INTRO TO SOFTWARE
DAY 1

What is Software?
How Software has evolved
Software Development Life Cycle

What is a Software

what is ....?

Software vs Hardware?

Software

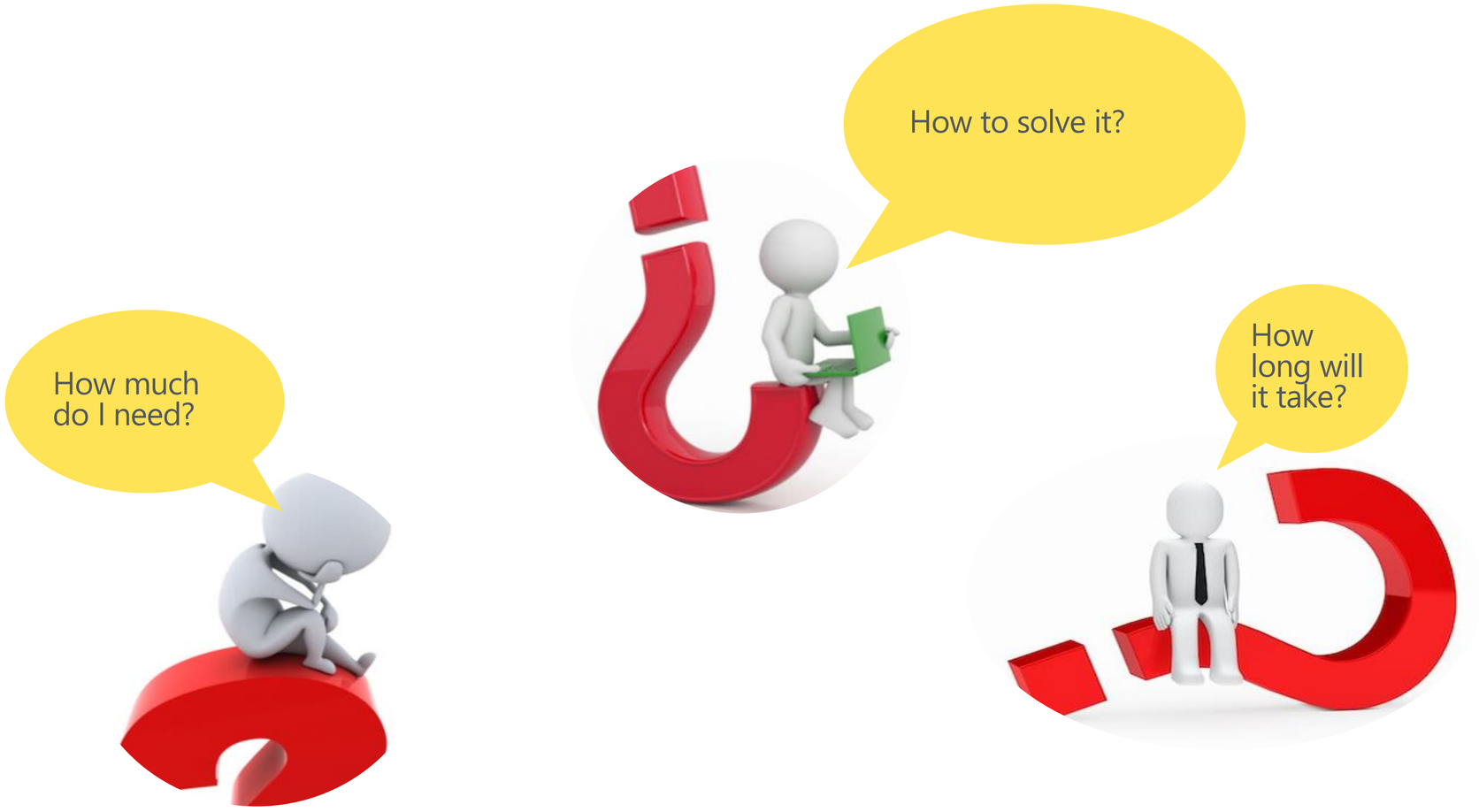
- A machine readable code or a program that tells the computer how to perform tasks – Programming code
- You cannot touch it.

