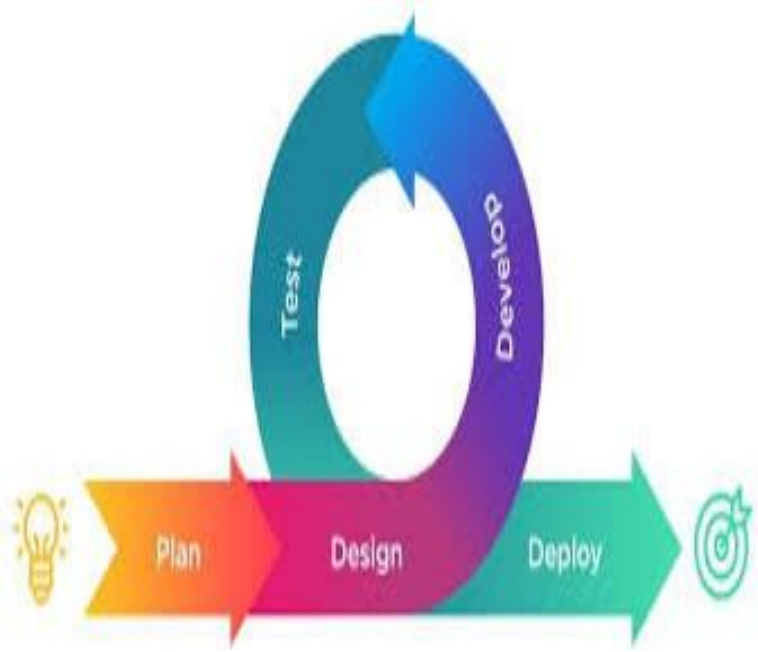

SOFTWARE
DEVELOPMENT

AGILE APPROACH

What is Agile?

Agile is the ability to create and respond to change. Agile is an iterative approach to project management and software development, that helps to improved quality and speed to market, and boosted the motivation and productivity of IT teams.

Related
Video:https://www.youtube.com/watch?v=Z9QbYZh1YXY



FEATURES IN AGILE APPROACH

1. **Communication and Collaborations**-frequent and close cooperation between software team and end users.
2. **Customer Satisfaction**-meet user requirements even at end of projects
3. **User Feedback**: With agile, teams can provide the best user experience for end-users by delivering project early for feedback from users.
4. **Scrum meetings help in eliminating issues**: By following the agile methodology, teams will have daily meetings and constant discussions on the project.
5. **Reduces the overall Project cost**: In agile methodology, software testing tools and resources are centralized and this helps in improving resource utilization and also reduces the overall cost in maintaining and setting up the agile project.

Agile Methodologies

Scrum: describes a set of meetings, tools, and roles that work in concert to help teams structure and manage their work

Kadan: is a visual system for managing work as it moves through a process.

Lean: aims to increase process efficiency and product quality by minimizing cost and waste.

Feature-Driven Development (FDD):allows teams to update the project regularly and identify errors quickly.

