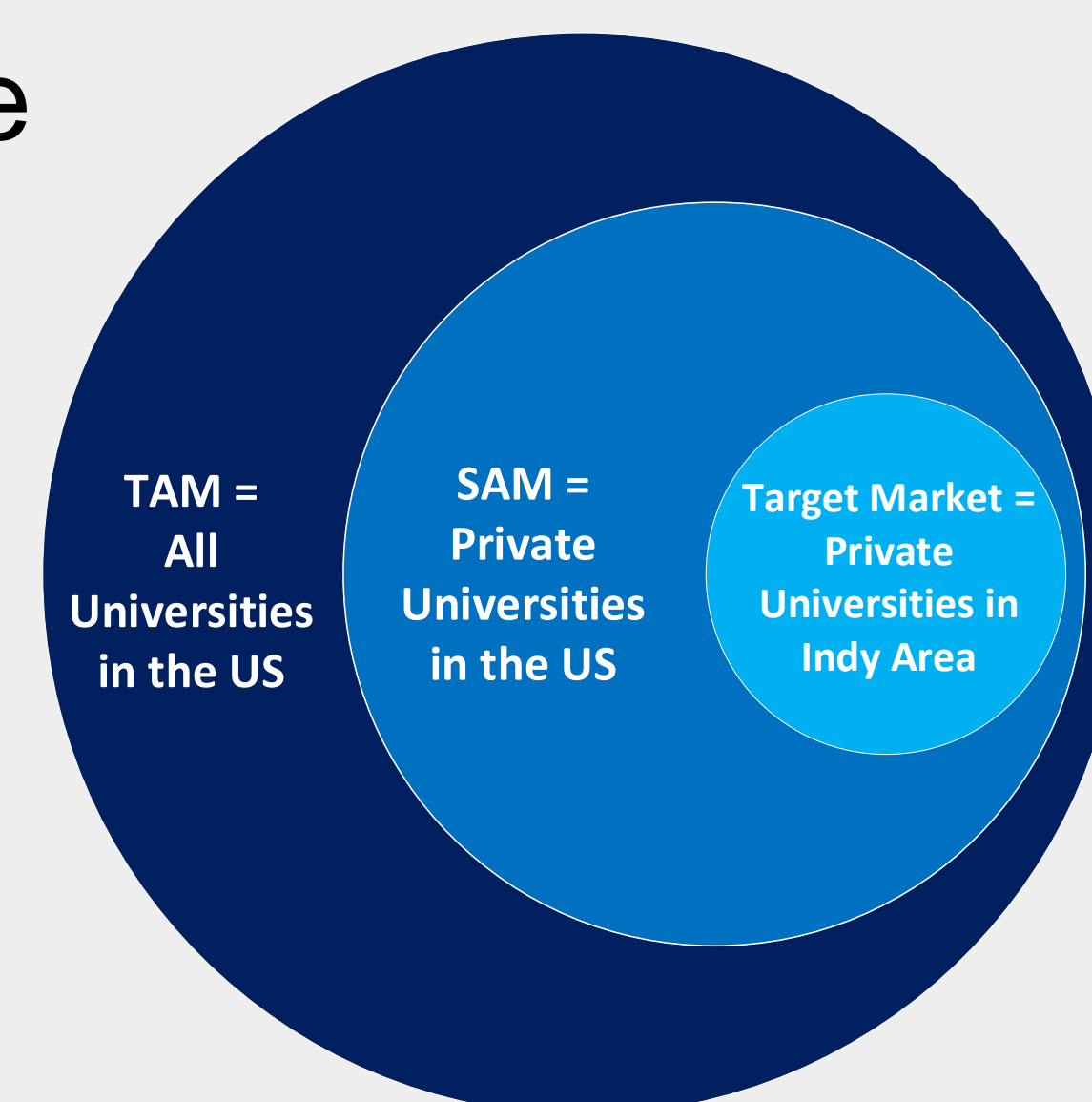

Business Model Canvas (BMC)