Hardware

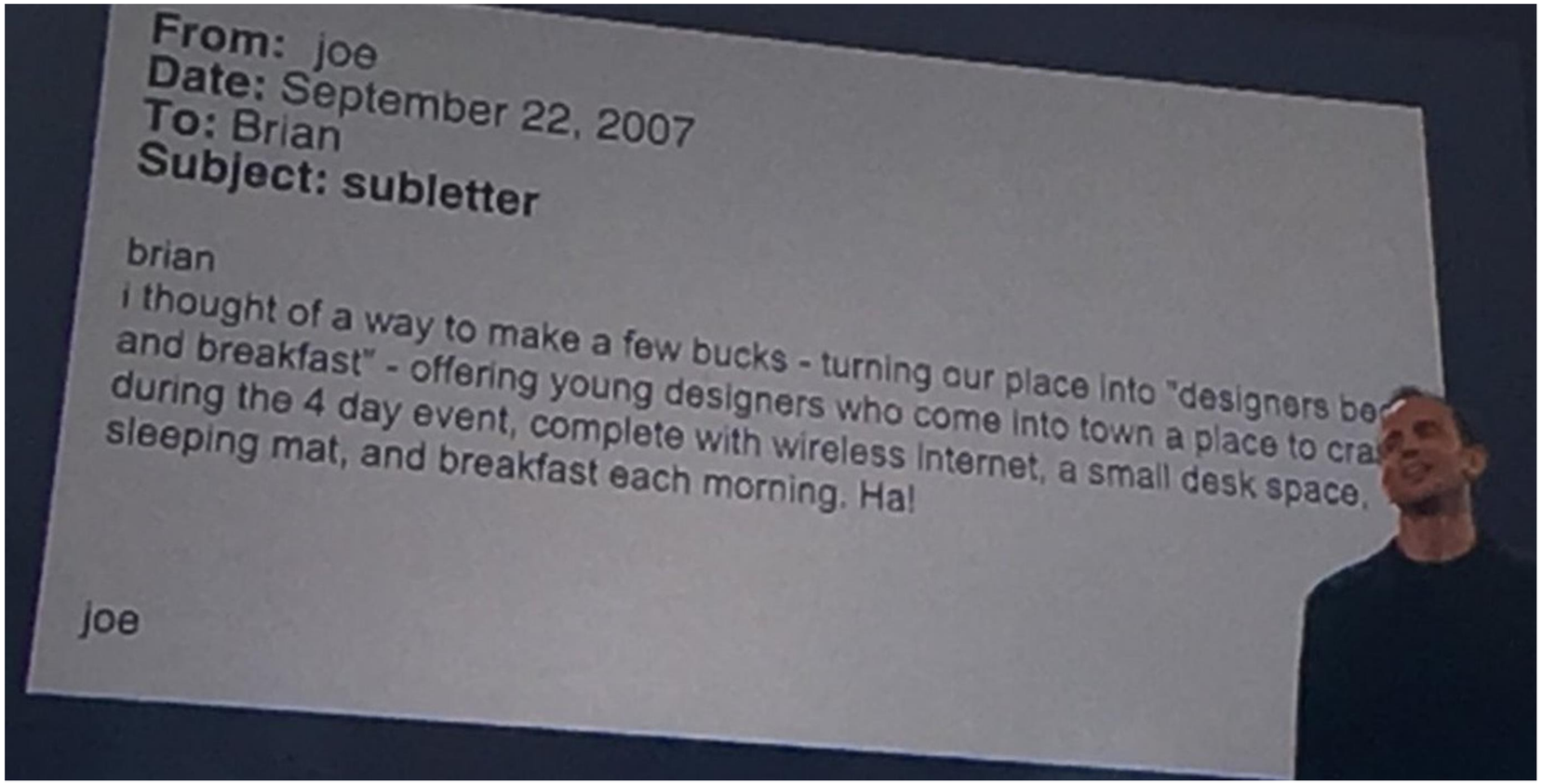
- Hardware is physical like screen, monitor, keyboard, system unit, speaker
- You can touch it

I got an Idea!!

