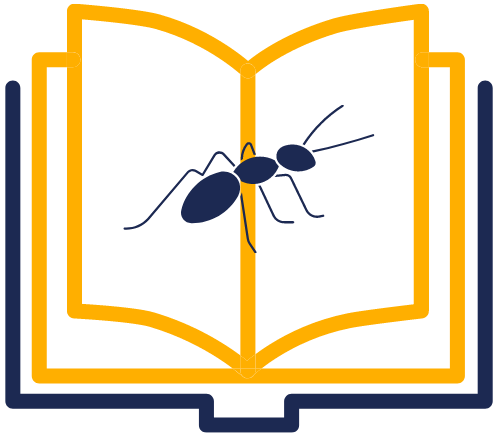
Department of Computer Science
North Carolina A&T State University

Project Charter

Comp 496: Senior Design II

Fall 2020



Group 3

Annotext

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Revision History

Revision	Date	Author(s)	Description
0.1	9.25.2020	TB	document creation
0.2	9.30.2020	TB, MN, PCJ	completed draft
0.3	10.01.2020	TB	turned in documentation
0.4	12.01.2020	TB	update documentation
0.4	12.07.2020	TB	submitted final documentation

CONTENTS

List of Figures

List of Tables

1 VISION

Often times when students are searching for cost-effective solutions to buying textbooks for class they look towards used books. These books sometimes contain notes from other students who previously used it. As one of those students, I found some of these notes extremely helpful and often added a few annotations of my own. Since we're in a more digital age and most textbooks are available in a pdf or digital format, we figured it would benefit students to have this same capability available electronically as well.

Our vision is to be a leader in collaborative education, encourage engaged learning, and increase knowledge retention.

2 MISSION

Annotext seeks to encourage real time collaboration with scholars all over. Students will access a web application that houses a library of digital textbooks and allows them to read, annotate and learn with others. They will be able to read and rate the useful or helpfulness of annotations. They will also be able to add some of their own to continue the cycle of collaborative learning. Students and non-students alike would be able to learn the material with their own personal "tutor-like" annotations in the text they're currently studying. Often times our peers are able to explain things in a way we can more thoroughly understand and Annotext gives users the platform to do that. This platform promotes engaged learning and motivates students to understand the material not just for a grade but for incorporation outside of their learning environment. Fostering a community of academics, inspiring a passion for learning and knowledge retention are goals we aim to achieve with Annotext.

3 SUCCESS CRITERIA

Upon completion of the prototype web application, we expect the following success indicators to be observed with use of Annotext:

- Increase in organic traffic
- Growth in number of annotations
- Collaborative learning (measured by ratings and replies to annotations)

Within 6 months after the prototype delivery date, we expect the following success indicators to be observed:

- A growth in users
- Satisfaction of the product (user reviews)
- Demand for more textbooks (user feedback through surveys)
- Document Views

Within 12 months after the prototype delivery date, we expect the following success indicators to be observed:

- Increase in referral traffic
- Increased retention rate (active account users)
- Collaboration with textbook companies that offer digital textbooks

4 BACKGROUND

The lack of engaged learning is the problem. Students are simply going through classes, learning enough to get by and then going onto the next course or graduating with very little knowledge retention. Current academic sources like Chegg and Quizlet although very helpful when students are in need of a solved problem or in addition to studying for an exam can't replace learning the knowledge from the source, the textbook. Professors generally go over an overview of the textbook in class through slides and related materials, but even they will tell you, just coming to class and engaging in the lectures or going home and reviewing the slides isn't enough to really understand and retain the material. Increased interaction with the textbook in an environment that encourages collaboration is the solution to this problem. Annotext solves that by being online, so anyone can access it. It allows users to directly comment on the material they're reading and possibly get feedback from other readers in the form of a rating or a reply. Immersing the student in the textbook is key to knowledge retention. The lectures and slides and related materials are supplemental learning aids at best. Annotext seeks to become an integrated part in the learning process for all scholars.

5 RELATED WORK

Xodo

Xodo PDF Reader works as a good PDF annotator for Windows and Mac devices. The free PDF annotator tool lets users take notes, comment, print, manage, and even add bookmarks on a PDF page.

Adobe Acrobat

Adobe Acrobat is a system based program which is completely free to download and install. There is a wide range of PDF annotation tools that can be used easily. From adding notes to rotating your file, this program has it all. Signatures can be added and modified PDFs can be easily stored in the system. It also allows the users to easily print the documents as well.

PDF Annotator

PDF annotator allows users to highlight, underline, or make notes and drawings on a PDF page. One great feature of the software is the ability to restore the document to its original page in one click, effectively removing the annotations without damaging the file or its layout.
Pros:

- Align annotation function available for an easy to view and organized layout.
- Add stamps including date stamps, customized stamps are also available with virtually limitless options.
- Add images to an existing PDF file.
- Group and lock annotation.
- Take a snapshot of the work you are doing.

