

Module-4- Use Case Development

Approaches to gather business requirements

Business requirements and types

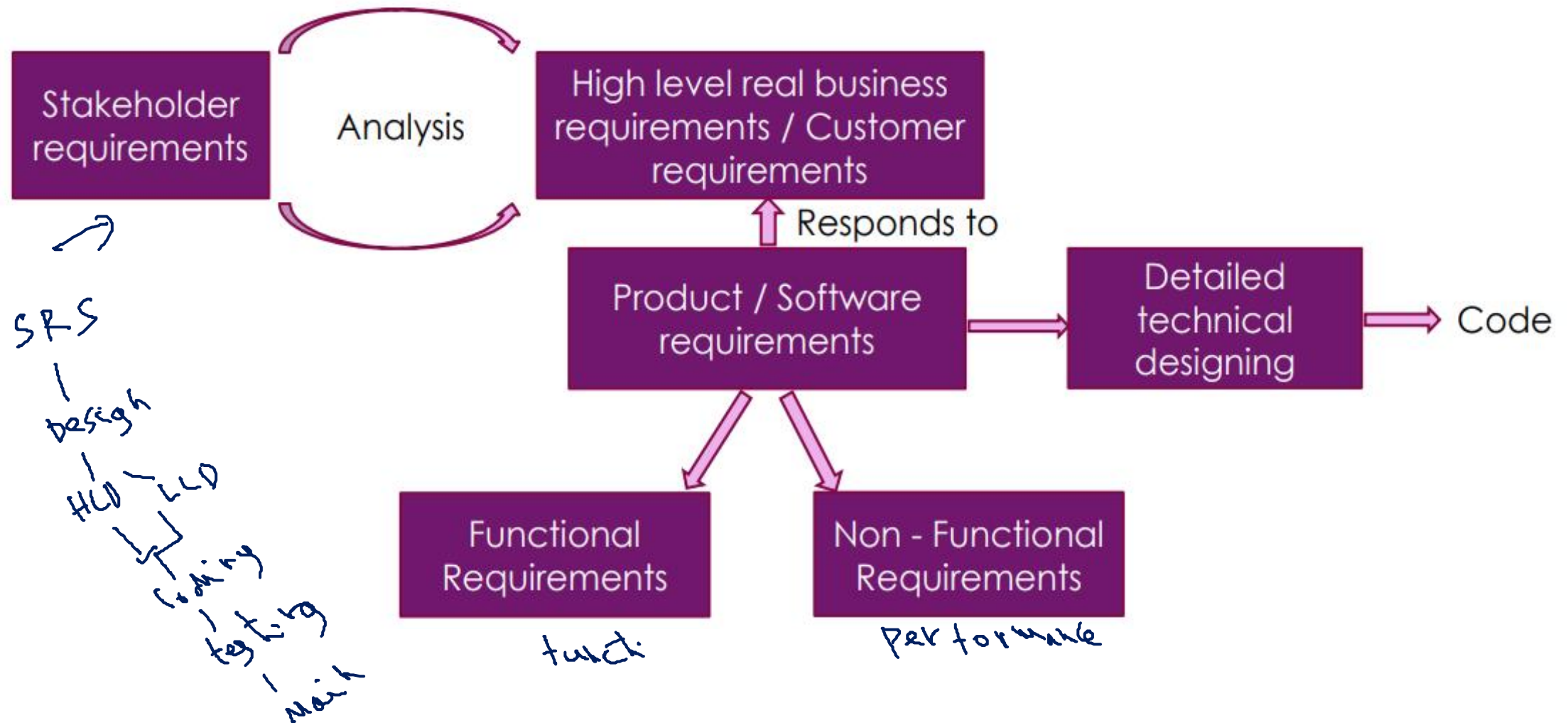
- **Business requirements**: critical **activities** of an enterprise that must be performed to **meet the organizational objective(s)** while remaining solution independent.
- A **business requirements document** (BRD) details the business solution for a project including the documentation of **customer needs and expectations**. If an initiative intends to modify existing (or introduce new) hardware/software, a new BRD should be created.

temp, process
accuracy, stability, security mail - sign in

- **Business requirement types:**

- **Functional requirements**: Functional requirements relate to a **product's functionality**: its capabilities, **usability, features, and operations** as they relate to the intended purpose of the product.
- **Non-functional requirements**: Non-functional requirements encompass anything not related to a product's functionality: its **performance, stability**, security, and technical specifications.

Business requirements



Approaches to gather business requirements

- **Brainstorming**: used in requirement gathering to get as many ideas as possible from group of people. Generally used to identify **possible solutions to problems**, and clarify **details of opportunities**.
- **Document Analysis**: *- Iterative* Reviewing the documentation of an existing system. reviewing the requirements that drove creation of the existing system.
- **Focus Group**: gathering of people who are representative of the users or customers of a product to **get feedback**. feedback can be gathered about needs/opportunities/ problems to identify requirements, or also to validate and refine already elicited requirements.
- **Interface analysis**: Integration with external systems and devices. **User centric design** approaches are very effective at making sure that we create **usable software**.

