Software Development Plan

Group E

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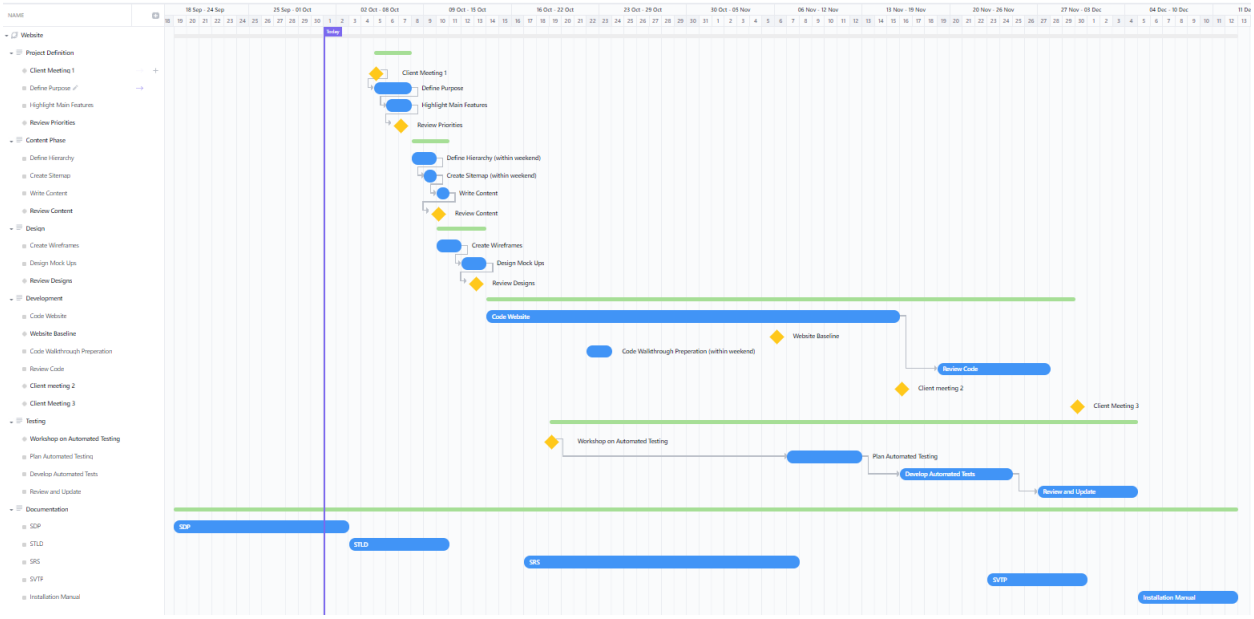
Section 1: Scope

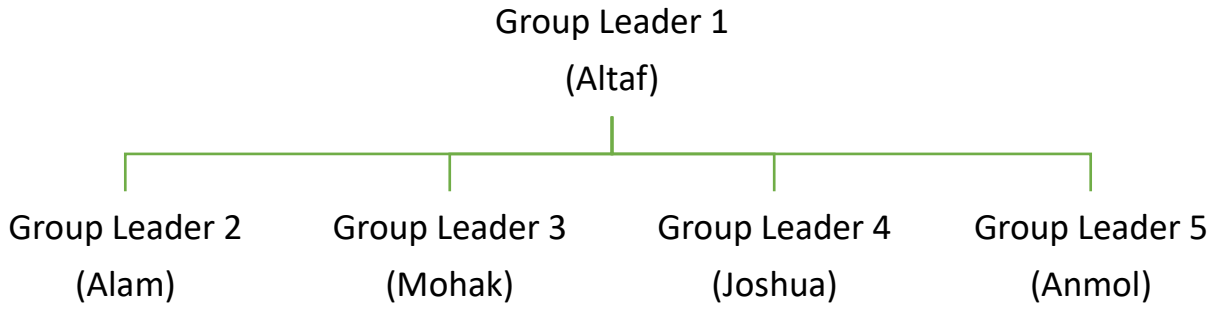
This document contains the information concerning the software development plan which includes various sections. The project schedule which shows a Gantt chart showing the schedule of the project. Team organization showing the role of each group member. Technical description showing the content of the project. Proposed standards, procedures, techniques, and tools shows what software life cycle will be followed during the project and tools will be used. Configuration management plan shows how the software versioning and documentation will be carried out throughout the development of project. Documentation plan shows what files will be used to document the project. Risk management plan shows what risk could occur during the project and what we intend to mitigate it.

