

# ENROLLMENT PREDICTION DATABASE PROPOSAL

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## ABSTRACT

Arizona State University has a large intake of students every year, for both undergraduates and graduates. This database project proposal focuses on creating an enrollment projections for the future year and to update those projections annually. The projections are developed to assist the school division in planning for and managing the current and future impacts of enrollment. These impacts include staff, facilities and other resources such as furniture, textbooks, and supplies. Planning to meet these needs enhances the university's ability to achieve excellence by design and equality in education for its students. For our initial proposal, we will be focusing on a single year of enrollment. This database will catalog details of all the students who have applied to the university. The data will then be used to predict the final number of students enrolling for that particular year, which will be presented to users on a well developed and user-friendly front-end interface. Keywords: proposal, NoSQL, project, prediction

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### INTRODUCTION

Arizona State University has one of the largest student populations in the nation. The number of on-campus students, as well as online students is growing every year. IF this number is not accounted for it will result in insufficient funds and resources for all students and faculty. Predicting the number of students who will be enrolled in a single year will be beneficial to faculty and college administrators who will need to decide how to accommodate the growing number of students. The number of students will help to decide class sizes, whether new faculty members need to be hired, on-campus housing requirements, and even school fees among other things. Currently ASU has a rolling admission, which means that the exact number of students attending will not be guaranteed until the last session in April - which is dangerously close to school start in August. For our project we will focus on data for a single year of enrollment. The database will have details of all the students who have applied to the university. Using data from previous years, obtained by an on-campus source, we will generate a predictive model to help gauge how many students will be enrolled in ASU come the start of the semester. Our project will also take into account other variables that may affect college enrollment such as the state of the US economy. We have decided to make a database that takes input from the users and outputs the number of students that are likely to attend ASU in the fall.

## SECTION 1: REQUIREMENT GUIDELINES

We decided on the requirements gathering phase using the documents provided to us from Dr. Jagannathan. After going over the rubric, we have come up with requirement guidelines to (1) gather data on student applicant information and (2) to obtain and predict the number of students attending that year.

### ***Requirement Definition Statement***

To develop a database with a secure backend and an easy-to-use frontend that accurately gives the number of students attending ASU in a given year.

### ***Functional Requirements***

- The system should take input from the user and store that information securely.
- The system should perform predictive analytics on the data to determine how many students will attend in a given year.
- The system should be robust enough to take in new data and alter predictions based on the options.
- The system should have a well developed and user-friendly front-end interface.

## SECTION 2: STRUCTURING REQUIREMENTS

### ***List of Features of the System***

The system will be used to predict ASU's domestic or international graduate student enrollment ( or both ). Following are the features outlined:

- Domestic / International Graduate Enrollment Prediction
  - 1 The system will be able to predict the future student enrollment to ASU schools like Ira Fulton School of Engineering, WP Carey Business School and Thunderbird School of Management
- ASU Ranking Prediction
  - 1 The model should be able to predict the ranking updates of the ASU schools taking into account various variables like predicted enrollment, job secured by the University Alumni and others.

### ***Data Requirements***

The project's data is made up of anonymized data of previous years of ASU's enrollment. NoSQL(Mongo) collections will be used to store these datasets and analyze them later for the predictor. Following datasets are required in order to successfully predict the enrollment count for coming up years:

- Student applications received
- Students accepting the admission offer
- Students successfully enrolling to the first semester
- Demographics of students who have applied to ASU
- Scores acquired by the applied students in Quantitative exams like SATs, GRE and GMAT

The data are stored in form of different collections and analyzed using a robust backend preferably on Python.

### SECTION 3: IMPLEMENTATION

This project will be implemented via the ServiceNow platform and will integrate an intuitive interface with the fully featured back-end. Implementation specifics will be determined at a later date once additional details of both the model and the infrastructure are determined.