Market Analysis
The overall market University Analytics will enter is new and unestablished. The Market Size Analysis Model identifies potential markets differing in size that the team could enter, indicated by number of universities:

- Total Available Market (TAM) = **4,140**
- Served Available Market (SAM) = **2,441**
- Target Market = **28**

TAM = All Universities in the US
SAM = Private Universities in the US
Target Market = Private Universities in Indy Area

Market Size Analysis

Design Concepts
Database options:
- SQLite
- MySQL
- MongoDB
- Cassandra

Framework options:
- Flask
- PHP
- Java swing
- ASP.NET

The team decided on *SQLite* and *Flask* to develop University Analytics due to complexity and universality of the systems.
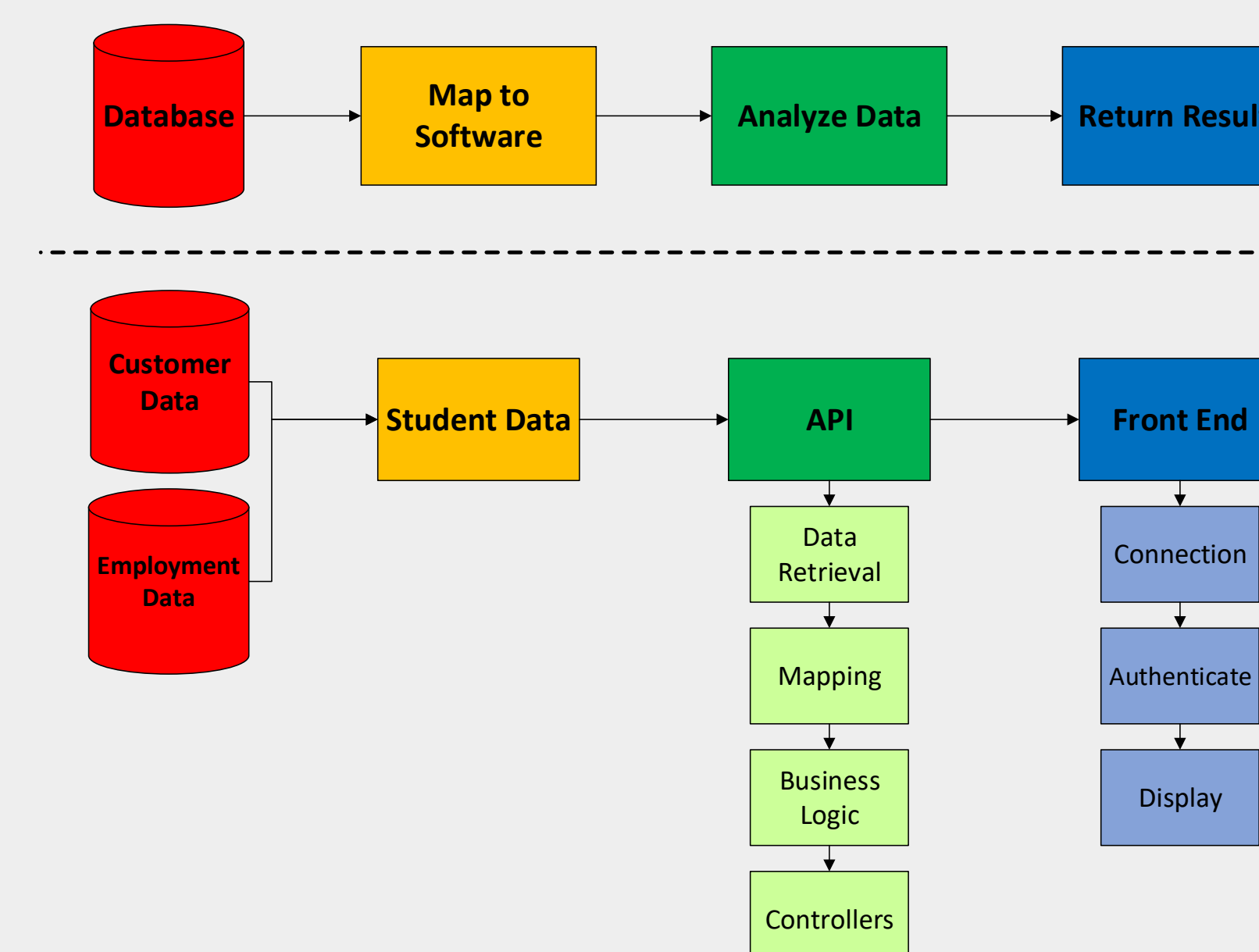
System Architecture Diagram

