I.   PROJECT MANAGEMENT

i.   Definition

A project management is the act of planning, organizing, and organizing a project in order to achieve a predefined goal or outcome. All types of business rely on projects to achieve many of their short term and how things get done.

ii.   Method used in project management

a. Waterfall method

Waterfall is often called the "traditional" project management approach. This method relies on a well-structured plan with clearly defined steps and processes that unfold linearly. You must complete each project phase before moving to the next. It has five project phases:

i.   Initiation

During this phase, you need to ensure that the project aligns with the organization's overall goal and objectives.

ii.   Planning

During this phase, you will developed a well-thought-out plan for resources budget and activities.

iii.   Execution

This phase involves executing the project plan and ensuring the project is completed on time and within budget.

iv.   Monitoring

Throughout the project, monitoring the progress and making necessary adjustments are essential. It helps ensure that the project is on track and that the objectives are met.

v.   Closure

This is where you will wrap up the project and evaluate its overall performance.

b. Agile method

Agile method is a project management approach that prioritizes cross-functional collaboration and continuous improvement. It divides projects into smaller phases and guides teams through cycles of planning, execution and evaluation. It has five phases:

a) Ideation

This phase, you define the purpose and goal of the new software. You determine and documente business and user requirements, priotize tasks and allocation resources.

b) Development

In this phase, teams can start building the first interaction of the software .The development phase includes all related production tasks in the SDLC (Software Development Life Cycle)

c) Testing

The Agile team tests the app to ensure full functionality by:

_Checking that the code is clean

_Addressing bugs and errors

_Performing trial runs

d) Deployment

Once the app is ready for release, the Agile team deplays it to the cloud and the product is live and accessible to customers.

e) Operations

During this phase, ongoing maintenance helps squash bugs and maintains functionality. As users engage with the app, there will be opportunities to collect feedback and make improvements to release in future interaction.

c. Lean method

Lean project management focuses on the delivering a manufacturing project with more value and less waste. It does this by systematically eliminating waste in the value stream of the lean manufacturing process.

a) Identifying value

During this phase, you need first to identify the team's work value .You need to distinguish the value-adding from waste activities. To ensure collective understanding and alignment, it is essential for everyone to actively participate in this collaborative activity.

b) Mapping the value stream

There is all about the stream of value. That's why, after you have identified the value that your team creates, it is important to visualize its path to the customer. It usually done with the help of Kanban boards.

c) Creating a flow

During this phase, your goals is to ensure smooth delivery from the second you receive an order to the moment when you deliver it to the customer.

d) Establishing pull

During this phase, you establish a pull system. The idea is simple, start new work only when there is a demand for it, and your team have spare capacity. Your goal it should be to create the value that is actually needed by your customers and avoid creating anything in surplus.

e) Seeking constant improvement.

This is related to the concept of continuous improvement, which is an integral part of the lean management. Your goal is to constantly improve every process in your team by focusing on enhancing that generate the most value for you customer while removing as many waste activities as possible.

f) Kanban method

It is full system that encourages your team to complete their work before taking on new tasks. It breaks down projects into tasks and estimate how long your team will need to complete all tasks.

iii. The main purpose of project management

It is to plan and manage a project to successfully complete its listed goals and deliverables. It involves identifying and managing risks, carefully managing resources, smart budgeting, and clear communication across multiple teams and stakeholders.

iv. The five phases of project management

a. Initiation

This marks the beginning of the project, with the project manager defining the scope and objectives. During this phase, it's vital to align stakeholders on common goals and lay the foundation for a successful project.

b. Planning

During this phase, the project manager develops a detailed project plan and road map . This involves determining key scheduling details, resource allocation, and risks that could impact the project.

