CSC 210 Group Project Guidelines

Fall 2021

1 Summary

You and your group are required to build a functional web application that makes use of the technologies and techniques presented in the course. There will be three parts in the project: project proposal, user authentication implementation, and front-end – back-end contract/documentation. Additionally your group will be expected to meet with your TA once every 2 weeks to share the progress each of you has made working on the project. This serves both to keep you on track and to give us a better idea of your individual contributions. Individual contributions to the group project will be assessed on the basis of TA check-ins, peer-reviews, and (time permitting) at the end of the semester meeting with the instructor.

2 Requirements

Your project **MUST** make appropriate use of the following technologies. If your project idea does not need to perform these functions, it is probably not appropriate as a project for this class.

- HTML and CSS
- Python-Flask
- WTForms
- Flask-SQLAlchemy
- Flask-Login

In particular your application **MUST** do the following.

- Allow users to create accounts and store appropriately hashed passwords. This includes running your server over HTTPS.
- Accept user data and store it in your own database that you have designed and created.
- Provide that data in a meaningful way through a well formatted (and hopefully attractive) web interface.
- Serve a reasonable purpose. (You are not permitted to create a trivial application that nominally meets all requirements, but has no real purpose.)

3 Expectations

Projects that merely meet the minimum requirements will not receive A's. The particular application chosen by your group likely invites the use of many additional technologies. I've listed below a number of examples. Some extra features may simply make more complex use of required technologies. If you are unsure what additional features might make sense for your application, please speak with me or your group TA. This is where you can be most creative with your project and make it your own.

- RESTful API and Ajax
- OAuth (client/server)
- Email confirmation on accounts for password reset
- Multi-factor Authentication
- Cloud Hosting
- Live Multi-User Interaction

4 Assignments

Over the remainder of the semester you will have a number of due dates and required check-ins. Each of these pieces is worth some portion of your project grade. The below table includes ***estimates*** of roughly how much each piece is worth.

Proposal	25%
User Authentication Check-In	20%
Front-End – Back-End Contract	25%
Class Presentation	10%
Private Demo/Final Submission	20%

4.1 Proposal – Due 11/01/2021

You must submit a proposal for your project including the following. You are allowed, and even encouraged to meet with your group TA to discuss potential applications and features. Please note that the proposal is a required component of your project. Even if you miss the deadline, you are expected to hand in a proposal later for reduced credit. If the proposal is never handed in you cannot get an A on your project regardless of how impressive the final result. This is an important step in assessing the viability of your project and its fit with the course expectations.

- A description of your applications functionality and motivation – What will it do and why would someone want something that does that. (250 words)
- An outline of how your proposed project will meet the minimum project requirements.
- An outline of the ways your project will go beyond the minimum requirements.
- Assignments of who plans work on what parts of the application. (This is not necessarily final. Often you will find that some pieces are more or less difficult than you originally imagined.)
- The link to the GitHub repository (or other hosting space) you will be using as you build your application.

4.2 User Authentication – Due 11/11 – 11/17

This assignment will be handed in as a demo with your TA. You as a group are responsible for scheduling this meeting. Let me know if you are unable to work out a time to meet, however, if you wait to contact your TA until the last minute I am likely to be less understanding when you can't find a time to meet. It is expected that after you have started running your web server, the TA will be permitted to use the browser on your machine to verify that it works as required.

Requirements

Your application must include the following pages for this check-in. To receive full credit it must also securely hash user passwords and save all user account information in a database. You are expected to use Flask-Login for this assignment. It is also expected that your code will handle common errors such as checking to see if a username is already in use during account creation.

- Application Home ("/") with links to create an account or log-in with an existing account
- Create Account – a form that takes username/password to be used to create a new account
- Login – a form that takes username/password and authenticates a user
- Hidden – a page that redirects anonymous users to the login page, but displays some basic information (such as username) for a user that is logged in

4.3 Class Presentation 11/30 - 12/7

Each group may be required (time permitting) give a short presentation to the class showing off their projects. Groups who present on December 3rd or December 5th will give 5 – 8 minute presentations. To be safe you should assume you will be presenting on the 3rd until otherwise notified. Because of the limited time, these groups will not be showing a live demonstration, instead they can explain the motivation for their application, how their application works, and what challenges they faced using a slideshow presentation. Slides for these presentations must be submitted on Blackboard at least one hour before the class so that I can have them ready on my laptop. They must be submitted either as either PDF or ODP (LibreOffice Impress) files or as a link to a **public** Google Slides presentation. PowerPoint (PPTX) files may be used, but they will likely render differently as the presentation laptop only has LibreOffice, not Microsoft PowerPoint. Please bear in mind that the projector screen is not as wide as most modern displays. The laptop resolution will be set to 1280 x 1024 so that it fits on the screen. You should make sure your slides look good at that resolution and aspect ratio. Presentations should discuss the following:

- Function and Motivation of the application
- Core and extra features
- Challenges in development (especially those overcome)

4.4 Final Submission — Demo 12/10

In order to give everyone the same amount of time to complete their projects, all projects will be due on December 10th regardless of the group's class presentation date. At this time the final version of the code must be submitted. This is the version that will be used in a private demonstration scheduled with your group TA and (possible) with the instructor. It should be submitted as a zip archive to Blackboard. Please be sure to submit ALL files necessary for running your project since these are the files you will be able to use during your demonstration. If the resulting zip file is too large to be uploaded to Blackboard you may upload it to Google Drive and share the link on Blackboard, however, the uploaded zip file MUST NOT be edited or changed after the submission deadline. Groups must schedule a private demonstration of their project to take place between December 10th – 15th. A signup sheet will be posted for groups to reserve a time slot. Your group will use only the code in the submitted zip file to demonstrate how their project works. This gives equal development time to all groups instead of benefiting those who wait until the last minute to give their presentations.