GOMC Capstone Project

Team Members: Muamer Besic, Ahmed Taher, Caleb Latimer

Project Overview

This project is focused on building a dynamic website for our client who is working on the GOMC project. The GOMC project is a simulation engine using the Monte Carlo method for vapor-liquid equilibria systems. The main issues our client is having is that their current website is static, basic tasks are done manually, and it is very error prone. When it comes to their downloads page, it is not always up-to-date with what is available in the releases of their GitHub repo. In addition, the GOMC program accepts configuration input in raw text which is also error prone. The users of the program are writing incorrect input which causes the program to crash. Our solution for this is to have a forms page in the dynamic website where the user can provide all the configurations for the input and there would be validation to make sure no errors are present. After this, the user would be given the option to download the input file and use it with the GOMC program. Lastly, the client is looking to implement tracking information for basic things like the number of downloads which will be another feature in our dynamic website.

Project Purpose, Scope, Objective

The central goal of this website is to develop an underused website into a core tool for presentation of the research team, release management and data input.

This project will encompass the full front-end redesign of the website with a new toolchain chosen by the engineers of the development team. It will conform to it's own code,performance and style standards as decided by the team with the client's approval. In addition to that the project will require integration with the restful Github API v3 in order to dynamically update announcements, new releases of code from the research team, an updated user manual, an updated tracking of the number of downloads and other components of the website at the client's specification.

Lastly, the website will allow logged in users to input data required for the GOMC newly released software, send it to an endpoint and receive the results of what that data would return as though the software were running. This goal is a stretch goal but it is still part of our scope and purpose to support the GOMC teams research and development of a quality product.

Team Organization (Roles and Responsibilities)

Team lead: Ahmed Taher

The team lead will be responsible for scheduling client meetings, team meetings, TA meetings, and stay updated with everything that is going on with the project which includes:

- Modifications/additions to code
- The tasks of each team member
- Resolving problems that may come up
- Managing task equilibrium and velocity of team development

Team members: Muamer Besic, Caleb Latimer

Roles: The group will work as a team to work on every task of the project by dividing tasks equally so that one person is not doing all the work however each team member will be a leader of a certain set of tasks. These leads are:

- UI/Front-End Lead - Caleb Latimer
- Database/Back-End Lead - Ahmed Taher
- Documentation Lead - Muamer Besic
- QA Lead - Caleb Latimer
- Presentation Lead - Muamer Besic

Problem Resolution Policies

As a team, we have come up with a problem resolution policy which goes over different consequences that we will use if needed. This policy is like an agreement among the team when it comes to personal responsibilities that deal with the project, decision-making, and problem resolution for the remaining of this project. The different responsibilities that will be taken into account are listed below:

1) Team member will get a verbal warning from the group if they don't come to class without informing the group before hand about their inability to be present that day, lack of communication, and poor quality or task not done.
2) The other team members will have to make up the work not done.
3) If the behavior continues, the team member will receive a written communication which will document that they have been warned of their unacceptable actions.
4) If no changes are made, the group will inform the professor and the TA of the issue
5) If the team member still doesn't cooperate, then the remaining team members will present a case to the professors and seek guidance to resolve the conflict.

Project Plan (Iterations, Project Schedule)

Our team has met up with our client and TA and scheduled meetings for each of them. Our meeting schedule is as follows:

- Client Meeting Wednesday at 2:00 p.m at the GOMC Research Lab on the second floor of the Engineering building on campus.
- TA Meeting Thursday at 3:00 p.m at the Maccabees building, 3rd floor conference room.

Below is a list of the tasks that we have planned to do for this project:

Project introductory meeting: Wednesday, September 13th

- Met up with client for first meeting
- Asked any questions about the project goals
- Were filled in on the short and long term expectations for this project this semester
- Were given deliverables to present by next meeting

Requirements meeting: Wednesday, September 20th

- Present requirements and get feedback from client if any are missing
- Prioritize the requirements with team
- Present our stack
- Finalize development plan
- Present wire-frame & mockup and receive feedback

Requirements Approval: Wednesday, September 27th

- Have TA review requirements document
- Have client approve requirements document
- Review refined Mock-up

Prototype Review 1: Wednesday, October 4th

- Have code review for first master merge
- Have the TA critique design
- Have style guideline reviewed by client
- Have code standards agreed on and approved by client

Prototype Review 2: Wednesday, October 11th
- Have prototype 1 complete and pushed to master
- Discuss design approach login authentication
- Discuss DFD for github api integration

Design Specs: Wednesday, October 18th
- TBD

Configuration Management Plan

Our client has created a github organization for our team and included all of it's members and our TA. We will make full use of this repository with gated check-ins to master requiring code reviews from the client and one of us to aim for quality code production.

Technologies

Our development stack will consist of the following:
1. .Net asp, razor, pure.css, jQuery
2. C#, Github Api V3, json
3. C/C++, Cmake
4. MySql