Section 2: Project Schedule



Gantt chart view: https://sharing.clickup.com/36879198/g/h/4-60831033-7/7006de974a162fe

Section 3: Team Organization



Section 4: Technical Description

All pages list

1. Index
2. About us
3. Contact us
4. conservations
5. Flora/ fauna description page
6. Buildings/orchards
7. Activities
8. Biking trail
9. Exercise path
10. Rewilding area

1. Index

First page that user enters when entering the base URL. Provide general idea of what the website is about.

2. About us

Text about the mission of the client.
List of members and their position at the client.

3. Contact us

Contact information such as email, phone number and social media platforms that the client is on.

4. conservations

Array of images of the species that makes up the flora and fauna of the location.

5. Flora/ Fauna description page

Further description about the specific species that the user wants to know more about.

6. Buildings/orchards

Array of images, name and description about the buildings and orchards present on the location.

7. Activities page

Array of images, name and description about the activities present on the location.

8. Biking trail

Further description about the biking trail activity provided by the client.

9. Exercise path

Further description about the exercise path at the location.

10. Rewilding area

Further description about the rewilding effort by the client at the location.

Section 5: Proposed Standards, Procedures, Techniques and Tools

Standards: N/A

Procedures/Techniques: UML Use Case Diagrams, Component Diagrams, Automated Testing

Tools:

- Clickup: Project Management Software
- HTML
- CSS(Sass)
- JavaScript with jQuery
- Node
- Express
- MongoDB
- GSAP: JavaScript Animation Library

Development Processes: Waterfall with Phased Development

Section 7: Configuration Management Plan

Software

Development of the website will be done on GitHub under the repository named: ma-altaf/CSCI_3428. The repository contains two branches, main and dev.

- main: branch containing code related to the working/public version.
- dev: branch containing code being actively worked on by the team.

Versioning will be done automatically by GitHub, with dev branch containing code versioning on a lower level (features/bug fixes), while the main branch contains the overall app versioning.

Documentation

A markdown file containing all the definition of the functions used through out the project. This file will be stored on the GitHub along with the software code.

Section 8: Documentation Plan

The documentation plan will include the Software Requirement Specification (SRS), Software Top Level Design (STLD), Software Design (Pseudocode), Software Detailed Design (source code), Software Validation Test Procedure (SVTP).

Section 14: Risk Management Plan

Generic Risks

Risk 1 - Alam

Delays due to member coming late or being absent for meetings.

Probability: 50%, due to members having different schedules and responsibilities, group meetings might not include all members or members coming late at times.

Severity: Substantial, other members will be impacted due to delayed task, especially if one member's task is dependent on the other. Moreover, if tasks that the late/absent member/s needs to be redistributed then the member/s assigned the task will be delayed themselves with the original task there we assigned.

Mitigation plan:

- Write a summary at the end of meeting to let absent/late team member know what was discussed in the meeting and deliverables they responsible for.
- Creating short meetings (5-10 minutes) possibly between present team member/s and the absent/late member/s.
- If a member regularly is late or absent their responsibilities might need to be shifted onto another person.

Risk 2 - Altaf

Delay due to member being unable to use their computer due to being damaged.

Probability: 10%, most members work on a portable computer which might be their only device that they can use to develop the website and it might get damaged, for example due to water being spill on the device or dropped by mistake.

Severity: Severe, ongoing work that the member might not have committed to GitHub might get corrupted or lost.

Mitigation plan:

- Regular backups, by the member on for example: Google Drive or the university OneDrive.
- Use one of the computers in the university's library or another member's computer or spare computer until they can return to their own.

Risk 3 – Anmol

Communication problems within the group members.

Probability: 50%, for example not contacting with the group members properly or coordination problem within the group.

Severity: Catastrophic, if there is wrong coordination then member/s might not do the expected task, effectively losing their time on code that will need to be removed. This in turn will lead to that team member and/or other team members to have to work on a task that was due earlier.

Mitigation Plan:

- Members are encouraged to ask the leader for clarification if they don't understand their task or if they have any doubt.
- members should send their code to the leader mid way through their deadline so that the leader can see if the member is doing the right thing. Moreover, they should document their code and/or be in a meeting with the leader to let him know what he intends to do prior to the deadline.

Risk 4 – Mohak

Delay due to client changing their mind about already implemented core features.