Cons:

- Could not handle large PDF files without sacrificing performance, making it impossible to edit and annotate files with several pages like eBooks.
- The app is just specialized for annotation purposes.

Microsoft OneNote

Microsoft OneNote is a digital notebook, which is available for Windows, Mac, iOS, Android, and web. You can use it to annotate PDF files, and it provides flexible and powerful annotate tools, such as sketches, lists, clippings, photos, tables, and more. It is one of the most user-friendly PDF annotator tools in the market.

Pros:

- Supports voice and video functions.
- Provides cloud storage services and syncing notes across your devices.
- Share works on social networking sites like Facebook, Twitter, and Tumbler.
- Interactive web browser feature.

Cons:

- No private encryption.

6 System Overview

Our web app Annotext has three main components that will need to be implemented in order for the critical functions of our design to be satisfied.

- Back-end Database stored on server
- Server to host website for webapp.
- Webapp interface allowing end user navigation

Back-end Database - This component will be stored on our projects server provided by Dr.Effort. The database will need to have an architecture to save several objects. Including a library of pdfs, and a collection of user accounts(holding passwords and unique usernames for annotation identification). We will implement an architecture capable of holding our webapps notable responses with SQL Server.

Server- Our server component is the crux of our prototype as it will both host the website and store the database of PDF files, user accounts, and annotations. We will code the server in Visual Studios using asp.net in order for our server to display PDF files from our database. We will also need to allow for the server to receive annotations from the end users and store them in our database and display all annotations on the website in order of relevance.

Webapp- Our web app will encompase the user interface of annotext. End users will be able to access our application through our domain annotext.ncat.edu and browse PDF files, read annotation, and possibly submit annotations. Users should also be able to up vote, down vote, and flag annotations similar to reddit. The webapp will be coded in php, JQuery, and HTML.

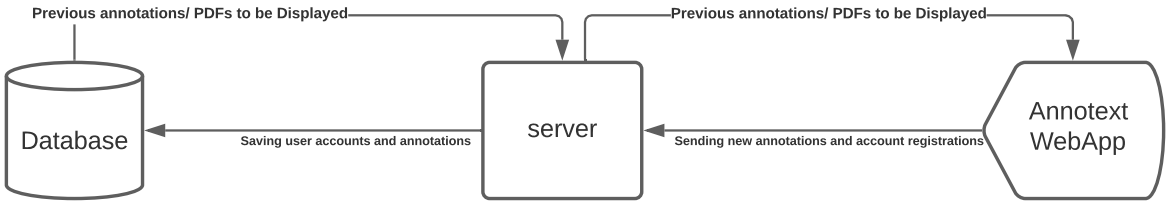

Figure 1: System Overview Diagram

7 Roles & Responsibilities

North Carolina A&T is a major stakeholder in our project. The outcome of our project reflects on the institution. Textbook publishers are also stakeholders with our project. The textbooks that we will use within our application will be obtained from these textbook publishers. Our point of contact will be Ms. Tiara Bell. She has expertise in dealing with user experience and guides our project with the user in mind. Her guidance helps our team create a user friendly web-application. Myles Neloms is the team scrum master/ back end developer. He is responsible for ensuring that the team meets expected deadlines and disbands quarrels between our team members. Patrick Crump, Jr is the technical, back end and database developer. He is responsible for managing connections from the database to the server. Tiara Bell is the UI/UX designer and front end developer. She is responsible for the design and functionality of the user interface and reviewing the documentation for errors.

8 Cost Proposal

Currently our project does not require financial support. However, in the future we plan to expand our application to service sets of textbooks. This will require the sponsorship and consent of several textbook companies along with hardware space large enough to host our database and server systems. Also for public use we will require a domain outside of annotext.ncat.edu provided for us by the NCAT computer science department.

8.1 Preliminary Budget

Our preliminary budget will cover the full scope of this project. We will require no monetary funds to complete our project as we can circumvent using expensive textbook pdfs in our prototype by substituting them with free pdfs and textfiles of our own creation.

9 Facilities & Equipment

Our team was given a server by Professor Effort on North Carolina A&T's campus. The server houses a virtual machine. It has 12GB of RAM and 80GB of storage. We have to work simultaneously to remote desktop into the virtual machine to make any changes to our website or access our database. So all the materials that we are using are already present for us. If we wish to further use our project we will require our own server and database along with a method for storage.

10 Assumptions

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

- Enough server space to hold our database as well at sequel server, and Visual Studios
- Students will be available to give input on our applications interface.
- Annotext.ncat.edu will remain available to us throughout the production of our prototype.
- Early users will have internet access access to the cisco vpn for ncat campus.

