

TASK 1: IN-DEPTH RESEARCH

A. PROJECT MANAGEMENT

A project is a temporary endeavor that is initiated to meet a goal during a specific time frame

Project management on its own is a process of initiating, planning, monitoring, and closing the work carried out by a team, ensuring that all the project objectives are met within the constraints of scope, time, costs.

A project is led by a project manager who leads a team of skilled people, but caring the project is a group effort, the project manager is only accountable for its success and failure.

To complete and well manage a project, a project manager manages different knowledge areas. These include, integration management, scope management, schedule management, cost management, quality management, resource management, communication management, risk management, procurement management (purchasing goods and services from different vendors).

There are five different processes of process management which are the initiation stage; which is the start of the project where a team first defines the goal of the project then conducts a research to see if the project is worth pursuing. Then we have the planning stage; here the details of the project, including its scope, time, and cost, how the project will be managed and a lot more are aligned. Also, we have the execution stage; here work required is performed to complete the project deliverables. Again, we have the monitoring and controlling stage. Lastly, we have the closing stage at the end of the project.

PROJECT MANAGEMENT TOOLS

As you weigh the features your team needs you can explore individual solutions to see to see which type of the project management tool is the best. Project management tools are platforms designed to help individuals teams organize, plan, track and collaborate projects. Some of these projects tools are;

- 1) **Airtables:** It is the best for teams that want to customize their management process. It offers the resource to create a workflow, but its ideal for those who want to code their own process. It is a highly customized platform that benefits larger enterprises that need to track not only a project but also resources, budget and staffs.

- 2) **Trello:** It is best for simple projects and small teams. Here, you will create a workflow and move projects through it. The stages of the project are on Board, while the projects are listed on Cards. Two boards might say writing in progress and the next might say read for editing. You will move the card through each board until it completes.
- 3) **Asana:** It is best for enterprise teams with complex needs. It offers features and functionalities beyond the basics and meet the need of larger teams that manages dozens and hundreds of projects at a time. Managers setup a workflow assign roles and access of project calendars using share work spaces.
- 4) **Smart sheet:** Best for teams that rely on spreadsheets. Here, if you have projects organized by spread sheets and you are happy with the process but want more features and functionalities than excel or sheet can provide, smart sheet could be a good fit. Each column often represents a step in the workflow and each row is a specific project that the project manager can assign to a team member.
- 5) **Wrike:** It is a cloud based project management tool that simplifies project planning, help track your team work, monitor deadline and collaborate.

Other project management tools are;

- Click up.
- Monday.com.
- ProofHub.
- Project Manager.
- Teamwork.
- Workfront.
- Workzone.
- Hub Staff.
- Celoxis.

Project Management Methodologies.

Project management methodologies are systematic approaches that provide guidelines, processes, and best practices for managing projects effectively.

- 1) **The Waterfall Method.** The waterfall method is considered a more traditional linear approach to managing a project. With this method a project flows through a series of steps or phases and each must be completed before the next can begin

Stages of the waterfall method.

- **Requirement:** In this first phase you will work with stakeholders in order to clearly define the project requirement.
- **Design:** Here you plan what the product will like and what steps your team will take to get there.
- **Implementation:** Here you picture all the planning in action. For software products, this is where programmers will write the code.
- **Verification:** Here, your team tests the product to make sure that it meets the requirements laid out the first stage.
- **Maintenance:** After the project is complete the verification team responds to feedback and makes any necessary modification.

- 2) **The Agile Method:** It allows teams to re-evaluate the work they are doing adjust on any given increment to make sure that as the work and customer landscape changes, the features also changes for the team. It enables constant collaboration and work on iteration.

Stages

- **Project Initiation:** Discussing project version and a ROS justification.
 - **Planning:** Release planning, backlog creation and prioritization based on business values and dependencies.
 - **Development:** Incremental development through iteration often assisted by artificial intelligence and machine learning.
 - **Production:** Deployment and monitoring of the product focusing on continuous delivery practices.
 - **Retirement:** Decommissioning and product often due to newer release or lack of support.
- 3) **Scrum:** A light weight agile framework designed to help self-organizing teams develop more complex project, the framework includes a set of roles and meetings centered on the values of commitment, courage, focus, openness and respect.
- 4) **Lean:** It focuses on maximizing value and reducing waste and improving efficiency. It is another method that came from Toyota and has expanded in popularity well beyond manufacturing.