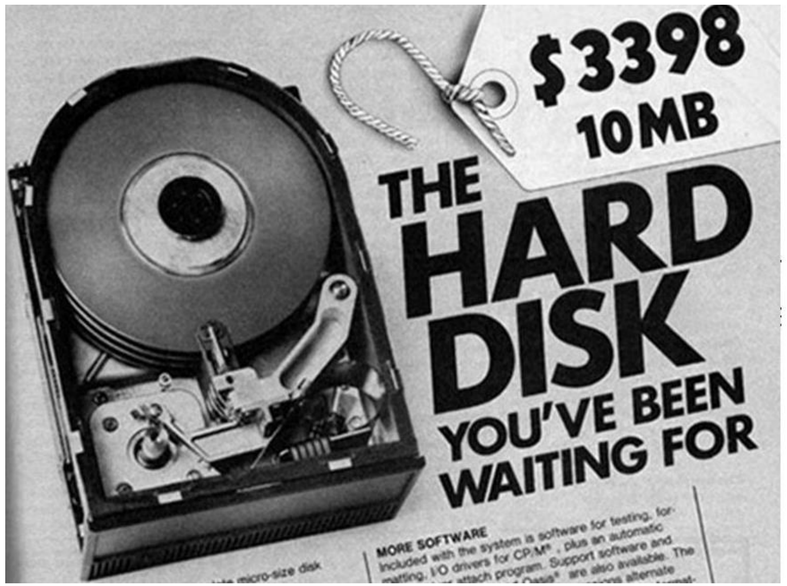
I have a Problem?