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 7, 2020
- Resources: We currently require approval from textbook publishers to use their books.
- User Access: Users cannot connect to website without having to use the VPN of the campus. (Hard to get customer feedback in testing our prototype)
- Team Access: We all do not have simultaneous access to the server.
- Possible Hardware/Software Issues: The servers at NCAT sometimes go down and will limit our ability work directly on the project.

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)
Dr. Effort unavailable to meet	0.1	7	.7
Dr. Kim unavailable to meet	0.40	5	2.0
Trouble attaining pdfs to post and annotate	0.10	20	2
Team runs into to a roadblock when covering a critical function of the prototype	0.6	14	8.4

Table 1: Overview of highest exposure project risks

13 Documentation & Reporting

13.1 Major Documentation Deliverables

13.1.1 System Requirements Specification

We plan to keep our original system requirements. Each critical function of our prototype is to be fulfilled without compromise, however we will update this document when running into new critical functions and new constraints we may face.

13.1.2 Project Charter

The project charter will be edited and kept up throughout the completion of our project whenever necessary. Although sections 1-8 may remain the same, later sections of the project charter are subject to change as we find new risks, constrains, and core functionalities.

13.1.3 Architectural Design Specification

Our Architectural design document will be subject to receive the most updates in early production of our prototype. Over the next few weeks finalizing the architectural layout of our server, web interface, and database will be critical to the completion of our prototype.

13.1.4 Detailed Design Specification

This will be maintained and updated when designs are changed or new new designs are implemented.The initial version will be delivered Thursday, November 5, 2020. The final version will be delivered Monday, December 7, 2020.

13.1.5 System Test Plan

This document will be updated whenever new tests are made or when new changes have to be tested. The initial and final version will be delivered Friday, November 25, 2020.

13.2 Recurring Sprint Items

The following items will be documented and maintained during each individual sprint: whether goals were met, the size of the workload compared to the timeline, the tasks that were assigned, and any issues or challenges faced.

13.2.1 Product Backlog

Items will be added to the backlog by a group vote. Their prioritization will also come from a group vote or a case made for their usefulness to client or their importance in the overall scope of the project. We are still searching for suitable software for us to host our backlog on.

13.2.2 Sprint Planning

Our project should consist of three major sprints. Sprint one will be designing a database in SQLServer capable of displaying/storing PDFs along with users and annotation objects. Sprint 2 will be working in visual studios in order to display and receive annotations in our web app from users registered in the database. Sprint 3 will focus on the web app interface to make the full experience more user friendly, this sprint will involve testing.

13.2.3 Sprint Goals

We as a team decide sprint goals for the first two sprints as we have critical functions to deliver with back-end programming. Sprint three will have a goal determined by the testers in that we will try to take feedback and create a user friendly interface.

13.2.4 Sprint Backlog

The backlog will be maintained by collaboration software that hosts a "scrum board" for us all to add backlog items to it. Majority vote of the team or a case for usefulness from each team member will be the determining factor in deciding what items make their way into the sprint backlog.

13.2.5 Task Breakdown

Tasks will be assigned on a voluntary basis. Time spent on individual tasks will be documented in the individual sprint retrospectives.

13.2.6 Sprint Retrospective

Sprint retrospectives will be due shortly after each sprint is completed. All group members will reflect on constraints and complications that they ran into while working toward core functionalities.

13.2.7 Individual Status Reports

Status reports for team members will be due weekly to inform the rest of the team and our advisors of our progress. Key items that will be contained in the report include goals, timeline and workload.

13.3 Closeout Materials

The following materials, in addition to major documentation deliverables, will be provided to the customer upon project closeout: website domain for access.

13.3.1 System Prototype

Our fully functioning website will be included in the final system prototype. This will be delivered on Monday, December 7, 2020.

13.3.2 Project Poster

There will not be a final project poster.

13.3.3 Web Page

Since our product is a website, everything we do will be included on it. For now it is only accesible to those who can VPN into the campus wifi. It will be constantly updated throughout the project. A demo version will be available on Friday, November 25, 2020.

13.3.4 Demo Video

The demo video or videos will show a user using all of the tools our application has to offer. The demo videos will be under 5 mins in length and will cover topics such as navigating our digital textbook and how to make the most out of our site.

13.3.5 Source Code

Our source code will be maintained regularly using github. Our customer will have access to the source code via our github repository. The project will not be open sourced to the public.

13.3.6 Source Code Documentation

We plan to keep our source code documentation simple and concise, updated at all times and make good use of comments so that all will be able to understand it. We plan to use Doxygen to generate the souce code and it will provide it in a pdf format.

13.3.7 Installation Scripts

There will be a definite format change between the user interface and the source code. Customers will only need an internet browser, and reliable internet access to connect to our web application. There will be no installations required.

13.3.8 User Manual

Since our product is a web based application a user manual is not needed. However we do plan to implement either a user tutorial or a video tutorial in order to make sure our users understand and get the most efficient use out of our product.

REFERENCES

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