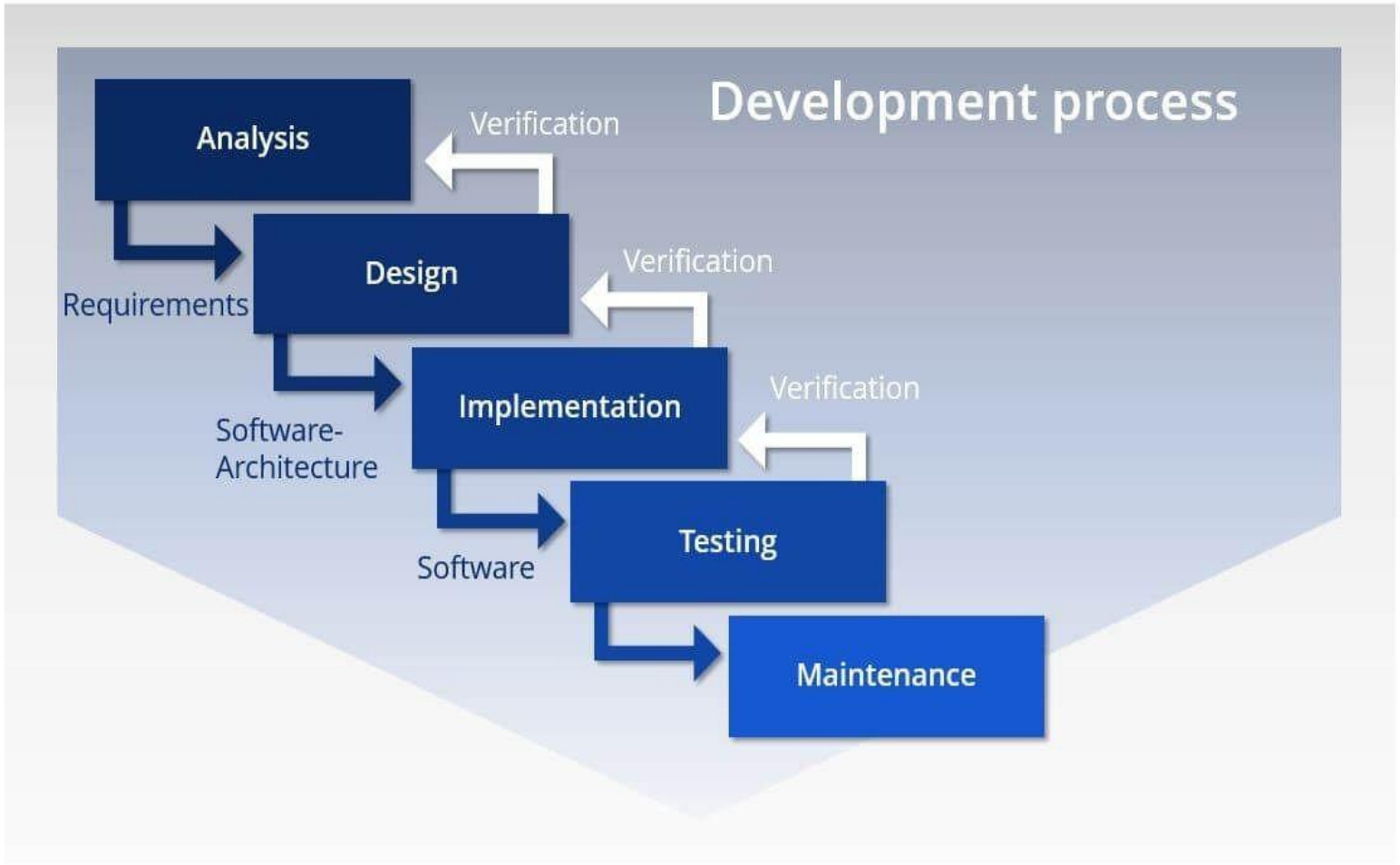
Scaled Agile Framework (SAFe):designed to help businesses continuously and more efficiently deliver value on a regular and predictable schedule.

Waterfall Approach to Software Development

Waterfall Methodology is referred to as a linear-sequential life cycle model. It is more formal and less flexible than Agile Approach.

It is very simple to understand and use. In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases.

Waterfall Approach to Software Development



Waterfall Approach to Software Development

Advantages

Simple and easy to understand and use

Clearly defined stages.

Well understood milestones.

Easy to arrange tasks.

Disadvantages

High amounts of risk and uncertainty.

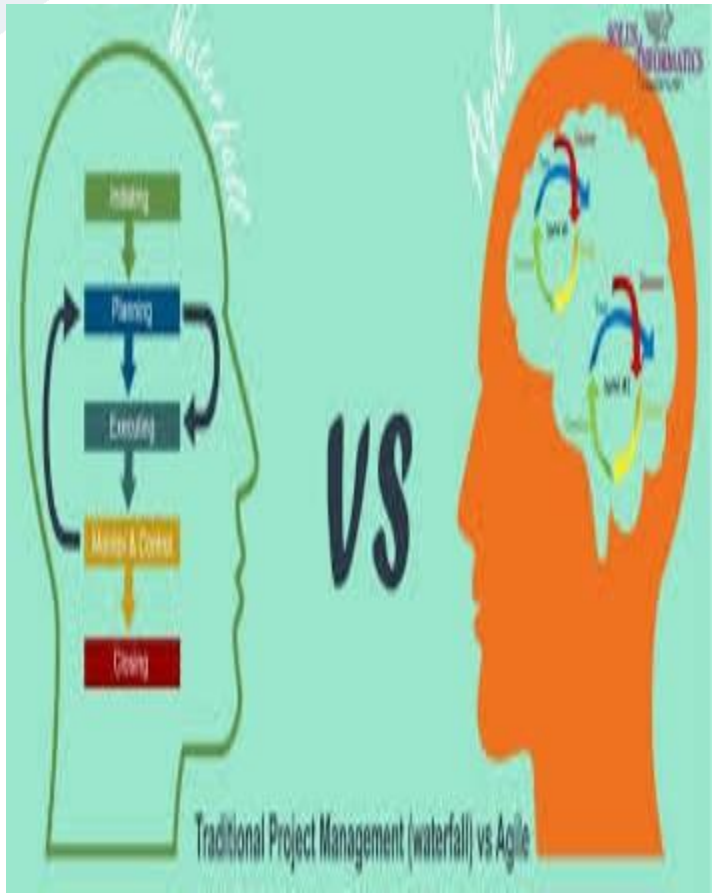
Poor model for long and ongoing projects.

