

Deliverable 2
Requirements Definition Document and Use Cases

Class Voting System
IS436 Structured Systems Analysis and Design
10/09/2019

Arian Eidizadeh - Project manager
Cyril Fonzock - Software analyst
Michael Woldgerima - Developer
Leul Assamenew - System analyst
Sanee Patel - Data analyst
Yohannes Feleke - Developer

Project Class Voting System

Project Purpose:

We plan to build a voting system that will provide more insight into what classes need prioritization ahead of time (One Year).

Functional Requirements

1. Learn more about the software.

- 1.1. When it comes to the functional aspect of this project, this software should be able to let students vote on upcoming classes to see what they appeal to the most.
- 1.2. We will be using process-oriented when it comes to the functional aspect of this voting system because it allows the system to check incoming and transfers to vote as well.
- 1.3. The system should allow students to view degree requirements and course list while voting for classes.

2. Implementing the software.

- 2.1. The voter would need to log into a website/software we develop on a device. From there, the voter would submit their CAMPUS ID to authenticates
- 2.2. The student has two votes they can use and click on whatever class they would like to take.
- 2.3. Once their identity is verified, the voter can complete their ballot and securely submit their vote(s) to the web application ballot box.

3. Logic behind the Software.

- 3.1. Our machine learning will scan those sentences, put them into keywords, and push them out in a nice-clean format for the director.
- 3.2. That's why we chose to use Predictive Modeling as our artificial intelligence technique it effectively identifies key attributes that a customer has entered before and determine actions that the customer is most likely do.
- 3.3. This allows us to safeguard from any errors we might occur when dealing with customer information. After a week, the voting goes offline and only Dr.Sampath looks over the votes.

Non functional

In the nonfunctional requirement, decisions are made about the user interface, the hardware and software, and the system's underlying architecture. When it comes to nonfunctional requirements for this project,

1. Operational

- 1.1. The voting system is a web application. So you can operate it on tablet, laptop, apple or android devices.
- 1.2. The voting system should be able to interact with schedule of classes which are available now.
- 1.3. The system should be compatible with any web browser such as Chrome, Firefox, Internet Explorer.

2. Performance

- 2.1. Any interaction between the user and the system should not exceed 2 to 3 seconds.
- 2.2. The system downloads new status parameters within 8 minutes of a change.
- 2.3. The system should be available for use 24 hours per day, and however long the department director keeps the voting system online.
- 2.4. The system supports 250 simultaneous users at all times.

3. Security

- 3.1. Only director Dr. Sampath can see the voting results.
- 3.2. Developers are able to work on maintenance work and make changes when errors occurred.
- 3.3. The system includes all available safeguards from viruses, worms, and Trojan horses etc.

4. Cultural and Political

- 4.1. Students' vote information is protected in compliance with Data protection.
- 4.2. The voting system policy is to get voted from only students, not from faculties.
- 4.3. The department director (Dr. Sampath) will authorize students and send them emails when she put voting system online.

1a) Include the interview information used to gather the requirements. This would include (but is not limited to): Name of interviewee, position of interviewee, date and time of interview; name of interviewer; list of questions to be asked (vary the question format); a summary of the interview. You must interview multiple people in various job positions.

The name of our interviewee is Dr. Sampath, she is an Associate Professor and the Director of Undergraduate Programs for the Information Systems Department. The interview was conducted on September 23rd around 11 AM EST. The interviewer, Arian Eidizadeh, first pitched the project idea to Dr. Sampath. He told her the project purpose and the overall project scope.

Once the explanation of the general concept of the project was completed, Arian asked these questions:

- Before we begin various project planning phases, would this project be feasible for the Information Systems department?
- When developing this project what restrictions would we have to consider?
- How does the Information Systems Department plan ahead in terms of assigning teachers to classes?
- Is the proposed budget a reasonable price?
- Do you believe Students should see the results of the voting system?
- What do you believe would be beneficial to implement within the voting software
- Will this save time and resources during the class planning phase?
- Would a 4 week and 6 day final deliverable be accepted?
- Do you believe features such as outputting the statistics in graphs, charts/etc would be helpful to analyse the results?
- What would the benchmark for success be?

On September 23rd around 11 AM EST Arian Eidizadeh asked Dr. Sampath numerous questions regarding the feasibility and scope of the proposed voting project. The interviewer, Arian Eidizadeh, first pitched the project idea to Dr. Sampath. He then explained the project purpose and how it could be beneficial for both parties. Before any development or further planning would begin, Arian ensured the Information Systems Department would be interested in a system that was similar to the one he pitched. Dr. Sampath responded stating yes, It would be useful to gather information from students on which courses they like and which courses they anticipate taking in the future. After receiving a positive reaction to the proposed project, Arian began to inquire Dr. Sampath various questions that would help him plan future deliverables and milestones. He asked questions relating to what requirements the project may have, what restrictions we could face, and other essential foundations that the system should consist of. We

learned many things from the interview that we did not plan/know before. We found out that the decision for choosing which teacher is assigned to a specific class is decided a year before class begins. Our initial project pitch stated that the web application would be online two-three weeks before the semester ends for students to vote. By providing this essential aspect of the decision process, we were able to adjust our programs accordingly. Overall, we were able determine a more specific scope of what our web application will be doing, and what specific functions the web application will consist of. We also spoke to Professor Sponangule after Dr. Sampath, who voiced his concerns regarding the actual voting date for how scheduling is conducted throughout the department.