C. Execution

During this phase, team puts the project plan into action. The project manager plays a key role in coordinating resources, including people and materials, while also ensuring the team is well-informed about their individual tasks and timelines.

d. Monitoring and controlling

It involves regularly checking project progress and team performance to ensure everything adhere to the project plan. During this phase, the project manager identifies any deviations from the plan and budget, determining the cause to take corrective action.

e. Closing

It marks the formal end of a project. During this phase, the focus is on getting final approvals and sign-offs, conducting a post-project review, identifying what went well, determining area for improvement, and documenting lesson learned.

v. Project management tools

They are software that brings order to your projects by tracking your tasks and issues, allocating the right amount of work to your teams stay on schedule. It use to manage your project effectively. Some of this tools are: Trello, Asana, Jira, Chart, Wrike, Airtable, Kanban, Team work, Monday, zoho project, Smart sheet, Proof Hub, Paymo, click-up, Microsoft project…etc

i..Trello

It is a collaboration toll that organizes your projects into boards. Trello tells you what's being worked on, who's working on what, and where something is in a process.

ii. Asana

It is project management applications that allow you to create and assign duties, share links and images, and tracks deadlines.

iii. Jira

it is an agile project management software that development teams can use to organize, track, and deploy other software. Users can report bugs and other issues to inform the team of important changes needed, track result of implemented solutions, and deploy up-to-date software.

iv. Chart

A gantt chart is a project management tool that illustrates work completed over a period of time in relation to time planned for the work. A Gantt chart can include the start and the end dates of tasks, milestones, dependencies between tasks, assignees, and more. It typically includes two sections: the left side outlines list of tasks, while the right side has a timeline with schedule bars that visualize work.

V. Wrike

Wrike is a cloud based collaboration and project management tool that help user manage project from start to finish, providing full visibility and control over tasks. The end to end solution takes project from initial request to tracking work progress and reporting result

vi. Reasons why project management tools are important for your business.
- Increase productivity

It helps increase productivity by providing the necessary structure and organization for managing project.

- Optimize the use of resources

It helps you manage resources more efficiently. You can track and control the use of labour, equipment and materials required in the project, so you can avoid resource shortage that can impact the project's progress.

- Improve communication and collaboration

It help in the sense that you can share information, discuss and coordinate in real-time, reducing communication errors and ensuring all team members work in the same direction.

- Better risk management

It helps in identifying, managing and mitigating risks in projects.

- Improve Transparency and Accountability

It helps all project-related information is transparently available. This includes tasks progress, schedules and other records. This transparency allow teams and stakeholders to strack progress in real-time and understand individual contributions to the project goals.

- Facilitate reporting

It helps to easily collect data, create graphs and present project information.

II. VERSION CONTROL SYSTEM
a. Definition

A version control, also known as source control, is the practice of tracking and managing changes to software code. Version control systems are software tools that help software teams manage changes to source code over time.

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

c. The basics types of version control sytem

i. Local version control system

It is a local database located on your local computer, in which every file change is stored as a patch. Every patch set contains only the changes made to the file since the last version. The main problem is that everything is store locally.

ii.   Centralized version control system

It has a single server that contains all the file versions. This enables multiple clients to simultaneously access files on the server, pull them to their local computer or pull them onto the server from their local computer. Example: Microsoft team foundation server (TFS).

iii.   Distributed version control system

With distributed version control system, clients don't just check out the lastest snapshot of the files from the server, they fully mirror the repository, including its full history. Thus, every one collaboring on a project owns a local copy of the whole project.

d. Some example of version control system

i.   Git

It is the most popular, free, and open source distributed version control system out there. Not only does Git offer the strongest feature set developers, but it also has the most reliable workflow and is supported by the most third-party platforms on the market. One of the great things about Git is that it can be used on nearly any platform and with numerous repository systems. You can work from a local repository, one within your LAN, or any number of third-party repositories. Git also includes features like:

- Support for non-linear development
- Compatible within protocols like HTTPS and FTS
- Can work small and large project
- Support branching
- Issue tracking

ii.   Apache subversion (aka svn)

Apache subversion is another on-premise version control system that gives you end-to-end visibility of all changes made within a project .SVN offers plenty of features that would satisfy most developers, such as:

- Conflict resolution
- Revision regression tracking within projects
- Easy rollbacks
- Easily manage different versions of tracked files
- Well documented

iii.   Mercurial

It is another open-source version control system that is free, cross-platform, decentralized and easy to learn. Mercurial is written in python and requires all add-ones to be written in the same language. Some feature found in Mercurial includes:

- Scalable and performant
- Advanced branching and merging

- Fully distributed environment
- Lightweight and portable
- Simple to learn
- GUI(Graphic User Interface) support

iv. Perforce helix core

It is the only version control system in this list that is not free. But if your company develops large-scale (massive think)projects, this might be the versions control system best suited for use. That's not to say tools like Git aren't capable of handling large-scale-projects. After all, Git is the tool used for the Linux kernel project. Some of their features:

- Centralized database and repository for file versions
- Support for all file types and sized
- Single source of truth
- Flexible branching support
- DevOps compatible

v. GitHub

Software development teams may collaborate and keep track of all code changes using GitHub. You can keep track of code modification, go back in the time to correct mistakes, and collaborate with other team members. The most reliable, secure and scalable developer platform in the world is GitHub .

vi. Benefits of version control

- ➢ Streamline merging and branching
- ➢ Examine and experiment with code
- ➢ Discover the ability to operate offline
- ➢ Create regular, automated backups
- ➢ Communicate through open channels

III. DOCUMENT
a. Definition

In HTML, a document is a text document saved with the extension.html that contains texts and some tags written between"< >" which give the instructions needed to configure the web page. In web a document is a simple html file.

b. Why is a web site a document?

A website is consider as a document because, a website is collection of interconnected webpage (is a single document on the world wide web they can be accessed through a web browser) that share the same domain name.

IV. What is a Markup language?

a. Definition

Markup means the way you can structure or format content. A markup language is a set of rules that defines how the layout and presentation of text and images should appear in a digital document. It allows structuring documents, adding formatting, and specifying how different elements should be displayed on the webpages.

  b. Why is HTML a Markup language?

HTML stands for Hyper TEXT Markup Language. HTML is a markup language because they used HTML tags that are used to create web pages and web applications. It is the most common technology used on the internet and also the most widely used markup language. HTML tags are webpage elements that are created by adding attributes to specific tags. These tags include headings, paragraphs, lists, images, links, etc.

  c. Difference between a markup language or computer language and a programming language

The markup language is used to present information whereas programming language is used to give instructions to a computer to perform particular tasks. The computer still has to follow instructions of markup language to display information to the screen.

  V. CSS

  a. What is CSS?

CSS stands for Cascading Styles Sheets. It is a style sheet language used for specifying the presentation and styling of a document written in a markup language such as HTML.

  b. What are CSS used for?

CSS is used to style and layout web pages.

  c. What are the tree types of CSS?
- ❖ In a separate file or external
- ❖ At the top of the web pages document or internal
- ❖ Right next to the next it decorates or inline

  d. What is the benefits of using CSS?

CSS offers several advantages, including improved website aesthetics, easy updates across multiple pages, faster loading times, and the ability to create responsive designs that to various devices.

  e. Which software is used for CSS?

The most used CSS software are: Visual Studio Code; Note Tab, Text Pad, and Espresso.

  VI. SVG
  a. Definition

SVG stands for Scalable Vector Graphics. It is web- friendly vector file format.it defines graphics in XML format. Each element and attribute in SVG files a=can be animated. SVG is a W3C recommendation. It integrates with other standards, such as CSS,DOC, XSL and JavaScript.

b. What is the function if SVG?

SVG function is the entry point for building an SVG from the ground up . We can provide predefined height and width attributes that define the canvas size for the SVG.

c. The structure of a SVG?

Each SVG document is based on XML main structural elements: a tree- like structure, tags, elements, and attributes.

d. How to create SVG?
- Create a design to convert to a scalable   vector graphic file.
- Trace your design
- Convert your design into a vector image
- Fine-tune your design
- Export your file as an SVG
- Copy and paste the XML code to use your design online.

VII.   What is a PDF format?

PDF stands for "Portable Document Format". It is a file format that has captured all the elements of a printed document as an electronic image that users can view, navigate, print or forward to someone else.

VIII.   What is Graphic format?

Graphics are visual elements often used to point readers and viewers to particular information. They are also used to supplement text in an effort to aid readers in their understanding of a particular concept or make the concept more clear or interesting. We have two popular graphics format: GIF and PNG.

IX.   What is a file format?

A file format is a standard way that information is encoded for storage in a computer file .It specifies how bits are used to encode information in a digital storage medium. We have four types of format which are: image, document, video, and audio.