Creativity in Design
- Use custom data
- Analyze multiple inputs simultaneously
- Segregate results by preference
- Display results in graphical formats

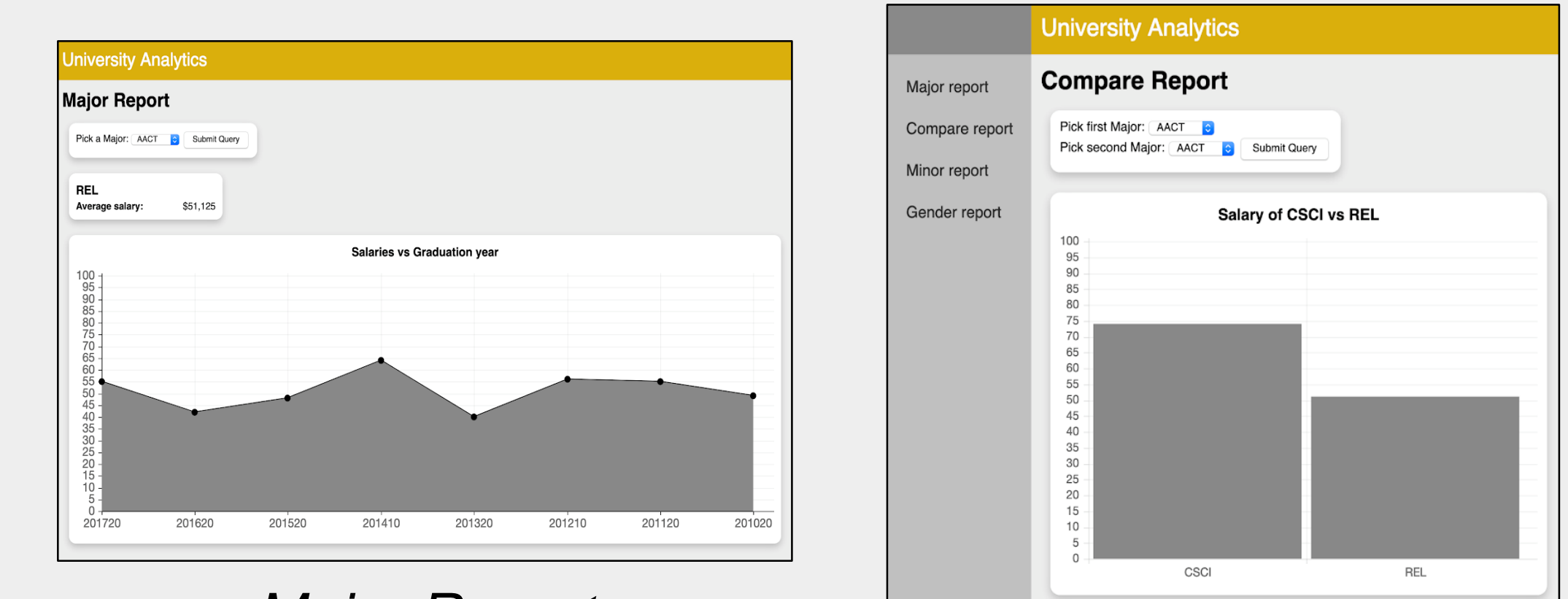The System Architecture Diagram highlights the path of the data used in University Analytics.

