Department of Computer Science & Engineering
The University of Texas at Arlington

Project Charter
CSE 4316: Senior Design I
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Team MINTS
UTA Advising

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Revision History

Revision	Date	Author(s)	Description
0.1	06.27.2019	TA	document creation
0.2	06.30.2019	IR, SC	complete draft
0.3	07.02.2019	MR, NB	release candidate 1
1.0	07.07.2019	IR, TA, SC, MR, NB	official release

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1 Vision

We have chosen this to reduce wait time for advising appointments for new and existing students at UTA as well as for the Advisors at UTA. When we go outside the advising office we see students waiting for hours for advising during the end and beginning of the semester with their name on a sign-up sheet. The students have to wait outside the office until it's their time to be advised. Some times the student's miss the appointment because the wait time is too long or they miss their class because after waiting for hours to be advised they can not afford to miss their advising. On the other hand the advisor's can not see who is next because the process of signing up for appointment is on a paper. The advisor do not know if the student is an existing UTA student or a new/transfer student before they come in. Since everything is paper based there is no medium for advisor's to notify student's about the change of schedule.

2 Mission

Our primary mission is to save student's time by not making them wait outside the advisor's office for very long. The students will never have to miss their class or appointment because our advising system will tell them when to arrive and how much time is left before it's their time to see the advisor. We will be making the advising process completely online by signing up students online and getting rid of the paper based sign-up sheet. The students will also be able to choose the advisor who advised them in the past or pick a new advisor every time they make appointment. The advisor will also have a very easy interface where they can see who is coming next and if they are new or someone who was already advised by them in the past. The advisors will also be able to re-schedule the appointments and change schedule which can be seen by the students before making appointment.

3 Success Criteria

Upon completion of the UTA Advising system, we expect the following to be completed and consider the project success

- Complete removal of paper based sign up system and implement online sign up system
- 50% Reduction in the wait time for students
- Easy interface for students to get signed up for appointment
- View of student's degree plan and flow chart
- Students will see what class are already taken and what class they have remaining
- Advisor will see if the student has been advised before or not before appointment starts
- Advisor will be able to re-schedule or change schedule anytime they want

In the future we will implement all the features mentioned above in mobile app if the students want to use app based system along with the web version.

