

Development Plan

ProgName

Team #, Team Name
Student 1 name
Student 2 name
Student 3 name
Student 4 name

Table 1: Revision History

Date	Developer(s)	Change
Date1	Name(s)	Description of changes
Date2	Name(s)	Description of changes
...

[Put your introductory blurb here. Often the blurb is a brief roadmap of what is contained in the report. —SS]

[Additional information on the development plan can be found in the lecture slides. —SS]

1 Confidential Information?

[State whether your project has confidential information from industry, or not. If there is confidential information, point to the agreement you have in place. —SS]

[For most teams this section will just state that there is no confidential information to protect. —SS]

2 IP to Protect

[State whether there is IP to protect. If there is, point to the agreement. All students who are working on a project that requires an IP agreement are also required to sign the “Intellectual Property Guide Acknowledgement.” —SS]

3 Copyright License

[What copyright license is your team adopting. Point to the license in your repo. —SS]

4 Team Meeting Plan

Weekly Meetings: We will have weekly check-ins on Fridays from 3:30PM to 4:30PM, either in-person on campus or virtually, depending on member’s availabilities. Virtual meetings will be hosted on Microsoft Teams. Additional meetings will be scheduled as needed.

The current meeting chair should open a Github issue prior to a meeting. During a meeting, the chair will go over each item on a prepared agenda and all members participate in the discussion. The notetaker will record meeting minutes and post them as a comment under the Github issue after the meeting, as well as a summary of task assignments.

Supervisor Meetings: We will have biweekly or monthly meetings with our primary supervisor, Dr. Charles De Lannoy, depending on his availability. We will be using his Outlook calendar to arrange appropriate meeting dates. These meetings will be held either in his office or virtually on Microsoft Teams.

We currently plan to have weekly meetings on Tuesdays from 3:30PM to 4:30PM with our secondary supervisor, Bassel Abdelkader, as he works closely with the data we need to integrate into our project. These meetings will be virtual due to his schedule.

5 Team Communication Plan

The team uses an Instagram group chat for regular communication and a Microsoft Teams group chat for drafting emails and sharing resources.

We will communicate with our supervisors primarily through email or scheduled meetings. The team liaison will be responsible for sending the emails and should CC all team members.

All project-related communication will be done via GitHub issues. Each issue will track a specific task and assign team members. Every pull request should link to its corresponding issue(s), and feedback is expected from all team members when a pull request is created.

6 Team Member Roles

The team plans to rotate through the following roles between every (or every few) milestone(s):

- **Meeting chair:** The meeting chair should prepare an agenda for each meeting and open an issue for the meeting. The issue should contain an attendance tracker, the agenda, and other topics that may need to be discussed.
- **Notetaker:** The notetaker will record meeting minutes during a meeting and post it as a comment under the meeting issue, along with a summary of task assignments.
- **Primary reviewer for Pull Requests:** The primary reviewer will give the official “approval” for pull requests. All members should review pull requests and provide feedback, but the primary reviewer will make the final decision to ensure a smooth workflow.

Once we begin implementation, all members are expected to contribute as developers. However, we anticipate appointing technical leads based on the members’ skillsets, described below:

- Sumanya has experience in data analytics and working with large datasets, and will also serve as the main point of communication between the team and our stakeholders.
- Kate has experience in web development and programming in Python, as well as proficiency in several Python libraries we may need to utilize.
- Jason has experience in MongoDB and machine learning, as well as proficiency in GraphQL, which we are considering for our data visualization framework.
- Jennifer has experience working with large datasets and employing data visualization tools like PowerBI, along with a strong background in web development.

7 Workflow Plan

- How will you be using git, including branches, pull request, etc.?
- How will you be managing issues, including template issues, issue classification, etc.?
- Use of CI/CD

8 Project Decomposition and Scheduling

- How will you be using GitHub projects?
- Include a link to your GitHub project

[How will the project be scheduled? This is the big picture schedule, not details. You will need to reproduce information that is in the course outline for deadlines. —SS]

9 Proof of Concept Demonstration Plan

What is the main risk, or risks, for the success of your project? What will you demonstrate during your proof of concept demonstration to convince yourself that you will be able to overcome this risk?

