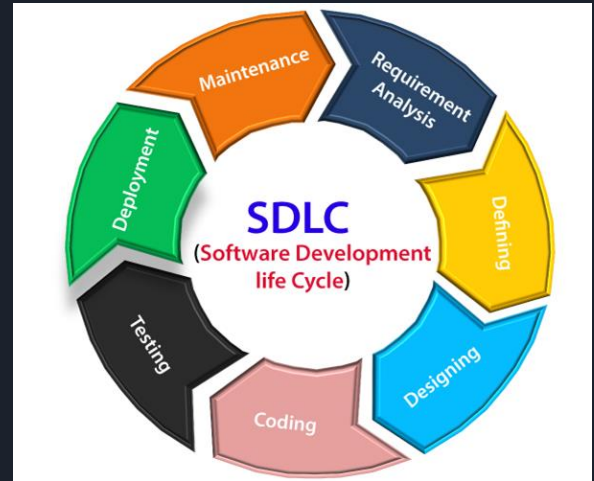CS5002NP

Software Engineering

Agendas

- **Software Project Management**

- Roles of a **Software Project Manager**

- Different **stages** of Software Project Management

Software Development Life Cycle

- **Step-by-step procedure** or a systematic approach to **design**, **develop**, and **test** high quality softwares

Software Project

- A project is well-defined task, which is a collection of several operations done in order to achieve a goal (for example, software development and delivery)
- A Software Project is the complete procedure of software development from requirement gathering to testing and maintenance, carried out according to the execution methodologies, in a specified period of time to achieve intended software product

Software Project

- Goes through all of the stages of SDLC

- Development stages are carried out according to a methodology

- Time and cost bound.

Project

- **According to PMBOK Guide**(Project Management Body of Knowledge) by **Project Management Institute(PMI)**
  - Project is a temporary endeavor undertaken to create a unique product, service or result.
- A project is temporary in that it has a defined beginning and end in time, and therefore defined scope and resources. A project is unique in that it is not a routine operation, but a specific set of operations designed to accomplish a singular goal.

Project Management

- The use of specific knowledge, skills, tools and techniques to manage the project and deliver something of value to the people.

Software Project Management

- Practice to complete a project in agreement with the specific requirements, while applying knowledge, skill, tools and techniques

- Solving a problem by first identifying it, creating a plan to solve it and finally executing that plan

Software Project - Components

- **A project goal** - what the project is trying to achieve

- **A project timeline** - when the project should start and end

- **A project budget** - how much will it cost to achieve the desired goal

- **Stakeholder** - interested parties in the project

- **Project manager** - responsible for getting the work done to complete the project

Software Project Management - Constraints

- Primary constraints
  - **Time constraints** - project's schedule for completion
  - **Scope constraints** - project's goals, deliverables, features and functions
  - **Cost constraints** - project's budget

- Known as **Triple Constraints**, **Project Management Triangle**, **Iron Triangle** or **Project Triangle**

These three factors are correlated and are equally important

Software Project Management - Constraints

- Imagine you wanted to add more features to a project

- Adding more features can stretch a project's time and budget constraints

- You'll either need to extend the deadline

- You'll assign more people to work, increasing the costs

Software Project Management - Constraints

- Imagine you lag behind on the time you alloted for the project

- You'll either need to decrease the scope of the project

- You'll assign more people to work, increasing the costs

Triple Constraints triangle

Project Manager

- Person in charge of managing all these constraints

- Main personnel responsible for the success or failure of any project

- Project managers plan, execute, monitor, and control the project, and are responsible for its completion

Project Manager

- **Responsibilities**
  - Building a plan
  - Assembling a team
  - Assigning tasks
  - Leading the team
  - Managing budget
  - Managing timelines
  - Engaging stakeholders
  - Handing over the project
  - Documenting the process

Software Project Management - Steps

- Divided into manageable portions - having its own set of goals and deliverables

- Little easier to control

- Monitoring the quality of the output

Software Project Management - Steps

The 5 basic phases in the project management process are:

- Project Initiation
- Project Planning
- Project Execution
- Project Monitoring and Controlling
- Project Closing

Project Initiation

- An **abstract idea** turns into a **meaningful documented goal**

- **Business cases** are developed

- Projects are defined on **a broad level**

- A **project charter** needs to be created and **project requirements** have to be determined

Project Initiation

- **Project Charter** - document consisting of project details
  - Project goals
  - Budget
  - Constraints
  - Timeline
  - Appointed project manager
  - Key stakeholders

A clear **project goal** is established during this phase, however a project charter does not include **any technical details** that was discussed during the initiation phase.

