Day 1 Assignment

Part 1

1. Software engineering is the systematic application of engineering principles to design,develop,deploy and maintain software products.It helps in developing software applications and systems.

2.Milestones:

- Development of programming languages such as C.
- Establishment of software engineering as a discipline.
- Rise of agile methodologies.

3.Cycles:

- Requirements- to gather the users needs and what the system needs to have.
- Design-create the structure of the system architecture and user interface defining the problem.
- Development - Come up with solution for the problem .
- Testing out - to check if the software meets the quality checks.
- Deployment - Releasing the software to the market.
- Maintenance -Providing ongoing support,improvements and updates after deployment.

4.Comparison:Both are used to develop working software products.

Contrast:Waterfall is rigid as it follows distinct phases making it hard to adapt to change. whereas agile is flexible and able to respond to change easily.

Waterfall would most be suitable for projects with minimal customer involvement after initial requirements are gathered and in projects that have well defined deliverables and milestones. Agile is most suitable in projects that involve a high degree of innovation and experimentation and the final product is not clearly defined at the onset.Also in projects that benefit from regular customer feedback and collaboration.

5.Roles:

- Software developer-writes code and implements the software solutions.
- Project manager -oversees planning ,execution ad delivery of software projects.
- Quality assurance engineer-Designs and executes test plans to check the quality of the product.

6.Integrated Development environments- They help in debugging, code editing example Visual studio Code.

Version control systems-These helps manage changes in source codes and facilitate collaboration as well as branching,backup and storage.Example GIT.

7.Challenges-Technical Debt,Tight timelines, Changing requirements.

Solutions- Prioritizing tasks,regular reassessment of goals and timelines, adopting agile methodologies and effective communication.

8.Types of testing-

- Unit testing-It involves testing individual components of a software.
- Integration Testing-Tests the interaction between subsystems in the software.
- System testing-This is done on the system as a whole.
- Acceptance testing- testing against user requirements to see if it meets their needs.

They are important as they help fix defects leading to higher quality products.

Part 2

1. Prompt engineering is a technique that involves crafting specific inputs to guide AI in generating desired outputs .It is important as it helps the users get the best desired output.
2. Vague prompt : What is kenyan music like.
   Better prompt: What genres does Kenyan music have.
   In the latter the AI will have a more clear and precise input and will be able to provide a well detailed outpt.

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