4 BACKGROUND

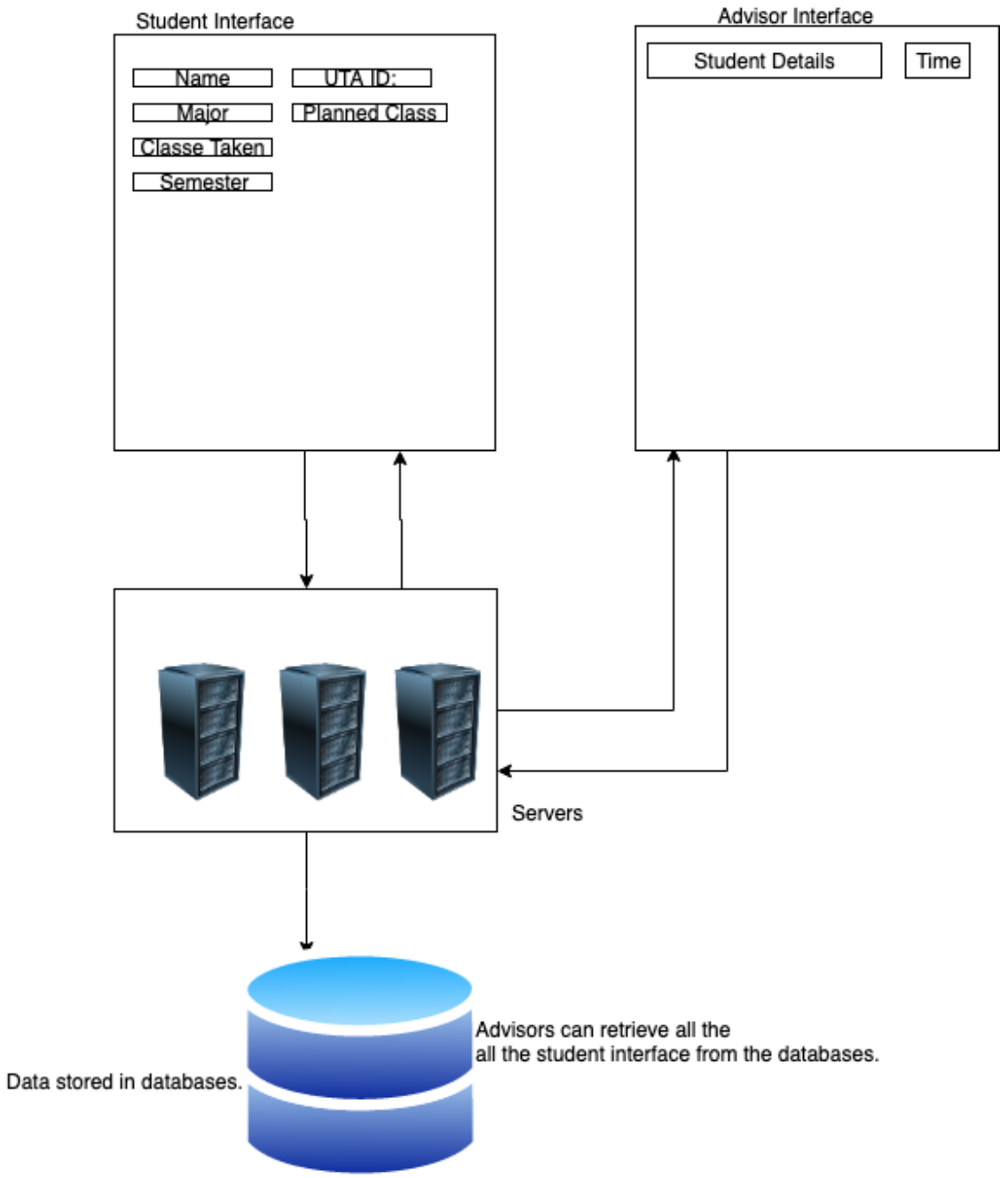
Every students needs to see an advisor around 2-3 times during a semester, some might see them more frequently. Currently UTA has 39,714 students according to UTA fast fact website. That means the total number of times students and advisor meet is around 80000. It is very hard to control the number of students wanting to be advised during the beginning and end of the semester because that is the peak time when an student meets an advisor. It is a problem for student to wait a long time for an appointment also problem for advisor to handle all those students because they can't tell how many more students can be advised on a particular day. Right now the students have to go outside the advisor's office to sign up for an walk in appointment which is easy when there are few students. But if there are more than 10 students, we do not know how long more it is going to take until it is our time to get in. During that waiting time the student can complete assignments, study or go out to eat. Therefore to overcome this problem we have come together as a team. Our customer and Sponsor for this project is UTA and we will be delivering this project to our Senior design professor Chris Conly. Team MINTS is a combination of both software engineering students and computer science students and we are interested in an software based project, so it was our choice and also the reason why professor wanted us to work on this project.

5 RELATED WORK

Some departments here at UT Arlington do have their department specific advising tools but they are limited only for time scheduling. Students looking for the possible wait times, their majors flowchart and degree plan have to wait for their advisors to be available. Business department here at UTA which is one of the biggest business school have their own appointment scheduling web application but the student are unable to look for their degree plan, flow charts and it's even difficult to possibly look for the wait times[2]. Students have to wait weeks if not months for the possible advising. The CSE department still works with pen and paper for the possible advising. The application that we purpose will solve majority of this problem. Students will be able to book an schedule whenever required and they will know the wait times immediately. Students will be able to choose the classes they have taken easily. This way we can save the time of the advisors and more people could be advised soon. The application will also cut the pen and paper ,method of advising for the CSE department.
There are some related works outside of UTA which server similar purpose but are not fully functional to UTAs environment. 7shifts software by 7shifts is an application that helps restaurant schedule and communicate between their employees[3]. Texas DPS get in line service is another similar web based application that lets you to be in line virtually a day before your actual appointment so that you do not have to wait very long the next day[4]. "Wait while" is also another application which uses scheduling platform to check in guest and sends real time notification or message to inform about the wait time[5]. Similarly, Push Schedule is a cloud based scheduling platform for restaurants that sends push notification to user about the wait schedule[6].