Project Planning

- The roadmap of the entire project is set up

Project Planning

- Primary Tasks:
  - Set up **goals** and **deliverables**
  - Develop a detailed **project schedule**
  - Identify **technical requirements**
  - Create a **communication plan**

Project Planning

- Popular ways to set up goals and deliverables:

  - S.M.A.R.T

  - C.L.E.A.R

Project Planning

- S.M.A.R.T Goal Strategy
  - Most **popular** goal setting-strategies
  - **Critically analyses** the goals set for the project
  - Reduces **risks**
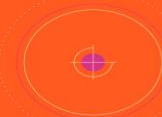 - Allows managers to **define** and **achieve** goals clearly

Project Planning
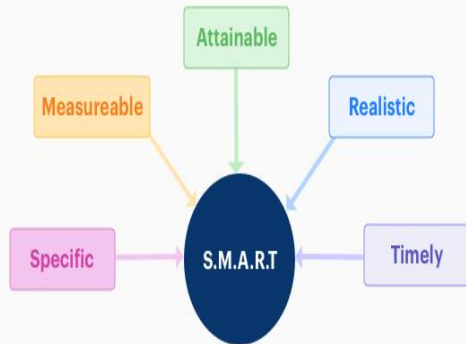
Project Planning

Smart Goal Example: Webinar Sign-Up Goal

☑ **Specific**: I want to incresae the number of sign-ups for our webinar by promoting it through social, email, and our blog.

☑ **Measurable**: Our goal is a 15% increase in sign-ups.

☑ **Attainable**: Our last webinar saw a 10% increase in sign-ups when we only promoted it through email.

☑ **Relevant**: When our webinars generate more leads, sales has more opportunities to close.

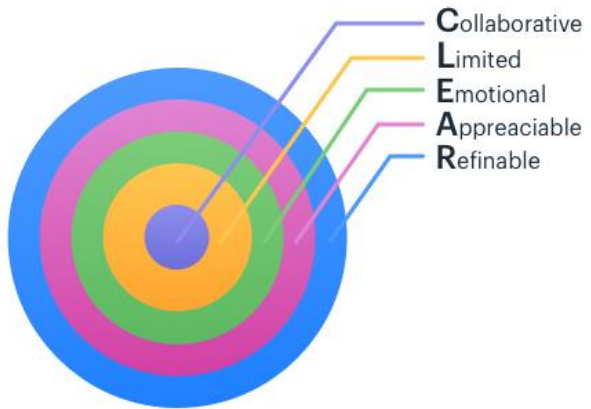☑ **Time-bound**: By April 10, day of webinar.

Project Planning

- C.L.E.A.R Goal Strategy
    - Implemented to set up goals in the dynamic nature of a modern workplace
    - Provides flexibility and immediate results

Project Planning

Collaborative
Limited
Emotional
Appreaciable
Refinable

Project Planning

C.L.E.A.R.

Best for: Working in teams

Collaborative: Ensure everyone is involved.

Limited: Set limits in time, money and scope.

Emotional: Tap into everyone's passion.

Appreciable: Break large goals into measurable steps.