10 Expected Technology

[What programming language or languages do you expect to use? What external libraries? What frameworks? What technologies. Are there major components of the implementation that you expect you will implement, despite the existence of libraries that provide the required functionality. For projects with machine learning, will you use pre-trained models, or be training your own model? —SS]

[The implementation decisions can, and likely will, change over the course of the project. The initial documentation should be written in an abstract way; it should be agnostic of the implementation choices, unless the implementation choices are project constraints. However, recording our initial thoughts on implementation helps understand the challenge level and feasibility of a project. It may also help with early identification of areas where project members will need to augment their training. —SS]

Topics to discuss include the following:

- Specific programming language
- Specific libraries
- Pre-trained models

- Specific linter tool (if appropriate)
- Specific unit testing framework
- Investigation of code coverage measuring tools
- Specific plans for Continuous Integration (CI), or an explanation that CI is not being done
- Specific performance measuring tools (like Valgrind), if appropriate
- Tools you will likely be using?

[git, GitHub and GitHub projects should be part of your technology. —SS]

11 Coding Standard

[What coding standard will you adopt? —SS]

Appendix — Reflection

[Not required for CAS 741 —SS]

The purpose of reflection questions is to give you a chance to assess your own learning and that of your group as a whole, and to find ways to improve in the future. Reflection is an important part of the learning process. Reflection is also an essential component of a successful software development process.

Reflections are most interesting and useful when they're honest, even if the stories they tell are imperfect. You will be marked based on your depth of thought and analysis, and not based on the content of the reflections themselves. Thus, for full marks we encourage you to answer openly and honestly and to avoid simply writing "what you think the evaluator wants to hear."

Please answer the following questions. Some questions can be answered on the team level, but where appropriate, each team member should write their own response:

1. Why is it important to create a development plan prior to starting the project?
2. In your opinion, what are the advantages and disadvantages of using CI/CD?
3. What disagreements did your group have in this deliverable, if any, and how did you resolve them?

Appendix — Team Charter

[borrows from University of Portland Team Charter —SS]

External Goals

[What are your team's external goals for this project? These are not the goals related to the functionality or quality of the project. These are the goals on what the team wishes to achieve with the project. Potential goals are to win a prize at the Capstone EXPO, or to have something to talk about in interviews, or to get an A+, etc. —SS]

Attendance

Expectations

[What are your team's expectations regarding meeting attendance (being on time, leaving early, missing meetings, etc.)? —SS]

Acceptable Excuse

[What constitutes an acceptable excuse for missing a meeting or a deadline? What types of excuses will not be considered acceptable? —SS]

In Case of Emergency

[What process will team members follow if they have an emergency and cannot attend a team meeting or complete their individual work promised for a team deliverable? —SS]

Accountability and Teamwork

Quality

[What are your team's expectations regarding the quality of team members' preparation for team meetings and the quality of the deliverables that members bring to the team? —SS]

Attitude

[What are your team's expectations regarding team members' ideas, interactions with the team, cooperation, attitudes, and anything else regarding team member contributions? Do you want to introduce a code of conduct? Do you want a conflict resolution plan? Can adopt existing codes of conduct. —SS]

Stay on Track

[What methods will be used to keep the team on track? How will your team ensure that members contribute as expected to the team and that the team performs as expected? How will your team reward members who do well and manage members whose performance is below expectations? What are the consequences for someone not contributing their fair share? —SS]

[You may wish to use the project management metrics collected for the TA and instructor for this. —SS]

[You can set target metrics for attendance, commits, etc. What are the consequences if someone doesn't hit their targets? Do they need to bring the coffee to the next team meeting? Does the team need to make an appointment with their TA, or the instructor? Are there incentives for reaching targets early? —SS]

Team Building

[How will you build team cohesion (fun time, group rituals, etc.)? —SS]

Decision Making

[How will you make decisions in your group? Consensus? Vote? How will you handle disagreements? —SS]