Faculty of Natural Sciences
Department of Computer Science
Turkeyen Campus

CSE2101 - Software Engineering

Assignment

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Introduction

The purpose of this introduction is to highlight the main goals of this project, the methods used to complete it, challenges and limitations, and provide a small background of the client. This introduction will be broken into sections to organize the content being described and also to enhance readability.

Background of Client

Neisha's Hardware Supply is a small family-owned business that was founded in 2003. It is located at 147 Alexander Street, Lacy Town, Georgetown. The store is responsible for selling hardware supplies needed by their community. One of the project team's members was an employee in the past, giving them the opportunity to have an overview and insight of the business. It was this member who sourced this client for us.

Purpose

Neisha's Hardware Supply has been using a paper-based system since the company's inception. This method comes with many issues. One such issue is documents being misplaced or destroyed which results in major negative impacts on the business when looking at taxes and other major documentation. To prevent such issues from arising our team proposes the implementation of a Management Information System(MIS) into this business' environment. This system will aid in relieving staff of manually tracking inventory, accurately counting stock and yearly summaries and other requirements to modernize this business to keep up with its competitors.

Method to be Used

To initiate the project, a member of the team will elicit information from the client via interviews. With this information the team will propose theories and discuss limitations. Following this process will be the execution phase where the team will commence development of the system. With the completion of the execution stage, the system will then be ready for deployment and integration into the business.

Limitations

The team has considered the possibility of constraints that could affect the development of this project. These constraints can affect time, budget and delays in the development of the project. One such limitation includes acquisition issues with machinery which can have an impact on both time and budget. Our team has estimated the likelihood, effects and reduction strategies of these risks which, the reduction strategies will be put into effect to mitigate any limitations.

Project Organization

People involved and their roles in the development process:

- **Project Leader/Manager**
    1. Oversees the work of the development team and sets goals to achieve.
    2. Communicates with the development team and generates new ideas.
    3. Host team meetings.

- **Business Analyst**
    1. Conducts interviews with employees of the business to find out specifications for the software and create recommendations.

- **Software Architect**
    1. Plans, organizes and designs the software system.
    2. Chooses which technical and functional requirements may be needed to develop the system (tools, platforms and languages to use).
    3. Dictates coding standards.
    4. Review code.
    5. Mentors team members and collaborates with them.

- **Software Developer**
    1. Codes the software using the software using various types of programming languages, libraries and frameworks.

- **UX / UI designer**

    UX designers ensure that navigation of the functionalities in the software are accessible, easy to use and helps improve user experience.

    UI designers create the visual design and layout of the user interface.

- **Scrum master**
    1. Ensures effective communication among team members and helps resolve issues that may arise between team members.
    2. Gathers feedback from the development team
    3. Motivates the team.

- **Software tester**
    1. Ensures that the software is working as specified and helps identify bugs.

Risk Analysis

Risks	Likelihood	Effects	Risk Reduction strategies
Inaccurate Data	Medium	When incorporating a DBMS, information may be mixed up or downright missed out.This could lead to mixing up of bar codes and mislabeling broken or defective goods	● Implement frequent validation checks ● Reduce data redundancy
Unexpected power outages	High	Unexpected power outages might hinder the business's sales and reduce shelf life of product	● Invest in a Generator and an uninterrupted power supply for the store
Problems when Acquiring and maintaining machinery	Medium	Evaluating machine cost and level of customization need after purchasing new equipment	● Find cost efficient products that meet our budget ● Employ staff that has a background with these machinery to reduce equipment breaking
Untrained staff	High	In our case we have limited staff so we must ensure that it's being managed correctly. Improper training might lead to inventory mismanagement, Damage of Machinery and loss of Sales	● Set clear and realistic deadlines and rollout methods ● Offer Incentives for training in the new software
Adherence to the system after being established (Is the customer satisfied?)	Low	Our new system might be too much for the establishment. This might result in the business reverting back to the paper based system previously used	● Implement User friendly and reliable software

