Functional Requirements
Requirement Specification

Starting with User Stories and use case documents

How do we turn these into requirements?

1. Developers can build into a product
2. Testers can verify

Requirement

1. Functional (What)
    a. Services the system should provide
    b. How system should react to inputs
    c. How system should behave in certain situations
    d. Could state what the system “shall not” do.
2. Non Functional (how)
    a. How well the system does things
    b. Constraints on timings
    c. Constraints on reliability

A functional requirement is something the product must do to satisfy a business need.
A functional requirement should be understandable and verifiable by all stakeholders. (customers, developers, testers)

Key Components of functional requirements

1. Description
    a. should be atomic
    b. should use standard terminology
2. Rational
    a. Answers why requirement is important
    b. Should indicate the value the requirement provides
    c. Make sure this fits the description
3. Fit Criterion
    a. How is the requirement measureable
    b. Is it testable with no assumptions?
4. Unique Id
    a. Makes it trackable

Mental Healthcare System

1. A user shall be able to search the appointments list for all clinics
2. The system shall generate each day, for each clinic, a list of patients who are expected to attend appointments that day

3. Each staff member using the system shall be uniquely identified by his or her 8 digit employee number

In principle: Requirements should be complete and consistent
Complete: The should describe all feature requirements
Consistent: There should be no conflicts in descriptions

Requirement Specification

- This is the process of compiling this group of user and system requirements into a single document
- Who will use this document?
    - Developers
    - Management
    - Customers
- This document may become part of a contract
- NOT A DESIGN DOCUMENT
    - Does not implement descriptions

Approaches to writing requirements documents

1. Natural Language: Each sentence should express one requirement
2. Structured Natural Language: Using NL but with a template
    a. Balance between readability and precision
3. Design Description: Uses language like a programming languages
    a. Useful for opis and interfaces
4. Graphical: Illustrations supplemented with annotations
5. Mathematical Specs: Unambiguous, but customers don't get it.