6 SYSTEM OVERVIEW

The advising applications that we are targeting as of now is going to be a web application. The application will have three end points each for the advisor login, student login and another for the admin/developer to track the issues and the changes that we are going to implement. The first and the most important page is for the students who are targeting to schedule their advising with one of the advisors. The advisors could either faulty advisors or the staff. The students who are targeting to schedule an appointment can simply input their basic details like UTA ID, majors and the classes they have taken along with the semester for which they are looking to get advised. The students will also be able to choose particular advisors like faculty/staff if they are available and can put their name in the respective advisors wait list. The second end point would be for the advisors. Advisors could see the list of



the students waiting to get advised. Also the advisors will be able to see the UTA ID of the respective students and will also have the form already filled by the students waiting to get advised. The form includes the basic details necessary for the advisors like major information, classes taken, classes they are planning to take in the respective semester. This way they will be able to advise the students more effectively. We will have the databases that stores all the data of the students that have been advised and store their login credentials in cases they came back for advising in near future.

7 Roles & Responsibilities

The project that we are working on is agile/scrum based therefore our group have one scrum master who oversees if the principle of the agile if being followed. We also have one product owner and the team lead who is the point of contact for the group. At this time we will have the following people following roles but we could change if required in the near future. Most of the team members will be heavily working on the developing side therefore we came up with 3 titles in the group.

Member Names	Area of Responsibility
Tufan Acharya	Team Lead
Ishor Rijal	Scrum Master
Maheshwor Raut	Product Owner
Sameer Chaulagain	Software Developer
Nawaraj Bhurtel	Software Developer

8 Cost Proposal

The project is web based therefore we do not require any hardware. Also the majority of the tools required to build a successful web based project are free therefore the cost is not big. We might need some amount if required to buy license for some frameworks, buy the domain name at the end of the project. If we planned to host the server in AWS, then the cost associated with it would occupy the major cost for this project.

8.1 Preliminary Budget

Include a high level budget table for components, fabrication, software licensees, development hardware, etc.

Number	Area	Total Budget
1	Domain Name	$20
2	Licenses/Frameworks	$100
3	AWS Hosting	$200

8.2 Current & Pending Support

The basic funding source for the project is going to be $800 provided by the CSE Department at UT Arlington. Since it is a web based project we do not require any external funding for this project.

9 Facilities & Equipment

This project is completely software based hence, the need of any hardware is not applicable here other than few personnel computers.However, we need a workplace to work together. This workplace will be UTA's lab and it will be provided by the UTA. We will also need the domain name for the website, however we are not very clear if UTA will be providing it to us or not. If UTA does not provides us the domain name, we plan to buy it. We will also need the server,database system which we are planning to get from UTA. We also need the framework for web application development, which we plan to purchase if it is not free but powerful than open source frameworks. We also need some learning materials for the parts of web page development that we are not familiar with like integrating the mobile app and web app, developing mobile app, and maintaining security in our applications, which we plan to purchase online courses. If we don't have enough time to work on mobile application, we plan to use already existing, easy to work with framework for mobile app, which is most cases are not free. We are planning to buy the framework specific for mobile app development easing if required.

10 Assumptions

The following list contains critical assumptions related to the implementation and testing of the project.

- A working powerful server will be provided by the 2nd sprint cycle.
- The database system will be accessible to all team members any time.
- The domain name will be available to developers after the 5th sprint cycle.
- The integration between mobile app and web application would be achieved after some help from online courses.
- The shell based framework will ease mobile app development.

11 Constraints

The following list contains key constraints related to the implementation and testing of the project.