Airbnb Started with an Idea

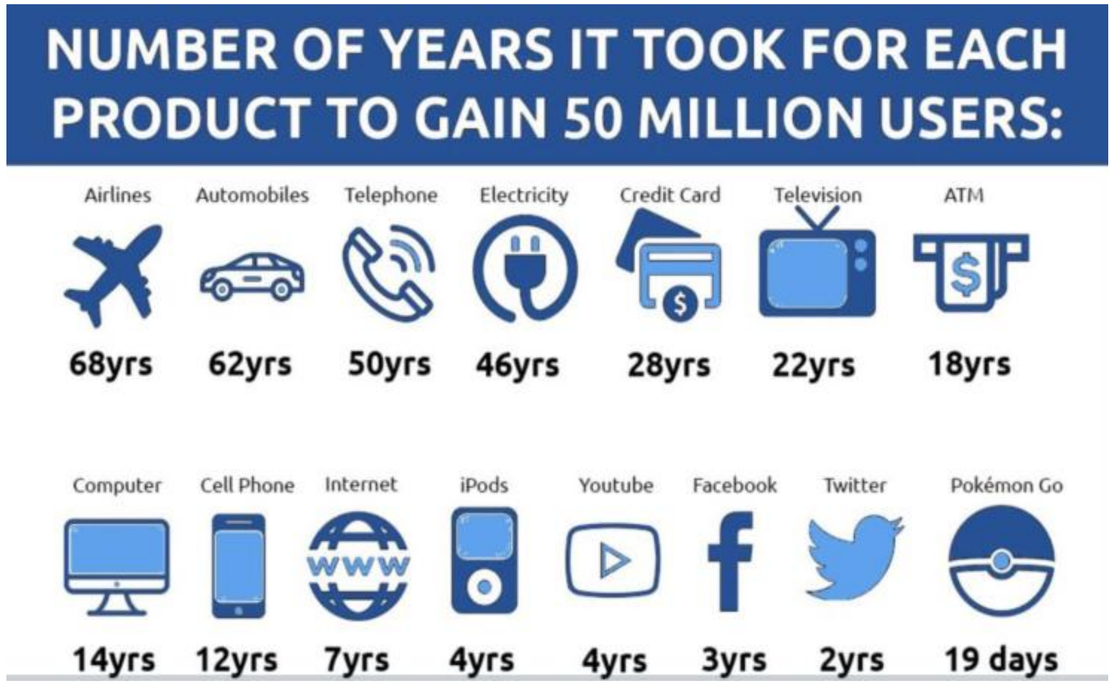


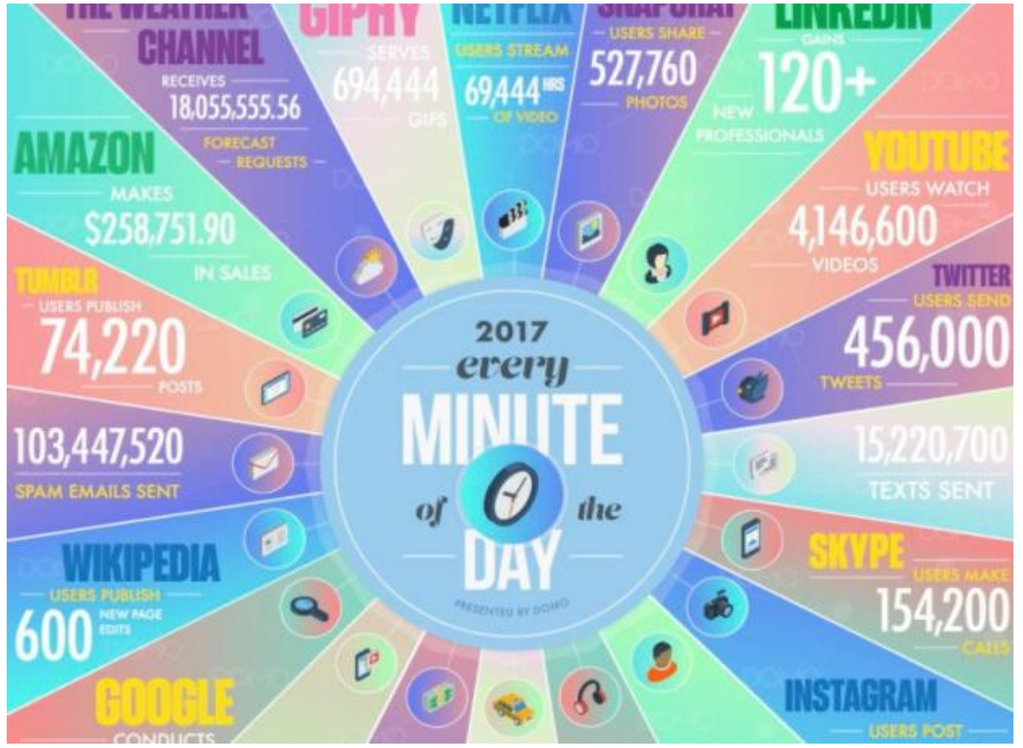
Evolution of Technology



60 years ago vs. 30 years from now….

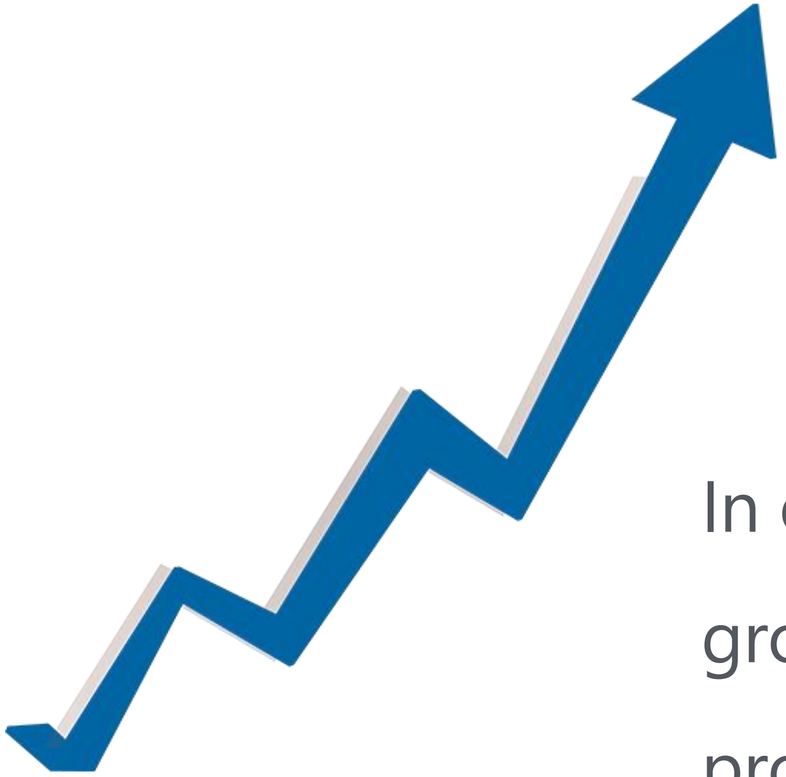
Exponential Growth in TECH





It took 46 years for electricity to reach 50 million users.. It took Facebook only 3 years to reach 50 million users……

We have created more data in the last two years than in all human history combined before that..