Hardware and software resource requirements

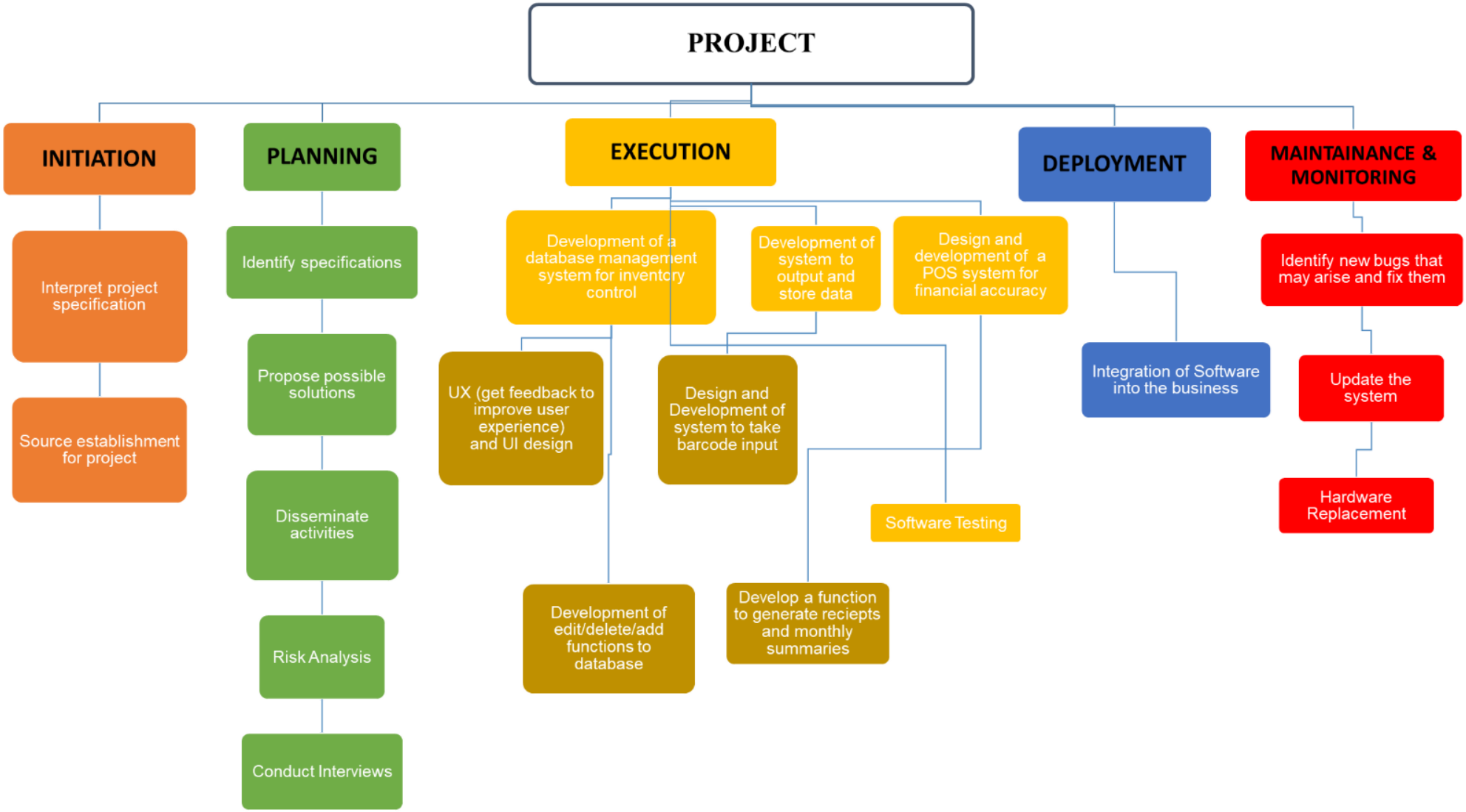
The hardware that we will need to help store, access, process and organize the data is listed below:

- A server (1TB minimum)
- Two computers (minimum 8gbs of ram, a minimum of 1GHz processor, and a minimum 256gb hard drive)
- Barcode scanner
- Barcode label printer
- Receipt printer
- Point of Sale Machine

The software that we will need to help store, access, process and organize the data is listed below:

- DBMS (MySQL or XAMPP)
- Windows 10 or newer/ macOS 10.14 or newer/ Linux Ubuntu
- Pycharm Community Edition