Value Proposition
- Value of a university education
- Return on investment
- Nationwide usability
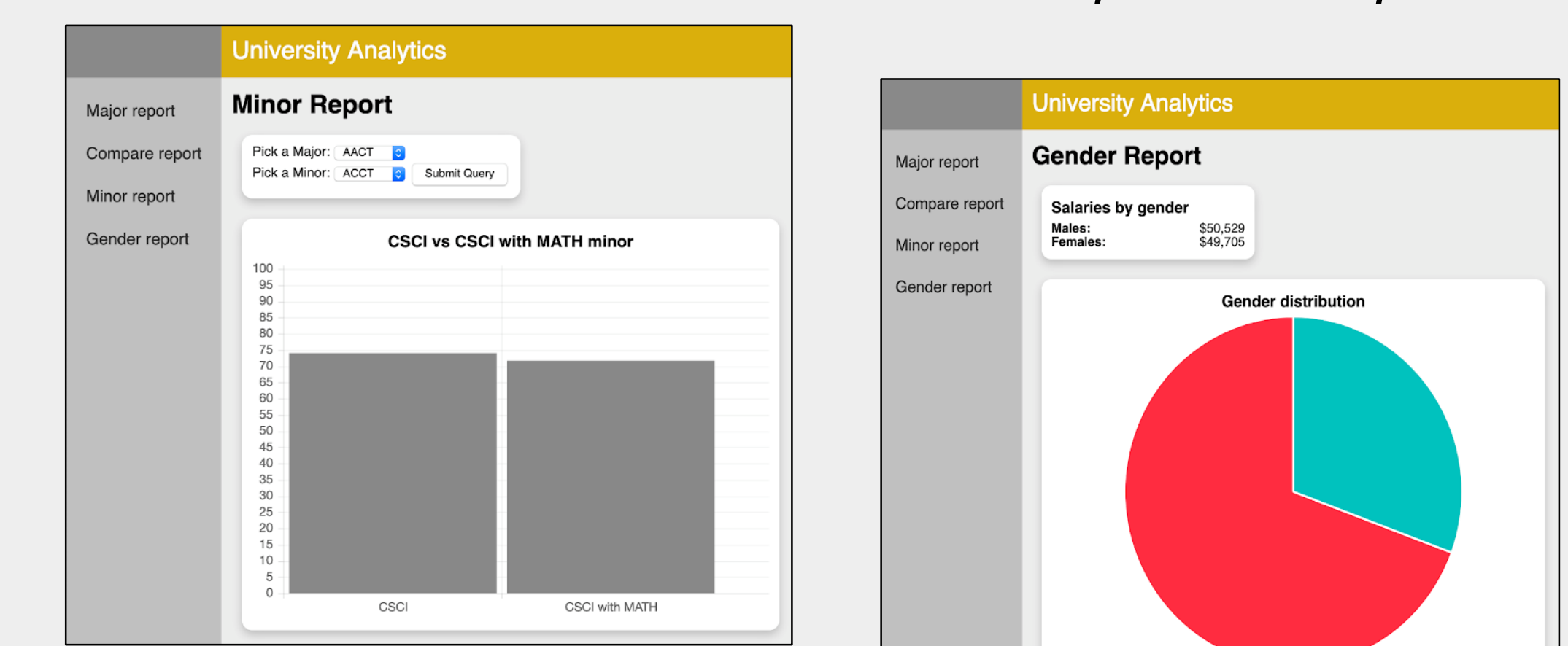- Competitive factor for universities

RESULTS

Fabrication & Testing
The team tested the performance of University Analytics with a "test" data set.

Major Report

Comparison Report

Minor Report

Gender Report

CONCLUSION

Conclusion
The team developed and tested the minimum viable product of University Analytics. Next steps for the project are to implement more complex features to expand the capabilities and impact of the system.

Acknowledgments
Special thanks to our business mentors at Anthem and the faculty advisors of the R.B. Annis School of Engineering for their guidance and support throughout the project.