In order to keep up with the exponential growth of technology there needs to exist a process to sustain this type of growth in IT


THE
SOFTWARE
DEVELOPMENT
CYCLE
1
PLANNING
2
ANALYSIS
3
DESIGN
4
IMPLEMENTATION
5
TESTING &
INTEGRATION
6
MAINTENANCE

Initiation/ Planning Phase

In Initiation, Feasibility Study is performed to understand whether the Project (service or product) is in:

- Adequate Demand
- Marketable
- ROI (Return of investment?)
- Probability for achievement / success
- Resource allocation (both human and materials)

I need to find right People

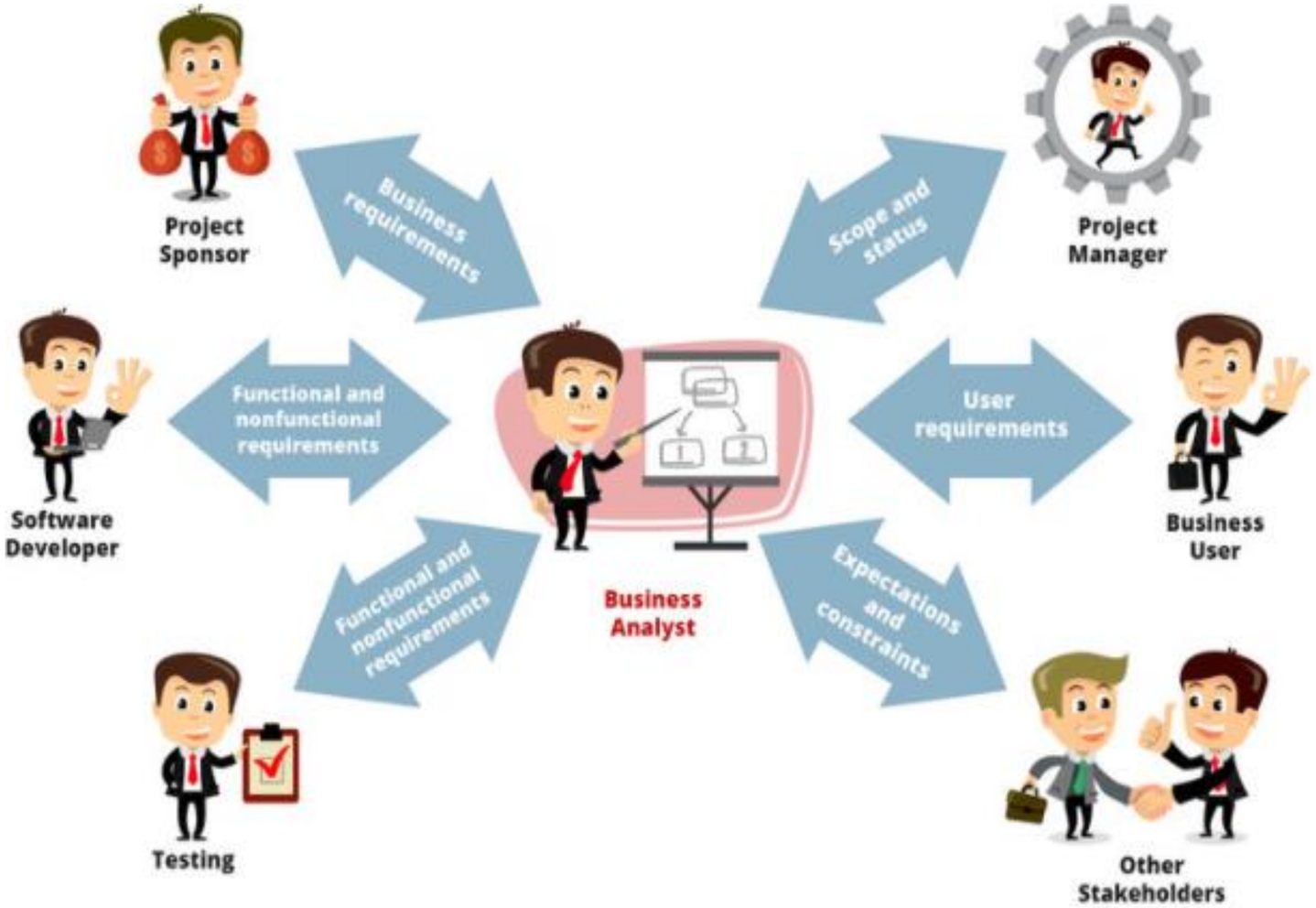
Business Analyst: What do you want?

Client: I want software that do so and so

Business Analyst: How do you want?

Client: It should be….

BA –Who they are?