Five Core Principle

- **Understand Value:** Think about the value from the customer perspective, what are they willing to pay.
- **Identify the value stream:** Use visual techniques to map out the actions required to develop and launch a product. Use this map to identify areas of waste.
- **Create value flow:** You can achieve this by eliminating waste due to things like excess inventory, time spent waiting, or performing more work than it is necessary.
- **Use a pull approach:** Deliver value as the customer requests it. This keeps the focus on delivering what the customer actually wants while eliminating time spent on features that might not be wanted or needed.
- **Continuously improve:** Always seek perfection by assessing the project regularly for ways reduce waste and enhance value.

REASONS WHY IT IS IMPORTANT TO CARRY OUT PROJECT MANAGEMENT

- It is cost effective.
- Helps in risk management.
- Leadership.
- Better productivity.
- Enhanced quality.
- Maximizes risk
- Collaboration and communication.
- Custom satisfaction.
- Efficiency.
- Quality control.

B. VERSION CONTROL SYSTEM.

Version control is defined as a system that tracks the progress of a code across the software development lifecycle and its multiple iteration which maintains a record of every change compile with authorship, timestamp and other details and also aides in managing change.

The first version control was the mainframe based and each programmer used a terminal to connect to the network. The first server based or centralized version control system that utilized a single shared repository were introduced on UNIX systems; later, these systems were made accessible on the MS DOS and windows.

VERSION CONTROL TOOLS

- **GIT:** It is a distributed version control system widely used in software development. It allows developer to track changes, create branches, merge codes, and collaborate effectively.
- **Subversion**
- **Mercurial**
- **Perforce**
- **Github**

BENEFITS OF VERSION CONTROL

- Examine and experiment with code.
- Keeps track of every change made on code.
- Discover the ability to operate offline.
- Creates regular automated backups.
- Communicate through open channels.
- Stay compliant with regulations.
- Boost developer productivity.
- Reduce error and duplication.

3) DOCUMENTS.

In the web documents are similar to HTML files. In HTML, a text document saved with the extension HTML that contains texts and some tags written inbetween "< >" which gives instructions needed to configure web pages.

DIFFERENT TYPES OF DOCUMENTS

- Portable document format like PDF.
- Word document like DOC and DOCX.
- Hypertext Markup Language
- Microsoft excel, spreadsheet file.

MARKUP LANGUAGE

A standard text encoding system consisting of set of symbols inserted in a text document to control its structure, formatting, relationship between parts. The most widely used markup languages are SGML (Standard Generalized Markup Language), HTML (Hypertext Markup Language), and XML (Extensible Markup Language). The markup symbol can be interpreted by a device (computer, printer, browser) to control how a document should look when printed or displayed on a monitor. A markup document thus contains two types of text: text to be displayed and markup language on how to display it.

WHY A WEBSITE IS A DOCUMENT

A website or webpage is a single document on the World Wide Web that can be accessed through a web browser. It is typically written in HTML and can contain text, images, links, and other elements. A website is a collection of interconnected web pages that store a common domain name.

THE DIFFERENCE BETWEEN A COMPUTER LANGUAGE AND A PROGRAMMING LANGUAGE

A computer language is a language used to communicate information to a computer, including both human readable and machine readable formats. Computer languages can include programming language, markup languages, command languages and more.

Programming on the other hand specifically refers to a formal language with a set of rules and syntax used to write computer programs. Programming languages are designed to express algorithm and computations in a way that the computer can understand and execute.

WHY THE NEED FOR CSS AND ITS EXISTENCE

CSS was created to address the limitations and challenges of styling web pages using HTML alone. Some of these challenges are

- Separation of concerns.
- Consistency and efficiency.
- Flexibility and control
- Responsiveness of web pages
- Accessibility.

CSS supports all these features but HTML does not.

SVG (SCALABLE VECTOR GRAPHICS) AND ITS NEEDS

It is an image file format for representing two dimensional vector graphics which are composed of pixels and can lose quality when scaled up, SVG graphics are resolution-independent and can be scaled to any size without losing clarity or introducing pixilation.