Work breakdown

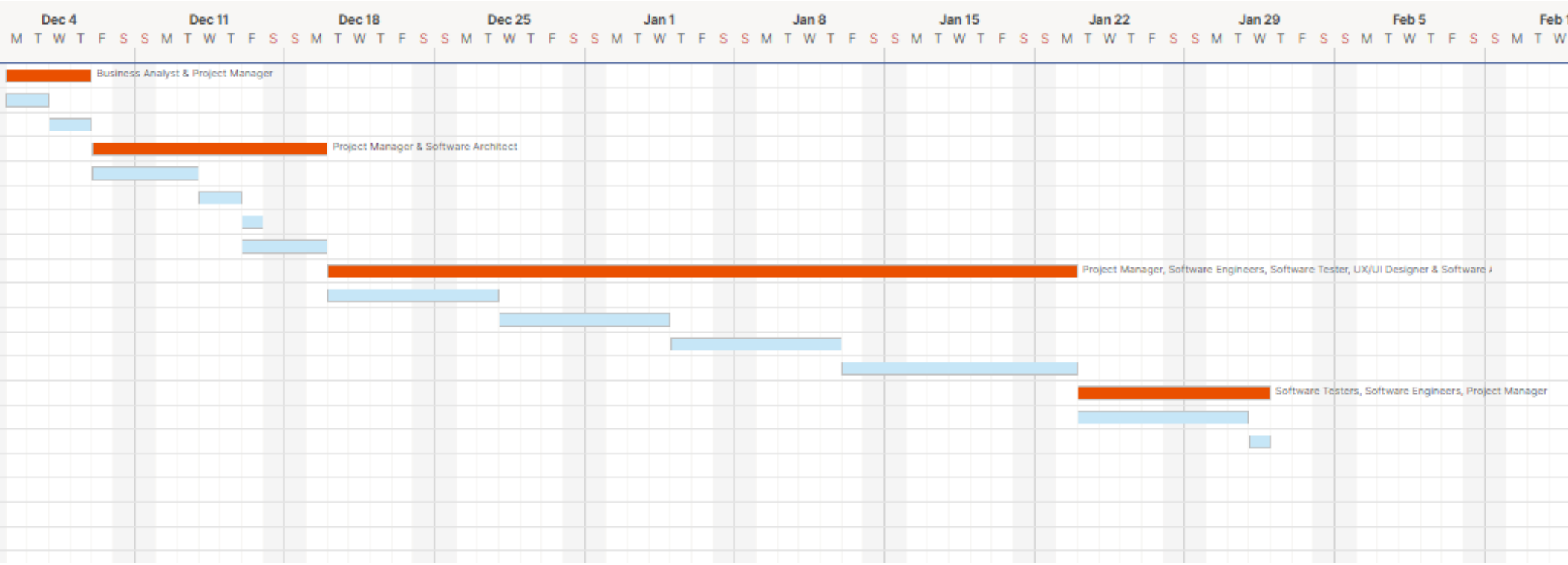


Project schedule

Link to Project Schedule.

Task Name	Duration	Start	Finish	Predecessors	Assigned To
Initiation	4d	12/05/22	12/08/22		Business Analyst & Project Manager
Interpret Project Specificatic	2d	12/05/22	12/06/22		
Source Establishment for Pı	2d	12/07/22	12/08/22		
Planning	7d	12/09/22	12/19/22	Initiation	Project Manager & Software Architect
Identify Specifications	3d	12/09/22	12/13/22		
Propose Possible Solutions	2d	12/14/22	12/15/22		
Distribution of Activities	1d	12/16/22	12/16/22		
Risk Analysis	2d	12/16/22	12/19/22		
Execution	25d	12/20/22	01/23/23	Planning	Project Manager, Software Engineers, Software Tester, UX/UI Designer & Software Architect
Develop a DBMS for inventc	6d	12/20/22	12/27/22		
Develop System to Output a	6d	12/28/22	01/04/23		
Develop a POS system for I	6d	01/05/23	01/12/23		
Software Testing	7d	01/13/23	01/23/23		
Deployment & Maintenanc	7d	01/24/23	02/01/23	Execution	Software Testers, Software Engineers, Project Manager
Integration of Software into	6d	01/24/23	01/31/23		
Bug Identification	1d	02/01/23	02/01/23		
System Updates					

- **Orange block:** Main Phase
- **Light Blue block:** Sub-tasks


Dec 4
Dec 11
Dec 18
Dec 25
Jan 1
Jan 8
Jan 15
Jan 22
Jan 29
Feb 5
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