It is difficult to measure progress within stages.

Cannot accommodate changing requirements.

Waterfall Approach VS Agile Approach

- **Agile** is an incremental and iterative approach; **Waterfall** is a linear and sequential approach.
- **Agile** separates a project into sprints; **Waterfall** divides a project into phases.
- **Agile** helps complete many small projects; **Waterfall** helps complete one single project.
- Requirements are prepared everyday in **Agile**, while requirements are prepared once at the start in **Waterfall**.
- **Agile** allows requirement changes at any time; **Waterfall** avoids scope changes once the project starts.



Task

The COVID-19 pandemic has affected educational systems worldwide, leading to the closures of schools, universities and colleges. Your School is participating in a project to develop software and a website to allow teachers to support students during the lock-down.

Design a questionnaire to be used when collecting information from students.

Top-Down Design

Each system is divided into several subsystems and components. Each of the subsystem is further divided into set of subsystems and components. This process of division facilitates in forming a system hierarchy structure.

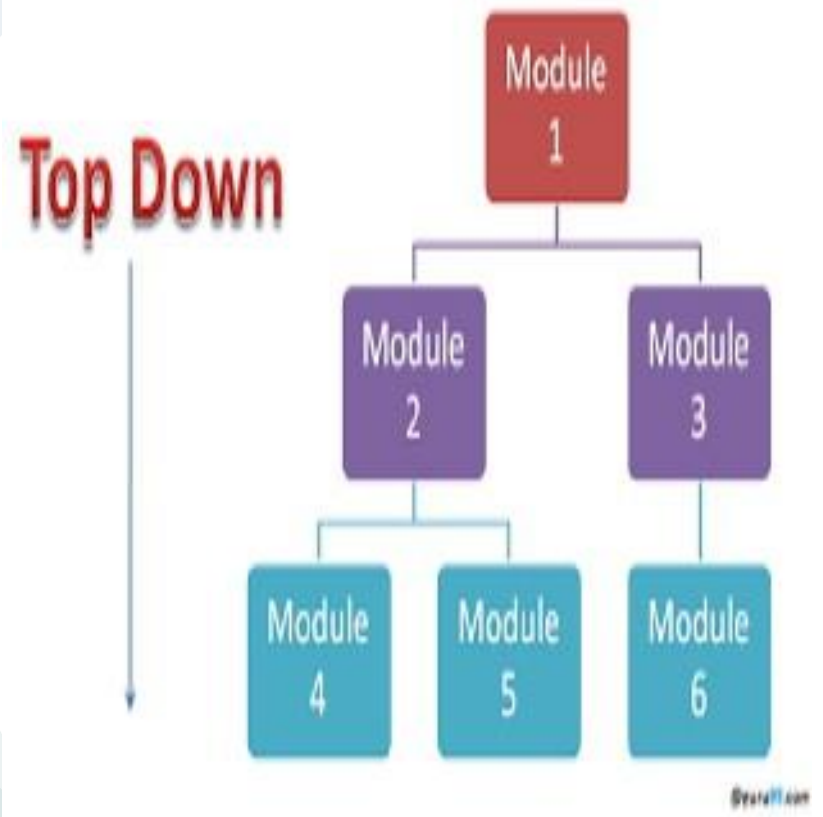
Advantages:

•It is strongly focus on requirements that helps to make a design responsive according to its requirements.

Disadvantages:

•Project and system boundaries tends to be application specification oriented. Thus it is more likely that advantages of component reuse will be missed.

•The system is likely to miss, the benefits of a well-structured, simple architecture.

