**Computer Science and Engineering**

**GeoHealth**

**Project Management Plan**

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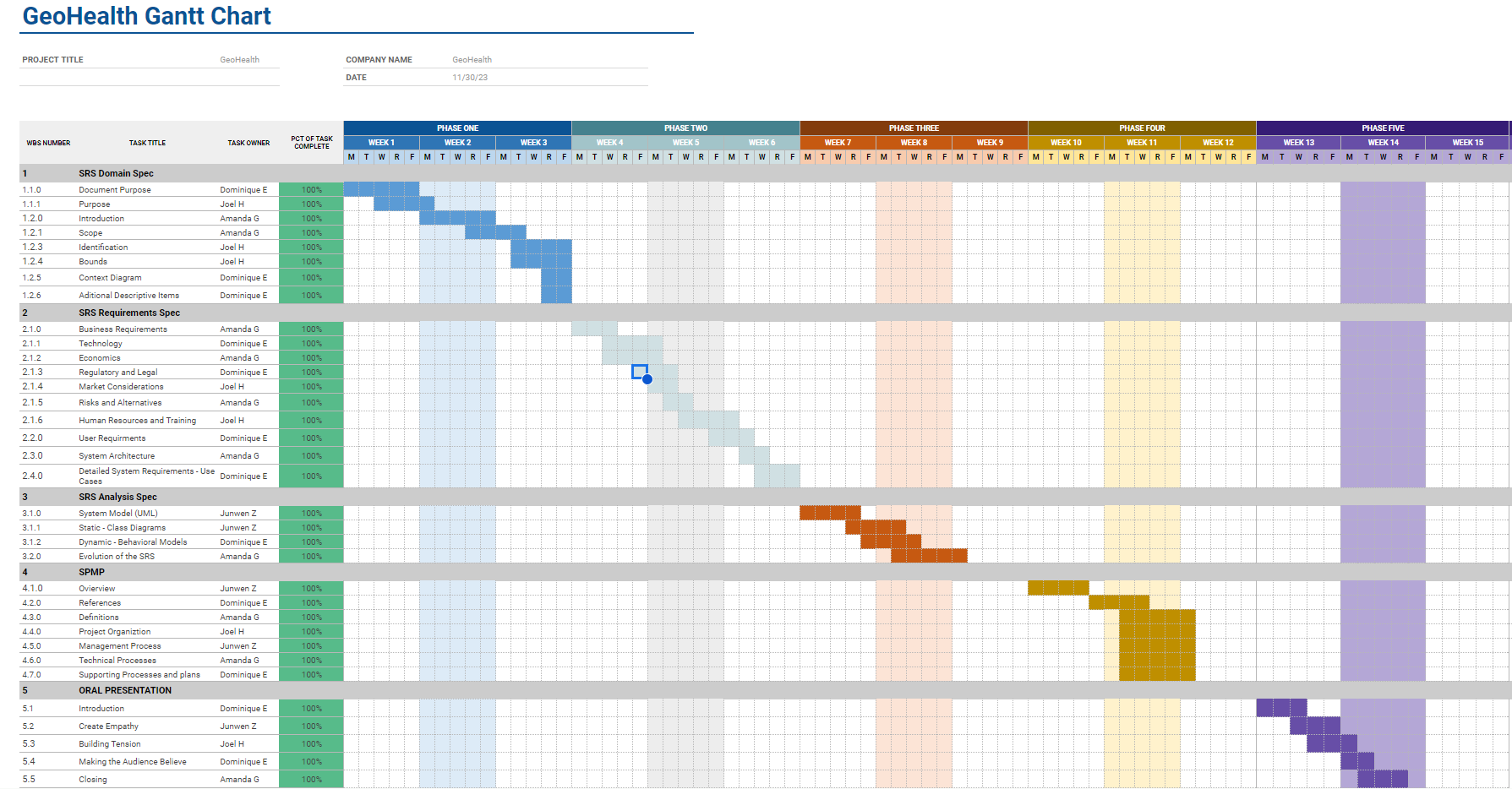
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| **OVERVIEW****Project Summary****Purpose, Scope and Objectives****Assumptions and Constraints****Project Deliverables****Schedule and Budget Summary** **Evolution of the Plan****REFERENCES** **DEFINITIONS****PROJECT ORGANIZATION****External Interfaces****Internal Structure****Roles and Responsibilities** **MANAGEMENT PROCESSES****Startup Plan****Estimation Plan****Staffing Plan****Resource Acquisition Plan****Training Plan****Work Plan****Work Activities****Schedule Allocation****Resource Allocation****Budget Allocation****Control Plan****Requirement Control and Traceability****Schedule Tracking and Adjustment****Budget Tracking and Adjustment****Quality Control****Reporting Mechanisms****Metrics Collection Plan****Risk Management Plan****Post Implementation Plan****TECHNICAL PROCESSES** **Process Model****Methods, Tools, and Techniques** **Infrastructure Plan** **Product Acceptance and Migration Plan****SUPPORTING PROCESSES AND PLANS** **Configuration Management Plan** **Qualification (Verification and Validation) Plan** **Documentation (Library) Plan** **Quality Assurance Plan** **Reviews and Audits****Problem Resolution Plan** **Environment Management Plans****Process Improvement Plan****ADDITIONAL PLANS****INDEX****RATIONALE****NOTES****APPENDICES**  **12.1 Schedule Tracking** **12.2 Defect Tracking** **12.3 Gantt Chart** | The purpose of the Software Project Management Plan (SPMP) is to provide an outline of project processes and the timelines and reasons for completing them.  The scope of this project is to provide wide scale public health information catered to users’ local area to improve community health efforts and elevate business outreach.  The objective is to improve public health awareness and actions. At a smaller community level, the application should provide accessibility to local businesses, offices, and news to educate users about options they have so that they can make more informed decisions. By centralizing a map of such places, users can be as prepared as possible to tackle their health care needs. Other services such as virtual health and information can give users extra guidance about their concerns or interests  An incremental, agile-type approach will be used for the project. This means that there will be short periods of development before releases that will allow changes to be implemented as the process moves forward.  This document will be reviewed and updated weekly until a final format is created. Afterwards, during development, any changes will also be noted and then presented formally.  Motivation for this product is to improve public health awareness and actions. At a smaller community level, the application should provide accessibility to local businesses, offices, and news to educate users about options they have so that they can make more informed decisions. By centralizing a map of such places, users can be as prepared as possible to tackle their health care needs. Other services such as virtual health and information can give users extra guidance about their concerns or interests.  Purpose for the SPMP is to outline a plan for software development that meets needs of stakeholders, users, and business. The aforementioned are the audience of the document.  The ability to provide wide scale public health information catered to users’ local area improves community health efforts and elevates business outreach.  Users will interact with their local community health resources through public health information or business profiles and directions. The system will forward those contacts to the business to help them be more seen. In turn, businesses will provide customer services through the software as needed.  The scope will not include users’ personal health information. They should not be able to input sensitive details directly to health businesses. Businesses in turn should also not be able to promote their offices or services because this can lead to influenced/biased suggestions.  Business needs to be satisfied by this documents release include clarification of map curation, economic drivers, and legal implications.  