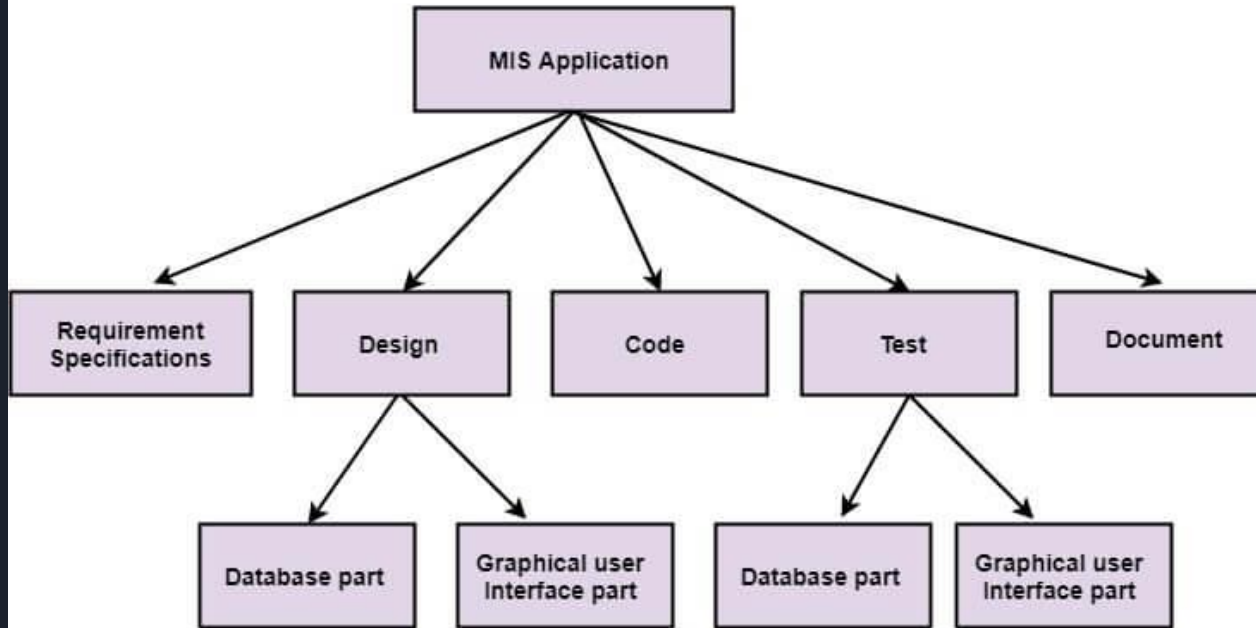**Refinable:** Give yourself permission to refine the goal.

CLEAR goal: The marketing team will use their individual skills to launch a new campaign by next year, with monthly reports on their progress.

Project Planning

- A work breakdown structure is developed

- Helps in visualizing the project into different sections

Work breakdown Structure of an MIS problem

Project Planning

- Other activities include
  - Creating project timeline
  - Risk management
  - Resource management
  - Project communication management

Project Execution(Implement)

- Team does **actual work**

- Project manager ensure the **efficiency of the workflow** and **monitor the progress** of the team members

- Maintaining **constant collaboration** with the project stakeholders

- Ensures that the stakeholders and the team have **the same idea** and the project can run without **any interruptions**

Project Monitoring and Controlling

- Do not run **sequentially** but **simultaneously** with project execution phase

- Team does not deviate - establishing **critical success factors** and **key performance indicators**

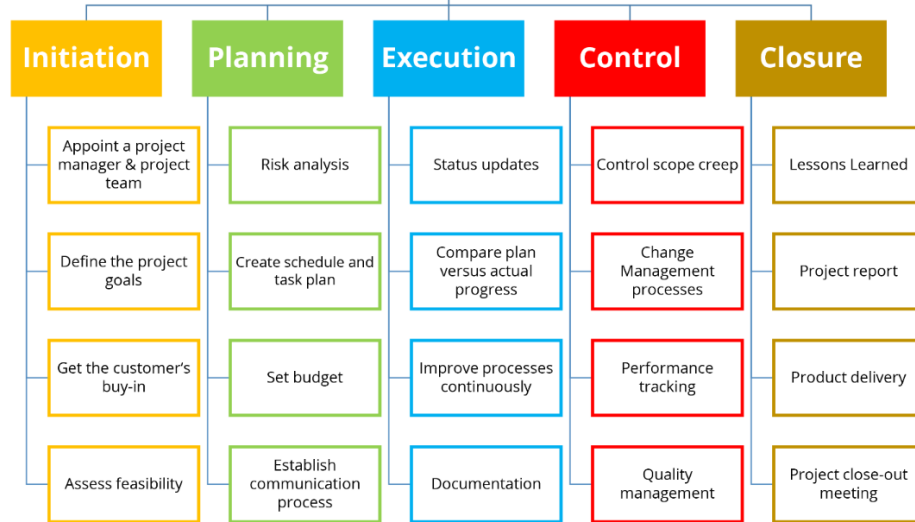- Track **cost** and **effort** in quantitative manner

Monitoring and **controlling** the project ensures that the project remains within the **previous stated scope** and **budget**

Project Closure

- Indicates that the project has finally **been completed**

- **Terminating people** hired on **contract** and completing **necessary paperworks**

- **Reflection meeting** held after every project completion

- Ensure **continuous improvements** and **enhance productivity**

- Create a **detailed report** on every aspect of the project

THANK YOU!