1b) Include any observation notes you took as you studied the as-is system. This informal document will indicate current practices and possible stumbling block that may be useful as requirements for the to-be system you will be creating.

System:	Displays a UI that provides a welcome message and flashes “Start” button
User:	Presses “Start” button
System:	Displays input field for students to enter their username into
User:	Types in their Campus ID
System:	Will validate the Campus ID and introduce them to a list of all classes offered in the next year’s semester
User:	Will wait until the list pops up, and will then click the icons for whatever two classes they would like to know.
System:	Will count the two votes the user submitted and put them into the designated database
User:	Click “Final Submission” button
System:	The system will then introduce them to the text submission box. It will provide a message indicating students are welcome to input any recommendations or additions they would like implemented within the IS Department. Max 300 characters,

User:	They will either quit out, and the votes will still be submitted, or they will input text into the submission box and then click submit.
System:	The system will stay online for however long the director wants to keep it on.
User(Director):	The Director will choose when to keep the survey up until.
System:	In the background, the system will be analyzing the votes, and text submissions and formatting them in an excellent output.
User(Director):	Director will be able to output the statistics from what the users inputted.
System:	Will track statistics from year-to-year.

1c) Include any questionnaire you distributed, when they were distributed, response rate, etc.

These questions were distributed by our group mates to various colleagues in the span of a week from 10/2/2019 - 10/9/2019. We asked them to answer whichever questions they believed had the utmost importance.

1) As a student, would you implement this voting system as well?

In total: 75% of students said they would implement this.

There was a medium-high response rate

2) Do you think your friends would implement this voting system?

62.5% of Individuals who responded to the question stated their friends would implement this system.

There was a medium response rate to this.

3) Have you experienced any issues related to classes getting filled up in the years you have been at umbc?

We had a 70% response rate with this question, and 84% stated they had issues, 6% stated they experienced some issues and 10% stated they had not experienced any issues.

4) In terms of long term use, do you believe this service will have a high use rate for many years to come?

- 54.6% stated they believed it would
- 20% stated they didn't know whether it would or not
- 25.4% stated they believe it could, but aren't 100% sure.

This had a low-medium response rate

5) Would you use the optional text input box after you vote for various classes?

This had a high response rate

- **85% stated they would use the feature**
- **6% stated they would not use the feature**
- **9% stated they may use the feature**

1d) Include any documents you used for document analysis.

The first document we used was an organization chart with all the different teams and their respective objectives and goals. Every team has their respective managers and the project manager oversees all of the groups as a whole. The system analyst generally oversees the system requirements and make sure everything makes sense. Developers work under project managers, to complete tasks. Software analysts analyze the software to ensure all goals and needs of the software are met.

The first form is a UML diagram of the website. It describes how the website will work as a whole and what different functions the website will have. If there are any needs to change this aspect of the website then the system analyst will suggest changes. The website as a whole is first analyzed through the uml diagram to ensure everything is cohesive.

The second form is a diagram of the first to third normal form of the database as well as database diagrams. The database should fill the need of the diagrams and first to third normal forms. If changes are needed to be made to the database it should be first be implemented in a diagram for review before it is implemented in a database. Any final changes will occur within the final 2 weeks of the system deployment.

The final form is a registration form. This form will have all of the necessary documentation in regards to classes that will be offered and what necessary signatures were taken to allow the signatures. A formal introduction from the project sponsor could be included in this form. This form will be used at the beginning of the project to make sure everything is allowed for the project to start.

2) Perform use case analysis and produce the use case documents for your project (a use case typically covers one or more functions in the functional requirements. Note that you will be writing more than one use case. For arrows, you can simply use \Leftarrow and \Rightarrow .

Use Case #1 : Cast Votes

Priority: High

Actor: UMBC Information Systems Students

Description: This use case describes how UMBC Information Systems Students will be able to cast two votes for two classes.

Trigger: When UMBC IS student clicks on class “Cast Vote” Button will be made visible

Type: External Trigger

Preconditions:

1. UMBC Information Systems Students are authenticated
2. Class Polling System is available and online
3. Classes are available and online

Normal Course:

1.0. Cast vote for classes

- | | |
|--|----------------------------|
| 1. Login is authenticated | \Rightarrow CampusID |
| 2. Retrieval of classes is initiated | \Leftarrow Class options |
| 3. Classes are displayed or not (see Alternative Course 1.1) | \Leftarrow Class details |
| 4. Class selection redirects you to class description | \Rightarrow ClassID |
| 5. Student cast vote on class description page | \Rightarrow Vote |
| 6. Return to step 3 for second vote | |
| 7. After second vote student, page redirected to Use Case 3 | |

Alternative Courses:

1.1. IS classes fail to be displayed

- | | |
|--|----------------------------|
| 1. System display error is displayed | \Rightarrow ErrorID |
| 2. Students submit notification of error | \Rightarrow Select error |
| 3. Exit Use Case | |

- | | |
|---|-------------------------|
| 4. Sampath is notified of error | ⇐ Error notification |
| 5. Sampath notifies system support team | ⇒ System support notice |

PostConditions:

1. Student votes are submitted and approved
2. Sampath is notified for display error

Use Case #2 : View Results

Priority: High

Actor: Sreedevi Sampath

Description: This use case describes how Sreedevi Sampath will be able to view the results of the polls when the deadline is reached.

