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Module 1:
Introduction
Structure of the companies

Why Testing is Needed

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Testing is necessary because we all make mistakes

Testing is necessary during development and maintenance to identify defects, in order to reduce failures in the operational environment and increase the quality of the operational system

Testing helps us to measure the quality of software in terms of the number of defects found, the tests run, and the system covered by the tests

Quality

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Quality - the degree to which a component, system or process meets specified requirements and/or user/customer needs

- Capability
- Reliability
- Usability
- Security
- Scalability
- Performance
- Installability
- Compatibility
- Supportability

Understanding of Software Testing

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The process of product evaluation in order to provide information about its quality to interested parties

The process of ensuring a development process that minimizes the likelihood of errors

The process of finding bugs in the early stages of development

What is Software Testing

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Software testing is a way to assess the quality of the software and to reduce the risk of software failure in operation

Some testing does involve the execution of the component or system being tested; such testing is called dynamic testing. Other testing does not involve the execution of the component or system being tested; such testing is called static testing

Objectives of Testing

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- To evaluate work products such as requirements, user stories, design, and code to verify whether all specified requirements have been fulfilled
- To validate whether the test object is complete and works as the users and other stakeholders expect
- To build confidence in the level of quality of the test object
- To prevent defects
- To find failures and defects
- To provide sufficient information to stakeholders to allow them to make informed decisions, especially regarding the level of quality of the test object
- To reduce the level of risk of inadequate software quality (e.g., previously undetected failures occurring in operation)
- To comply with contractual, legal, or regulatory requirements or standards, and/or to verify the test object's compliance with such requirements or standards

Testing Process

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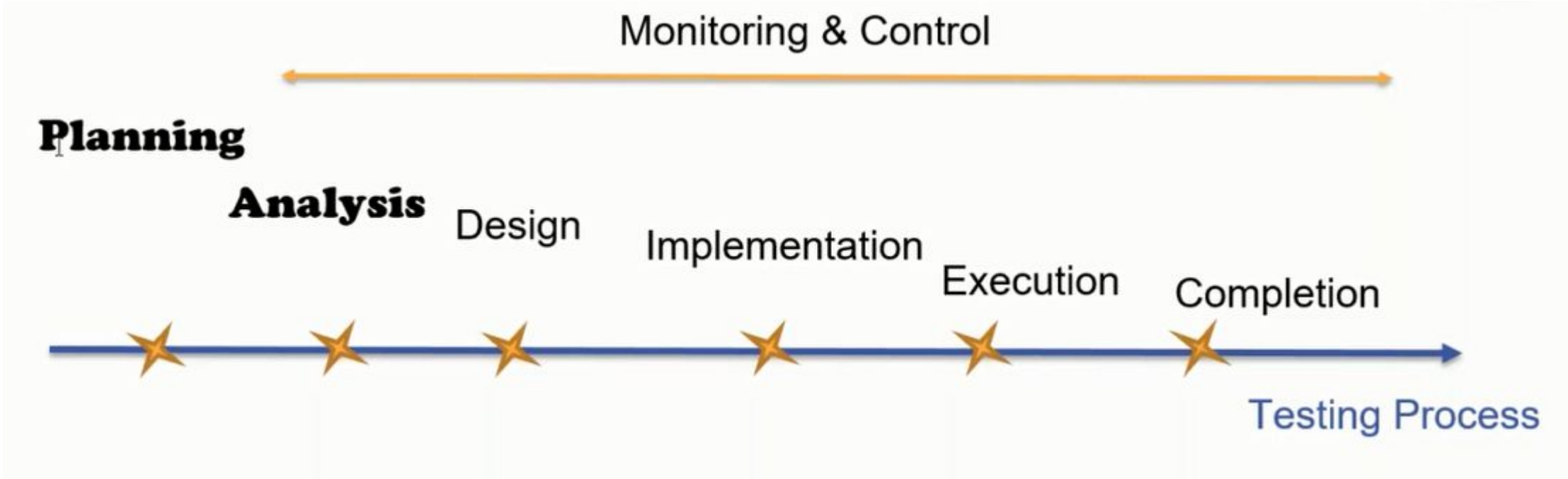

Seven Testing Principles

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1. Testing shows the presence of defects, not their absence
2. Exhaustive testing is impossible
3. Early testing saves time and money
4. Defects cluster together
5. Beware of the pesticide paradox
6. Testing is context dependent
7. Absence-of-errors is a fallacy

Software Delivery Manager

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- Review customer orders and plan and coordinate delivery activities
- Build positive and productive working relationships with customers for business growth
- Analyze and troubleshoot delivery issues in a timely fashion
- Manage a delivery team to ensure timely and accurate customer deliveries
- Oversee daily activities of delivery team and provide direction and guidance as needed
- Perform resource allocations and workload assignments according to delivery requirements
- Ensure that team maintains high level of competence and operational excellence
- Evaluate the performance of team members and determine training needs
- Serve as primary contact for customer inquiries and concerns
- Analyze customer orders, set delivery priorities and make schedule adjustments to meet timely delivery goals
- Perform customer negotiations for delivery rates
- Develop process improvements to achieve cost effectiveness and time saving
- Make critical business decisions to meet customer expectations
- Develop scope and budget for delivery projects
- Report delivery status to customers and develop required delivery documentations

Product Owner

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Product owner is the leader responsible for maximizing the value of the products created by a scrum development team

7 Key Responsibilities

1. Defining the vision
2. Managing the product backlog
3. Prioritizing needs
4. Overseeing development stages
5. Anticipating client needs
6. Acting as primary liaison
7. Evaluating product progress at each iteration

Business Analyst

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Business analyst is responsible for bridging the gap between IT and the business using data analytics to assess processes, determine requirements and deliver data-driven recommendations and reports to executives and stakeholders

1. Defining the scope of the project
2. Elicitation
3. Gathering project requirements
4. Requirement specification
5. **Translating requirements to the team**
6. Performing acceptance testing

Software Architect

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Software Architects design and develop software systems and applications

- Identifying business requirements and requirements of the stakeholders on the project
- Designing the entire system based on the received requirements
- Choosing the system architecture and each individual component of this system at a high level
- Choosing the technologies for the implementation of each component and connections between the components
- Architectural review
- Code-review
- Writing project documentation and its support
- Creating unified development standards in the company
- Controlling the architecture during the next iteration of the system release

Software Developer

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Software engineers design, develop, and test software and applications

- Develop and implement new software programs
- Maintain and improve the performance of existing software
- Clearly and regularly communicate with management and technical support colleagues
- Design and update software database
- Test and maintain software products to ensure strong functionality and optimization
- Recommend improvements to existing software programs as necessary