Probability: 60%, clients might want to change feature/s that took a long time to implement.

Severity: Substantial, since the code that needs to be removed might affect other apart of the code or introduce bugs, for example if one part of the UI needs to be changed then other part of the UI might get affected.

Mitigation plan:

- Implement features in an isolated way so that it does not affect other part of the code.
- Implement a prototype of feature/s first (ex: use a PowerPoint slide) and only implement the feature/s once the client agrees to go ahead with the feature/s.

Risk 5 – Joshua

Delay due to complications caused by a natural disaster such as a hurricane or storm.

Probability: 20%, the project schedule is during fall which is the Hurricane season in Atlantic Canada.

Severity: Severe, due to natural disaster power outages and/or roadblocks could cause synchronization issues between members, which could lead to delays in the project development.

Mitigation plan:

- Creating a project plan that could be flexible.
- Keep a backup power source (power bank) so that the computer that the member is using to code can still be operational.
- Use mobile data to let the other members know on what he intends to do amidst the crisis and help with development.

Specific Risks

Risk 1 - Altaf

Delays or unimplemented animations due to development team having minimal experience in doing animation on the web.

Probability: 50%, doing animation on the web can be tricky at time and introduce bugs especially with having to adapt the website for different screen sizes and the different ways of interacting with the website (touch instead of mouse on smartphones). Thus a 50% chance of reduced features/delay could occur.

Severity: Moderate, although animations can make a website more engaging and get the user to be more interested in the content, it does not usually impact the overall content of the website.

Mitigation plan:

- Since some members of the team have had previous experience with doing animation on the web, team members are encouraged to ask for help and work together when doing the animations.
- The code will be reviewed before being merged into the final project thus ensuring that any bug that might have creeped in is fixed.
- the baseline of the website is set up to ensure that all the content is present before diving into animations that might be tricky.
- versioning is done using GitHub in case rollback is required to remove an animation that is causing bugs.

Risk 2 – Alam

Delays due to code from different members not getting synchronized as planned due to bugs.

Probability: 60%, for example: Two members may work on different parts of the project but may need the same div. They use different ids for that div which results in the code not working properly.

Severity: Severe, since the code will not work, or bugs would creep in. It would often lead to huge delays if there were numerous bugs and if the code is very large.

Mitigation plan:

- All group members should have a meeting where one person will synchronize the code and the other members will let the synchronizer know what changes they made to the code.
- They could also give proper documentation too which will let the synchronizer know how to go about synchronizing the code. This way we can efficiently synchronize the code with less bugs being encountered.

Risk 3 – Mohak

Lost of data or manipulation of data on the server since it is shared with other persons.

Probability: 30%, the server is shared among other person who are also working on the same project for the same client and might mess with our code to get an edge.

Severity: Catastrophic, misrepresentation of data may lead to people getting hurt following information found on the website. For example, if data is manipulated and shows a dangerous place to visit as safe.

Mitigation plan:

- Change the password at regular intervals.
- Avoid sharing information related to the password to avoid brute force attack.
- Use environment variables for passwords so that it is not pushed to our online version control service (GitHub).

Risk 4 – Anmol

Delays due to going for a wrong platform or framework/library.

Probability: 50%, since development team have minimal experience in building websites, we might go for platforms and framework/library only based on what other people recommended and since we only have limited time to make a decision, we might take the one we think will work best without much research.

Severity: Catastrophic, we would have spent a lot of our limited time learning and developing using the wrong platforms and/or framework/library, thus we would have to re do everything related to the wrong technologies, thus we might require more time.

Mitigation plan:

- Do more thorough research on technologies available to do a specific task by researching technologies that are available and/or are competing with the original technologies that we planned to go for.
- Do a crash course of the different technologies we could use for a specific task so that we can get a feel of how to develop with the technologies and follow up with a meeting where the team vote on what technology to use.

Risk 5 – Joshua

Design issues related to balancing structure and aesthetics.

Probability: 60%, team member has minimal experience in building websites and since we intend on doing animations, we might focus too much on the aesthetics of the website which might affect the user experience.

Severity: Severe, too much animation and an unusual structure might lead to user being confused. Moreover, it could distract the user from the main content or even make the website look childish.

Mitigation plan:

- Find a proper compromise between structure and aesthetic.
- Ask the client if they want to keep the animation to a minimum.
- Provide an option for the user to disable or reduce animations.