- Final prototype demonstration must be completed by December 4st, 2019.
- Web application can not access any students information from their MyMav profile for privacy reasons.
- The development team size is limited to five members and most likely permanent throughout the project.
- The development costs must not exceed $800 provided by sponsor.
- The development team must acquire the web application development fundamentals and integration techniques as soon as possible.

12 Risks

The following high-level risk census contains identified project risks with the highest exposure. Mitigation strategies will be discussed in future planning sessions.

Risk description	Probability	Loss (days)	Exposure (days)
Availability delay of server and database system	0.10	10	5.0
Mobile app and Web app do not get integrated	0.30	20	6.0
Cross platform compatibility not achieved	0.30	15	4.5
Drop in team size	0.10	20	2.0
Security of the system challenged	0.20	25	5

Table 1: Overview of highest exposure project risks

13 Documentation & Reporting

13.1 Major Documentation Deliverables

13.1.1 Project Charter

This document will be updated at the end of each sprint. It will be updated after the group discussion and any changes on the product. The initial version will be delivered on 07/07/2019 and final version at the end of semester with the updates in between on each sprint.

13.1.2 System Requirements Specification

This document will be updated after the discussion with customer, about the product requirements and will later be updated if there is any change and addition of the requirements from the customer. Initial version of the document will be delivered after having all the requirements and the final version will be delivered with the product. Update and maintenance of the document will be done after meeting with customer.

13.1.3 Architectural Design Specification

This document will be based on the picture provided above which will be updated in the group meeting and the final version of the Architectural Design will be delivered by the end of this semester. The document will be maintained based on the group discussion outcomes.

13.1.4 Detailed Design Specification

This document will be maintained by the group based on the changes made and work progress. The initial version of this document will be delivered by the end of semester and final version will be delivered with the product with updates in between each sprints.

13.2 Recurring Sprint Items

The following items will be documented and maintained during each individual sprint.

13.2.1 Product Backlog

Simply all requirements gather from teammates and Professor Conly, will be added to the product backlog from the SRS.Since, we are building this project from scratch we will follow the agile method to prioritized .We will build our requirement in increasing order so we can follow the steps gradually. We decide ours group vote will decide any decision regarding to this project and we will take professor advise too.We will use bit bucket in order to maintain and share the product backlog with team members and stakeholders.

13.2.2 Sprint Planning

We are planning to manage our sprint duration according to the syllabus. Approximately we will have 6 sprints throughout the project delivery date.

13.2.3 Sprint Goal

Scrum master will decides the sprint goal. Since we are building our project on agile method we will make sure we engaged our customer at each phase.

13.2.4 Sprint Backlog

Team lead will decide decides which product backlog items make their way into the sprint backlog. We will maintained the backlog using the software.

13.2.5 Task Breakdown

Team leader will assigned the tasks to individuals from the sprint backlog. Team leader will divide the task according to the individuals ability and performance in that sector. We will use Engineering notebook to track the time spent on tasks be documented.

13.2.6 Sprint Burn Down Charts

Team lead will be responsible for generating the burn down charts for each sprint.By help of engineering notebook they be able to access the total amount of effort expended by each individual team member.Burn down chart use graphical representation.

