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1. **Requirement Elicitation Techniques**

It’s a fundamental process in business analysis where stakeholder’s needs and project requirements are gathered. By understanding business needs, applying an accurate technique helps to gather comprehensive requirements. Some widely used techniques are interviews,workshops,surveys,observation,prototyping,focus group,brainstorming.

1. **Change Management**

It’s a crucial factor in the role of business analyst as it's critical for the success of any project or initiative. As a business analyst,adopting a systematic approach to manage a change request and ensure alignment between business needs and keep everyone focus on what truly matter

1. **SWOT Analysis**

It’s a powerful tool for understanding internal & external factors impacting a business or project. It helps business analyst for strategic planning, risk management and decision-making by providing a clear picture of an organization’s current state and future potential

1. **Gap Analysis**

It is a method used to identify the difference between the current state and desired future state of a process,system or performance. It helps in understanding existing shortcomings and prioritizing actions to bridge the gaps. This technique is used in strategic planning, process improvement and goal settings

1. **Prioritization**

In agile methodology,prioritization involves determining the most valuable and important feature or task to focus on in a sprint. Using techniques like the MoSCoW (Must have,Should have, Could have,won’t have),the team prioritises the product backlog based on customer values, business goals and feasibility. This allows teams to adapt quickly, deliver incremental value and ensure that high priority items are addressed first to meet evolving needs and feedback.

1. **Stakeholder Analysis**

It is the process of identifying & assessing the influence, interest and impact of stakeholders involved in a project. It helps to determine who needs to be engaged, informed or consulted throughout the project lifecycle. By understanding stakeholder’s expectations and concerts, teams can effectively manage relationships, ensure better communications and align project goals with stakeholders needs, ensuring successful delivery of value

1. **User Stories**

User stories in agile methodology are short, simple descriptions of a feature or functionality from the perspective of an end user. They typically follow the format: *As a (user), I want (goal), so that (benefit).* User stories focus on the user’s needs and help prioritise work based on delivering value to the customer. They are broken down into manageable tasks, allowing teams to incrementally build and deliver features that meet user requirments.

1. **UML (Unified Modeling Language)**

It is a standardized visual language used to describe,specify,design and document the structure and behavior of software systems. It provides a set of diagram types, including class diagrams, use case diagrams, sequence diagrams and activity diagrams to represent different aspects of a system. UML is widely used in software engineering for object oriented design, helping teams communicate complex ideas clearly and consistently throughout the development lifecycle.

1. **Risk Analysis**

It is the process of identifying, assessing , and prioritizing potential risks that could impact the success of a project or initiative. In agile, it involves analyzing both known and unknown risks, evaluating their likelihood and potential impact, and developing mitigation strategies. By regularly conducting risk analysis, teams can proactively address issues, reduce uncertainty, and adapt to changes, ensuring that the project stays on track and delivers values to stakeholders

1. **RASCI Matrix**

A RACI matrix is a tool used to clarify roles and responsibilities in a project or process. It defines who is responsible, accountable, consulted,supported and informed for each task or deliverable. The matrix helps ensure that all team members understand their roles, avoids confusion or overlap and ensures that the right stakeholders are involved at each stage.

1. **Wireframing and Prototyping**

Wireframing is the creation of basic, low-fidelity designs to outline the structure and functionality of a product, focusing on layout without detailed visuals. Prototyping creating interactive , high-fidelity models that simulate user interactions.

1. **Requirements Traceability Matrix (RTM)**

It is a document that maps and traces user requirements with various stages of project development and testing to ensure all requirements are fulfilled. It typically included details like requirements ID, descriptions, test cases and their statuses. It plays an important role for identifying gaps and verifying that the final product meets stakeholder expectations.

1. **Requirement Analysis**

It is the process of gathering, understanding, and documenting the needs and expectations of stakeholders for a project. It involves identifying functional and nonfunctional requirements,resolving conflicts and ensuring feasibility within constraints like budget,time and technology.

1. **Requirement Documentation**

It is the process of recording, organizing and managing all requirements gathered during the requirement analysis phases. It includes detailed descriptions of functional,non-functional and business requirements along with acceptance criteria, assumptions and constraints

1. **Use Case Diagram**

It is a visual representation in UML that depicts the interactions between users and a system. It outline various use cases that the system provides and show how external entities interact with these use cases.It helps stakeholders understand system requirements define scope and identify user goals making them a vital tool in system analysis and design

1. **Agile Scrum Methodology**

It is a framework for managing and delivering projects iterative and incrementally. It emphasizes collaboration, adaptability and delivering value quickly. The process is organized into time-boxed iterations called sprints, typically lasting 1-4 weeks where a cross functional team works on prioritized tasks from a product backlog

1. **Enterprise Architecture Framework**

It provides a structured approach to designing , organizing and managing an enterprise IT and business strategies. They align technology with business goals to ensure efficiency, scalability and agility. Popular framework includes : TOGAF (The open group architecture framework),Zachman framework, FEAF(Federal enterprise architecture framework),POLDAT Framework

1. **Root Cause Analysis - Fishbone Diagram**

Root Cause Analysis is a systematic process for identifying the underlying causes of a problem or defect. The Fishbone Diagram, also known as the Ishikawa Diagram or Cause-and-Effect Diagram, is a visual tool used in RCA to organize potential causes of a problem into categories. Shaped like a fish skeleton, the diagram includes:

1. **Head**: Represents the problem or effect.
2. **Bones**: Represent major categories of causes, such as People, Processes, Materials, Machines, Environment, and Methods.
3. **Sub-branches**: Break down these categories into specific causes
4. **Requirements Engineering**

 It is the systematic process of defining, documenting, and maintaining requirements

 throughout the lifecycle of a project. It ensures that the system or product being
 development meets the needs of stakeholders and aligns with business objectives. The
 key activities in requirements engineering include:

1. Identify the sources of Requirements i.e. stakeholders,
2. Elicit Requirements, Document
3. Model and Confirm the Requirements,
4. Prioritize and Validate the requirements,
5. Communicate and Manage the Requirements and
6. facilitate Solution Assessment and Implementation
7. **Waterfall Model**

The **Waterfall Model** is a traditional, linear approach to software development where each phase is completed sequentially before moving to the next. It follows a structured process, making it easy to understand and manage, but less flexible when changes are required mid-project. The phases of the Waterfall Model include: Requirement gathering,system design,implementation,testing,deployment and Maintenance

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