If we choose to make this an application for specific app stores, i.e. apple, android, google, we may be restricted to the type of map feature that we have. For example, if we wanted to include apple map features, this may not be transferable to android systems, therefore, a goal of our planning should be to identify the best source information that is universal.  The first deliverable is the draft due on Nov 30, 2023. This will be followed by a presentation of the product and plan on December 7, 2023. Then development of the software.   | Deliverable | Date | Status | | --- | --- | --- | | First draft | Nov 30, 2023 | Finalized | | Final draft | Dec 7, 2023 | Current |   API and development will be incorporated with free softwares, so no costs will be accrued, therefore budgets for this project will be $0 throughout, unless any barriers are faced.  At the start of each software development phase we will revisit this document to update how our plan and product ideas will evolve. After each phase we will do the same to cement ideas and processes that we built upon and those that were not very impactful. These discussions will help guide us through the next iterations of our product.  The schedule is something that may have to change on a micro level, meaning that exact timing of meetings weeks out is not very possible, however, deadlines are major events that will not/ can not be changed. We will also need to update sections on architecture and product details because we do not yet have a plan or model for the product that gives us a whole view of every feature we want to include.  Sections that will not need much changing include those of our goals and problems being solved. The product is based around this central mission and that is to increase public health access.    After development starts, the document will not be changed so much as referred to. Use cases may differ or increase depending on new user scenarios we may encounter or challenges with software interfaces.  A26, Project Proposal, PP-001, Version 1.0, Sep 19, 2023  A26, System Requirements Specification, SRS-001, Version 1.1, Nov 29, 2023   * API (application programming interface): from IBM, “is a set of defined rules that enable different applications to communicate with each other” * OS (operating system): a program that manages the computer's software applications in relation to hardware components (ex. Windows, Mac, Linux) * LOC (lines of code) * UML (unified modeling language): diagram for software systems * Interface: a point where two systems, subjects, organizations, etc. meet and interact (Oxford dictionary) * UI (user interface): a device or program enabling a user to communicate with a computer (from Oxford dictionary)   Group members will work concurrently on both the documents and software. Therefore, all are considered authors who contribute to the curation of the document. Reviewers include TAs responsible for giving feedback and approval as the document commences.  **Technology Boundary:**  GPS and mapping applications and systems. Text editors and IDE’s such as VScode. Coding languages including Swift, Python, JavaScript, SQL, etc.  **Legal Boundary:**  Based on local jurisdictions, service may or may not be available (such as reproductive care or certain substances or recommendations).  Interfaces among the development team include document writing software (Google Workspace), software development applications, and communication groups.  Interfaces for the software include a map servicer API (Google Maps) and possibly other security and login tools. Businesses interact directly with Google to be accessed through our software.  **Project Leader:** define specifications, establish delivery timelines and milestones (Amanda, Junwen)  **Backend Development:** database and API integration (Joel, Junwen, Dominique)  **UI/UX design:** front end design (Amanda, Dominique)  **Resource Manager:** secure access to development tools (Junwen, Amanda)  **Documentation:** recording and commenting on all code written (all members)  This section is in line with improving public health access. Plans for development as well as contribution will be roughly equal throughout the process.  Meet with stakeholders to discuss all specifications for the software.  Research all necessary technologies to meet the expectations.  Estimate the amount of content that could be accomplished in the given time.  Create deadlines for constructing prototypes  To be included included later (optional)  Project staff was formed voluntarily in class. There has been one new member assigned to the team by the professor.  