Trigger: When system deadline is reached results will be collected.

Type: Temporal Trigger

Preconditions:

1. Sampath is authenticated
2. Deadline is reached
3. Results are available and viewable

Normal Course:

1.0. View Results

- | | |
|--|---------------|
| 1. Login is authenticated | ⇒ AdminLogin |
| 2. Results are retrieved and displayed | ⇐ Result view |

Alternative Courses:

1.1. Result are unviewable

- | | |
|--|-------------------|
| 1. Sampath informs System support team of failure to view results notice | ⇒ Systems support |
| 2. System support team attempts to fix error | ⇒ ErrorID |

Postconditions:

1. Sampath uses the results to for the upcoming year classes
2. Sampath requests System support team to fix the problem

Use Case #3: Resource and Class Request (Machine Learning)

Priority: High

Actor: UMBC Information Systems Students

Description: This use case describes how UMBC Information System Students will be able to propose classes or resources that they believe would be useful as an IS Major.

Trigger: When students finish voting

Type: External Trigger

Preconditions:

1. Students are authenticated
2. Students cast their votes

Normal Course:

1.0. Submit Resource and Class Request

- | | |
|---|---------------------|
| 1. Student inputs in message box | ⇒ InputID |
| 2. Student submits proposal | ⇒ Submit proposal |
| 3. Request is sent and stored in a database | ⇒ Request stored in |

DB

Alternative Courses:

1.1 Resource and Class Request is not viewable

- | | |
|---|-------------------|
| 1. System support team is informed of the failure to view results | ⇒ Systems support |
| notice | |
| 2. System support team attempts to fix the error | ⇒ ErrorID |

Postconditions:

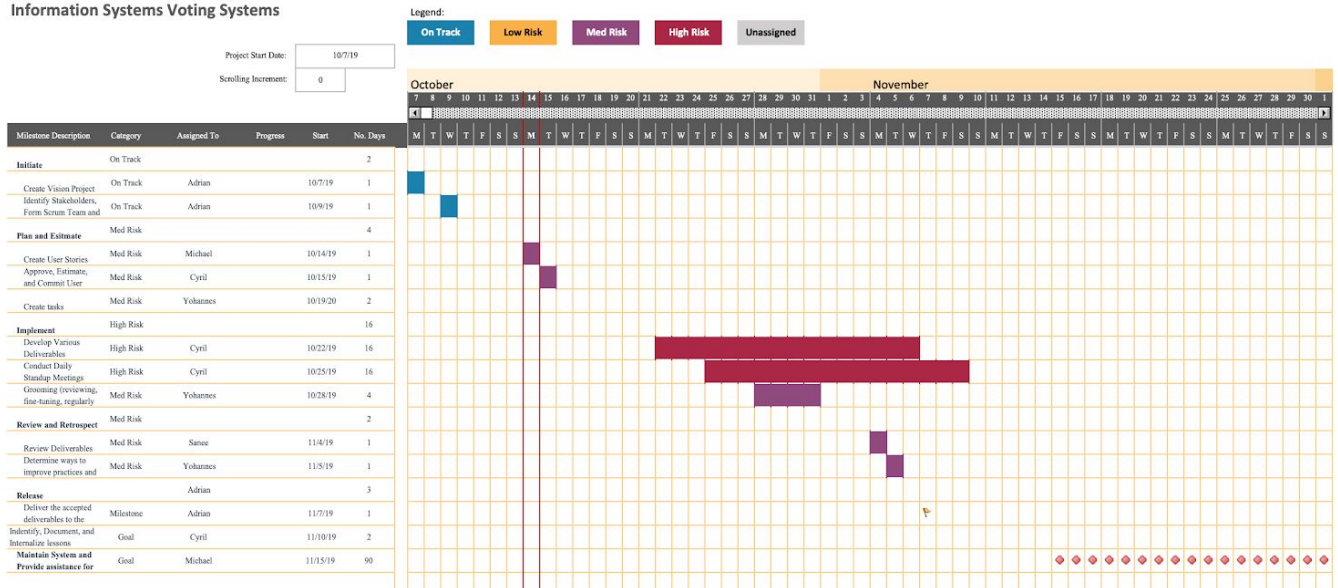
1. Requests are used for predictive modeling
2. Sampath looks through requests

11

Class Voting System

Requirements Definition Document

Information Systems Voting Systems



Above is the Excel Planning Sheet For Our Project