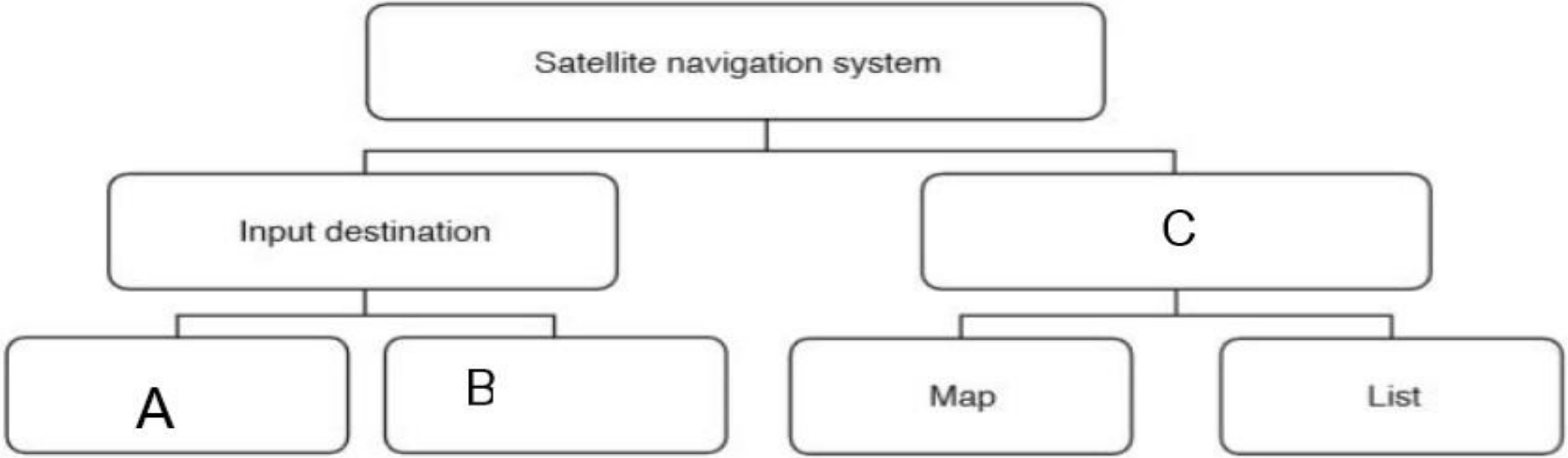


Task

A satellite navigation system works using destination details entered by the user, either a new destination or chosen from previously saved destinations. The satellite navigation system will then output directions to the destination in the form of either a visual map or a list of directions.

A satellite navigation system is an example of a computer system that is made up of sub-systems. This structure diagram shows some of its sub-systems.

Complete the diagram by filling in the empty boxes.



Modular Design

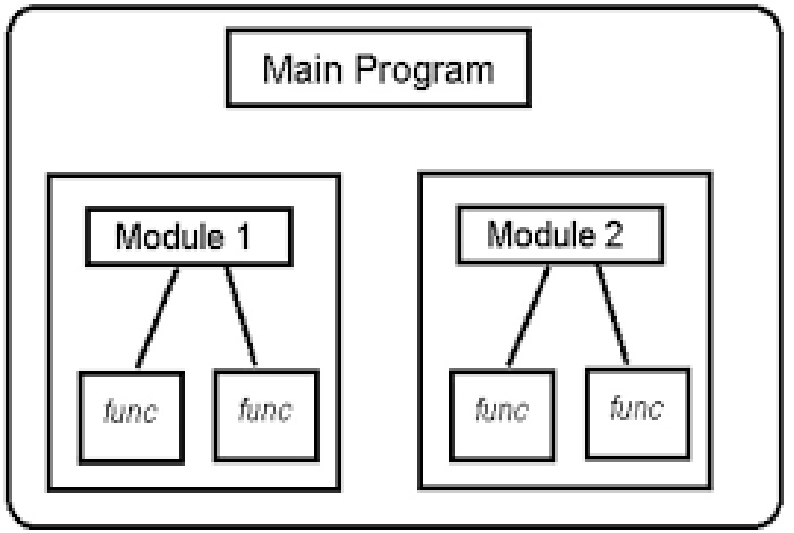
Refer as an approach used to design various products or applications – by breaking it down into separate or independent parts. These individual parts (for example, a laptop battery) can then be used for the same functionality in different systems or products.

Advantages:

- Easy to customize products
- Faster to market
- Cost efficiency

Disadvantages

- Design that is not fully as users specific.
- Difficulty transporting and handling modules.



Thank you