All software development tools for the project should be free. But, there might be a few charges for the Google Map API, and publishing on Apple’s App Store.  Each team member will work to learn any technologies required in order to complete the project.  This section specifies the budget details, resources, schedule, and work activities for the GeoHealth application.  Work Units:   * **Backend development:** setting up the basic logic and underlying server interaction for the application * **UI/UX design:** constructing user friendly UI/UX for project testing and releasing * **Google Map Integration:** integrating Google Map API to the project * **User database management:** creating and managing SQL files that store registered user information * **Prototype:** developing working prototype for testing * **Documentation:** recording and commenting on all code written   Gantt chart below  API integration: implementing a Google map API for directions, location, and business information   * All members will work on this, having had prior engagement with Google maps; if needed, members will learn about the API and how to personalize it to the usages of the app * Filter action customization * Report inaccuracies back to Google   UI/UX development: display of information and usability of product   * Members with more design experience will contribute to logos, layout, and design concepts * All members will decide on the final design choices * Members will learn tools for design if needed (although most are prepared for web/app dev)   User database management: manage logins and saved session data   * Outsourced management tools will be used here * Members will have to learn how to integrate this tool with existing software code * All members will work on the implementation of this portion   To be included in later release (optional)  This subsection specifies the metrics, reporting mechanisms, and control procedures necessary to measure, report, and control product requirements. the project work schedule, budget, resources, and the quality of development processes and work products  All team members are required to document their code, follow the guidelines decided in the SRS and attend necessary meetings. Any unexpected issues, or technical difficulties will be assessed by the managing team and decided upon.  Work milestones will be measured either in a Gantt type chart with roles and responsibilities, or through a tool such as Github where commits can display which members are contributing and completing their projects. To adjust any schedules, meetings will be held among group members to reallocate any material or restructure important events in the chosen tracking method.  To be specified later if costs for software development accrue (optional).  Third party tools will be reviewed in the planning stage for proper integration of our proposed software. This means languages should be known or quickly learnable and use should be straightforward and reliable.  Individual work sections will be peer reviewed periodically in an audit by other group members to ensure that both progress is being made and that the correct features are implemented.  Working in an agile environment, providing summaries about what is to be completed on that day and then checking back in to make sure tasks are completed on plan is important.  To be included in future (optional).  The managing team will perform check-in’s with project team members to make sure each developer completes their corresponding tasks each week so the project stays on track and progresses as expected. The managing team will inspect the code to ensure its efficiency and conformity to the guidelines.  Building a product that no one really wants   * Mitigation: Design a user friendly interface to facilitate easy navigation of the GeoHealth system, continue to conduct thorough market research, and remove or include features that are necessary to inclusion   Staff size and experience   * Prior to the start of the construction phase of the project our team will undergo training for creating applications, ensuring that the team's skill set will be adequate to progress with this project   Project size   * Outsourcing tools to third parties to integrate features that are too complex or time consuming is important * Planning thoroughly about what needs to be done by certain milestones is necessary   The project team will submit deliverables on Brightspace along with a Github repository, including a maintenance manual. The team will present the project at the end of the semester.  