Cancer Prediction System Using Machine Learning Project Plan

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1. Introduction

One of the key components in designing a software is having a good project plan. Here, the aims and objectives of the project are outlined along with the names of the individuals or team members who will be responsible for the development of the specified system. A summary of the whole project is also going to be included.

The Cancer Prediction web system is going to be a project that will be critical in predicting the likelihood of someone having cancer. If the likelihood of someone having cancer is very high, the system will recommend the person to visit a hospital for further medical testing.

2. User/Client Involvement

This project will be a generic web system as such, not limited to a certain organization or group of people but open to anyone with access. The operation of the system will be in accordance with the developer's will. Data collection for the machine learning models will be done on online repositories such as Kaggle.

3. Risks

- Unfamiliarity with machine learning concepts - A simple and doable strategy to deal with this would be to familiarize ourselves with these said concepts.
- Team availability and time - This can be dealt with by creating a clear schedule and find time, even if very brief to discuss what we've accomplished and what we'll need to accomplish in the future.
- Unequivocal skills within the team – team members should try by all means to better themselves on the required skillset.
- Not enough customized data.

4. Standards and Guidelines

Each team member involved in the project must follow the specified standards, guidelines and procedures that the team has agreed upon. Such standards and guidelines include but not limited to the following:

- Each task must be completed within the specified duration.
- Team members are not to discuss the project outside the team except with the course instructor.
- Team members must attend and keep time during meetings.
- When given a task, team members must perform the task to the best of their abilities and diligently.
- Members who do not input anything to the project may end up terminated from the group.

5. Resource List

In order for the successful completion of the project, several resources are required to finish individual tasks:

- Google Collab
- Python programming language for model building and webpage
- HTML and CSS for page structure and styling
- Personal computers preferably running windows OS
- Internet access
- Paper / online resources
- Knowledge with GitHub and Git Version Control

6. Organization of the Project

Team Members	Roles	Description
Mkhonta Thembinkosi	Team Leader and Programmer	Responsible for the entire team by ensuring everyone does their job. Also part of the programming team and model implementer.
Msibi Samkelo	Programmer, System Analysis	Model implementer as well as System Analysis to ensure everything works as intended after completion of project.
Nxumalo Neliswa	UI/UX Design	User Experience and User Interface Designer
Mndzebele Mongi	Programmer	Part of the programming team.
Ngwenya Senanile	Architect, Documentation	Architect for the team and also responsible for documenting the entire project

7. Project Phase

For this system's development, the Waterfall software process model is going to be used. All the process activities will be planned and scheduled before the development of the software starts. The system specifications consisting of the system's services constraints and goals will be first established. The system will then be designed by allocating the requirements to either software or hardware systems. The implementation and unit testing will follow whereby the software design will be realized as a set of programs or program units and verification of each unit meets its' specification. The individual programs will then be integrated and tested as a complete system to ensure that the software requirements have been met. Lastly, the system will be installed and put into practical use.

Time allocation for each task should be as follows:

Table illustrating time allocation and completion for each task:

Task	Duration	Cost	Start Date	End Date	Predecessor
Software Specification (A)	1 Week	N/A	10 OCT	16 OCT	-
System and Software Design (B)	1 Week	N/A	17 OCT	23 OCT	A
Implementation and Unit Testing (C)	2 Weeks	N/A	24 OCT	6 NOV	B
Integration and System Testing (D)	2 Weeks	E50.00	7 NOV	21 NOV	C

Total weeks for completion of project = 6 Weeks

8. Requirement, Analysis and Design

- DFD
- Structured Charts: For analysing hierarchal structure
- Decision Tables
- Data Dictionary

9. Implementation

- Pseudo Code
- JSP Method
- DFD
- Structured English

10. Testing

The project will be tested in the following phases:

- Phase one involves unit testing where individual components of the web system will be tested starting with the web model. In the model, we are going to do the pre-train and post-train. The next component will be the client side of the webpage.
- Phase two involves integration testing. This is to test if the machine learning model and the client side of the webpage are correctly connected.
- Phase three (final phase) involves system testing. The webpage will be tested as a whole to determine if it functions according to the requirements. The effectiveness and efficiency of the operations within the system will also be tested.

11. Changes

Since there may be changes on the development process, this following procedures should be addressed in order to provide a way on dealing with the problems and finding a way forward.

- Issues or reasons of change should be addresses to the team leader.
- Team leader should notify course instructor if there is a need.
- The team should meet very soon afterwards to discuss a way forward. This should also determine if the processes in need to be changed will affect the completion time for the project.
- An update should be made on the project plan and project phase.