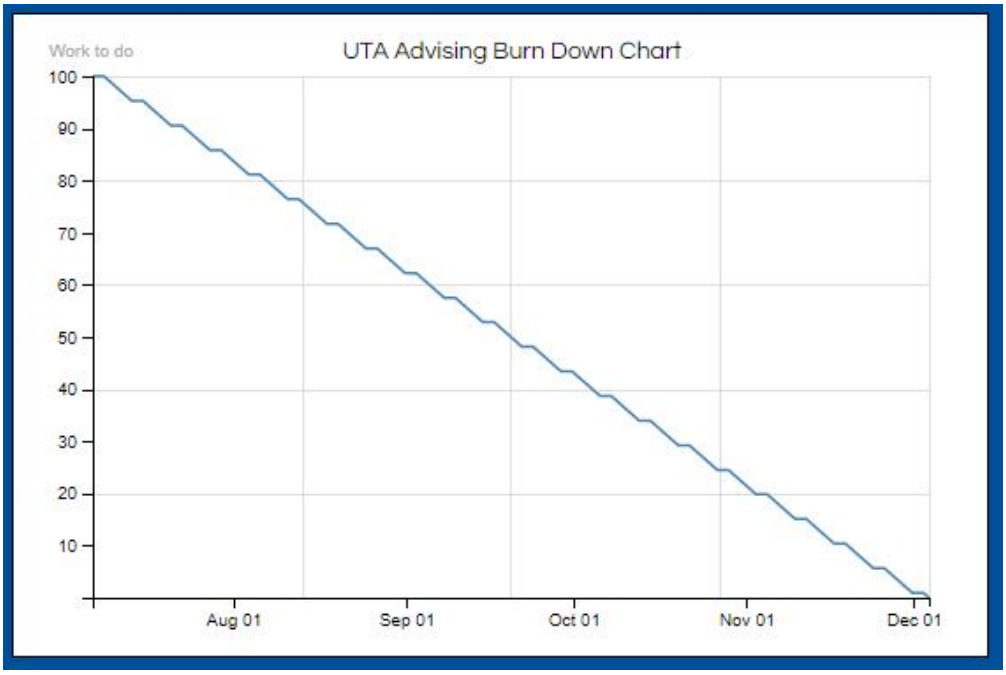


Figure 1: UTA Advising sprint burn down chart

13.2.7 Sprint Retrospective

Scrum master will the sprint retrospective be handled as a team. In the immediate group meeting after each sprint this discussion happen after each sprint. Those tasks which are performed in group will be documented as group and those which we performed individually will be documented as individuals, and it will due end of each sprint.

13.2.8 Individual Status Reports

The completion of task assigned to individuals will be reported by each individual member, and it will reported on every group meeting. The major topic that individuals covers in the task will be contained in the report.

13.2.9 Engineering Notebooks

We will precisely fill out the engineering notebook when we working regarding to the project work. Since, we will update each time we work on project related material by each members. It depends on the project dimension and length. Since, team lead will divide the task between individuals so each member will be accountable to fill out the notebook. Teaching assistant will sign of as a "witness" for each ENB page.

13.3 Closeout Materials

The following materials, in addition to major documentation deliverable, will be provided to the customer upon project closeout.

13.3.1 System Prototype

We will have the website that will be functional on the requirements of the user. The final source code along with the functional demonstration would be included in the final prototype. We will demonstrate the product to the customer with use cases where some volunteers would sign up for the advising and

the customer end that is advisor end and student ends responsiveness will be demonstrated. Prototype acceptance Test is not decided as we dont know what our customer what at this point, however this would be updated based on the customers need.

13.3.2 Project Poster

We will have project poster illustrating what our project looks like.

13.3.3 Web Page

Our project is a web based, which will be accessible to public. We will deliver the product on each planned sprint and final product will be delivered by the end of semester.

13.3.4 Demo Video

We will have two demo videos as the users will be of two categories; advisor and student. The demo video for student will show how the appointment can be setup and complete other process before going to the advisors like the classes taken, classes planned for coming semester. The demo video for advisor will have instructions on how to clear the list once the student is advised, also find whether the student has met all the requirements to take the class selected by the student following the flowchart provided.

13.3.5 Source Code

We will host our program on AWS and use bitbucket as our version control system. Our project will not be open sourced to the general public as the project is sponsored by UTA CSE department.

13.3.6 Source Code Documentation

Our majority of source code will be on Java, we are planning to use Javadocs as the tools to generate the documentation and also might use Doxygen for other files. We will provide PDF file of the documentation.

13.3.7 Hardware Schematics

It is fully software based project so we don't need Hardware Schematics.

13.3.8 CAD files

It is fully software based project so we don't need CAD files.

13.3.9 Installation Scripts

We are planning to host program in AWS, so we will have AWS script to install the program. We will provide multiple scripts for customer.

13.3.10 User Manual

We will provide digital user manual and also a demo video along with instruction required to use the program.

REFERENCES

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