Approaches to gather business requirements

- **Interview**: Interviews of **stakeholders and users** are critical to **creating the great software**. Without understanding the goals and expectations of the users and stakeholders, we are very unlikely to satisfy them. →
- **Observation**: an analyst can identify a process flow, steps and opportunities for improvement. Passive observation is better for getting **feedback on a prototype**. active observation is more effective at getting an understanding of an existing business process.
- **Prototyping**: **modern technique** for gathering requirements. gather preliminary requirements that you use to **build an initial version** of the solution.
- **Reverse Engineering**: When a migration project does not have access to sufficient documentation of the existing system, reverse engineering will **identify what the system does**.

Use Case to gather business requirements

- Use Cases show more detail and understanding of the goals and requirements.
- Use Case: Process Sale
- Primary Actor: Cashier
- **Cashier**: Wants **accurate**, fast entry, and **no payment errors**, as cash drawer shortages are deducted from his/her salary.
- **Salesperson**: Wants sales **commissions updated**. → sales
- **Customer**: Wants purchase and **fast service** with minimal effort. Wants proof of purchase to support returns.
- **Company**: Wants to accurately **record transactions** and satisfy customer interests. Wants to ensure that Payment Authorization Service payment receivables are recorded.

Use Case to gather business requirements

- **Government Tax Agencies:** Want to **collect tax** from every sale. May be multiple agencies, such as national, state, and county.
- **Payment Authorization Service:** Wants to receive **digital authorization requests** in the correct format and protocol. Wants to accurately account for their payables to the store.
- **Preconditions:** **Cashier** is identified and **authenticated**.
proper
- **Success Guarantee (Postconditions):** **Sale is saved**. Tax is correctly calculated. Accounting and Inventory are updated. Commissions recorded. Receipt is generated.

Approaches to gather business requirements-IoT

- IOT Requirements:

- **Cloud computing:** Enables **storage and processing** of unstructured and structured data into real-time information.
- **Access:** accessibility from **anywhere** and anytime.
- **Security:** Confidential and **sensitive information** is exchanged across the businesses.
- **User experience:** The more seamless the User Experience (UX), the greater the use of IoT systems.
- **Asset management:** Managing assets through cloud-based services **ease the functioning** and maintenance of IoT systems.
- **Big Data analytics:** Analysis of big data **provides intelligent information**, an ideal requirement for industrial purposes.

Approaches to gather business requirements-IoT

- User requirements of IoT platforms:

10000
1000

1. Platform with extensive protocol support for data ingestion

- To seamlessly **bring data from devices** into the edge platform, enterprises should choose leading IoT platforms that support an extensive **mix of protocols** for data ingestion.
- platform must be modular in its support for protocols, allowing customization of existing and development of new means of asset communications.

Approaches to gather business requirements-IoT

- User requirements of IoT platforms:

- lesser bandwidth

2. Ensure the platform has robust capability for offline functionality

The edge platform has to work when connectivity is down or limited, the IoT edge platforms should provide capabilities in four functional areas.

(i) edge systems need to offer data normalization to successfully clean noisy sensor data. →

(ii) must offer storage to support intermittent, unreliable or limited connectivity between the edge and the cloud.
→ message

(iii) needs a flexible event processing engine at the edge making it possible to generate insight from machine data when connectivity is constrained.

(iv) IoT edge-enabled platform should integrate with systems including ERP, MES, inventory management and supply chain management to help ensure business continuity and access to real-time machine data.

Approaches to gather business requirements-IoT

- User requirements of IoT platforms:

3. Make sure the platform provides **cloud-based orchestration** to support device lifecycle management:

IoT platforms offer cloud-based orchestration for **provisioning, monitoring and updating** of connected assets.

→ cloud
→ inject → keys

IoT platforms provide **factory provisioning** capabilities for IoT devices.

API-based interactions allow a device to be preloaded with certificates, keys, edge applications and an initial configuration before it is shipped to the customer.

An IoT platform should push updates **over-the-air to edge applications**, the platform itself, gateway OSs, device drivers and devices connected to a gateway.

Approaches to gather business requirements-IoT

User requirements of IoT platforms:

4. The platform needs a hardware-agnostic scalable architecture

no addition

Due to more number of device types in the world, IoT platforms should be capable of running on a wide range of gateways and specialized devices.

platforms should employ the same software stack at the edge and in the cloud allowing a seamless allocation of resources.

should support IoT hardware powered by chips that use ARM-, x86-, and MIPS-based architectures.

Approaches to gather business requirements-IoT

- **5. Comprehensive analytics and visualization tools make a big difference**
- Choose IoT platforms that offer out-of-the-box capabilities to **aggregate data**, run common statistical analyses and **visualize data**.
- platforms should make it easy **to integrate leading analytics** toolsets and use them to supplement or replace built-in functionality.
- Example: manager and a machine worker want to access interactive dashboards that deliver useful information and relevant controls for each of their respective roles.
— *shaving*
- Having **flexibility in analytics and visualization capabilities** will be essential for enterprises as they develop IoT solutions for their multiple business units and operations teams.
- enterprise should **conduct hands-on usability tests** to understand edge platform capabilities.