This section specifies the developmental process model, the technical methods, tools and techniques to be used to develop the various work products for the GeoHealth application; plans for establishing and maintaining project infrastructure, and product acceptance plans.  The process model that will be used for the development of the GeoHealth application is the waterfall model.  The object oriented UML methodology will be used for the development of the GeoHealth application. The UML diagramming tools will be used to document the classes, and the dynamic behavior. Other tools that will be used for documentation include Google Docs, and Google Sheets.  For the development and test environments, a cloud-based approach using services like AWS or Azure will be implemented. For product management Github and Slack will be used for efficient communication and collaboration. Integration with the Google Maps API will require careful consideration of access controls and usage policies.  To be specified later (optional).  This section contains plans for supporting processes that cover the development life cycle of the development project. These plans include, but are not limited to, configuration management, software qualification (verification and validation), documentation, quality assurance, reviews, audits, problem tracking and resolution, and management. Plans for supporting processes will be developed to a level consistent with other sections and subsections of the project plan.  The GeoHealth application, aimed at mapping nearby health services, displaying ratings, and offering user-centric filtering, will integrate the Google Maps API, adding an extra layer of geographical precision to its functionality.  The following review types will be implemented:  Desk Test:   * Informal reviews within the team to identify errors or areas of improvement.   Peer Reviews:   * Occurs in all project iterations to keep team members informed about different software sectors. * Technical reviews focusing on work quality and alignment with stakeholder expectations.   Walkthrough:   * Formal meeting where team members present reports on their work progress. * Other members conduct real-time reviews to identify errors and assess the overall quality of the work.   Inspection:   * Concurrent with the walkthrough phase but more focused on setting priorities for the current product and future releases. * In-depth analysis of product timeframe and quality, concluding with acceptance, rejection, or conditional acceptance.   All documents for the GeoHealth application will have a unique number with a revision level, written documents as well as the code. All of the SQA documents must comply with these requirements as well.  The quality assurance plan is done by the software quality group and it consists of a number of processed steps which must be identified by the group. The requirements will be given to this team and they will produce a test plan, test scenarios based on the requirements, both functional and non-functional, and expected output of each of those scenario tests. The software quality group will execute these tests and report any defects.  Reviews will be performed in accordance with the Verification and Validation Plan, section 7.2 of this document. Audits will be performed by an external organization.  All defects found in our project will be documented in the defect tracking system. There will be a priority. A schedule for every defect to be fixed by a responsible party. The defect will then be fixed and tested, and then included in a particular release. They will then be distributed and all documentation related to that defect will be documented and distributed.  To be included in the future (optional).  To be included in the future (optional).  To be included as required (optional).  None at this time.  Finding healthcare services is often overwhelming due to factors like accepted insurance, cost, and proximity. Traditional methods involve time-consuming individual searches and comparisons, wasting valuable time. A solution is needed to simplify this process, providing users with accessible and easily understandable information in one place. This streamlined approach aims to save time, enabling informed decisions and contributing to improved user outcomes in healthcare.  None at this time. |
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**Documentation**

**Implementation**