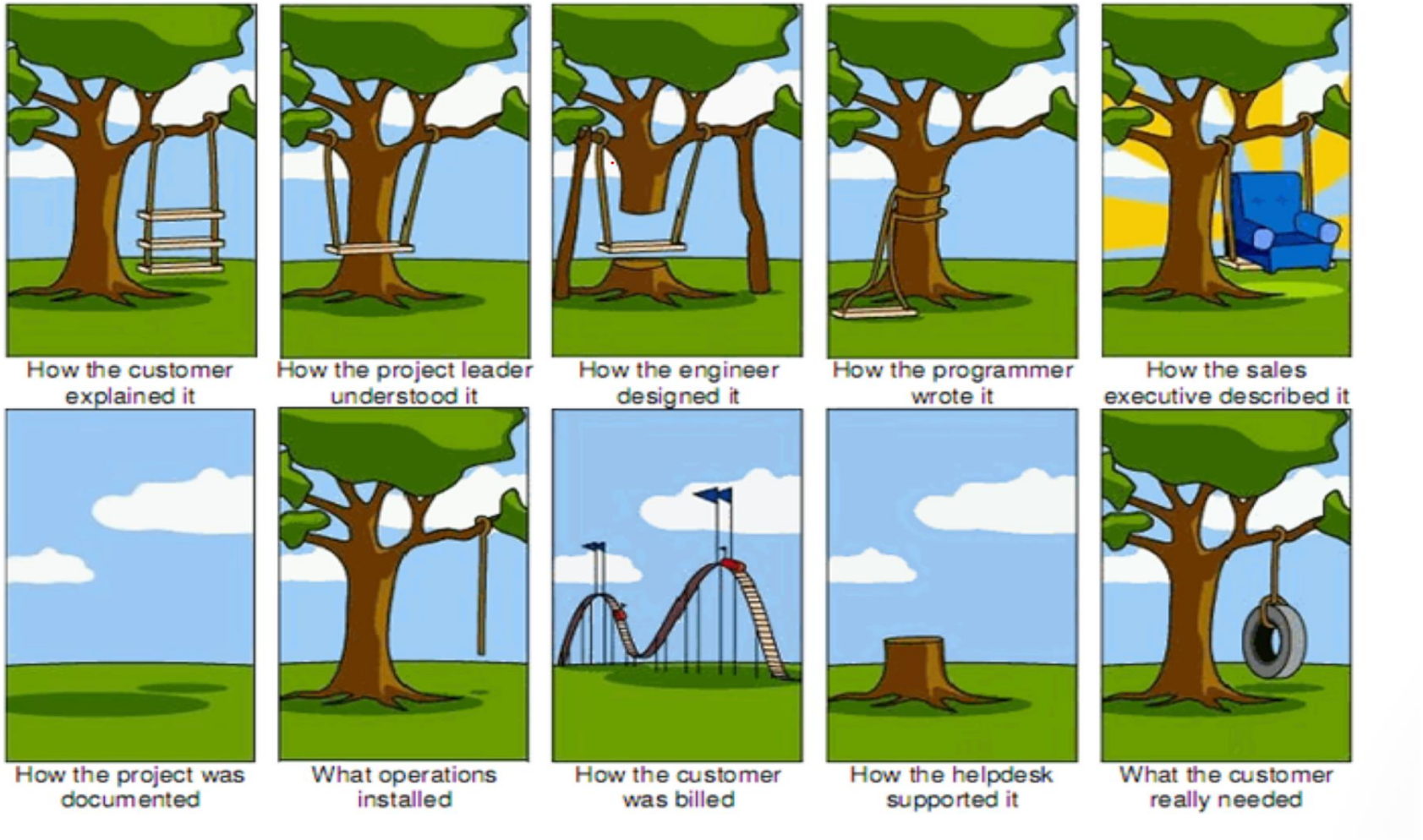
What is a requirement?

Requirements are description of features / functionalities of the target system. It basically conveys user expectation from the software product. What the client wants, writing it down, analyzing it and documenting it is known as requirement engineering.

- Requirement gathering is done mostly by BA (Business Analyst). They gather the requirements by Talking to client - Customers give requirements for the application
- End-users - the person that will be using this application the most
- Stake holders
- Industry Analyst
- Domain Experts - coders and developers that have already build this application similar before or someone that is an expert in type of product being built
- Collecting information about competitors.

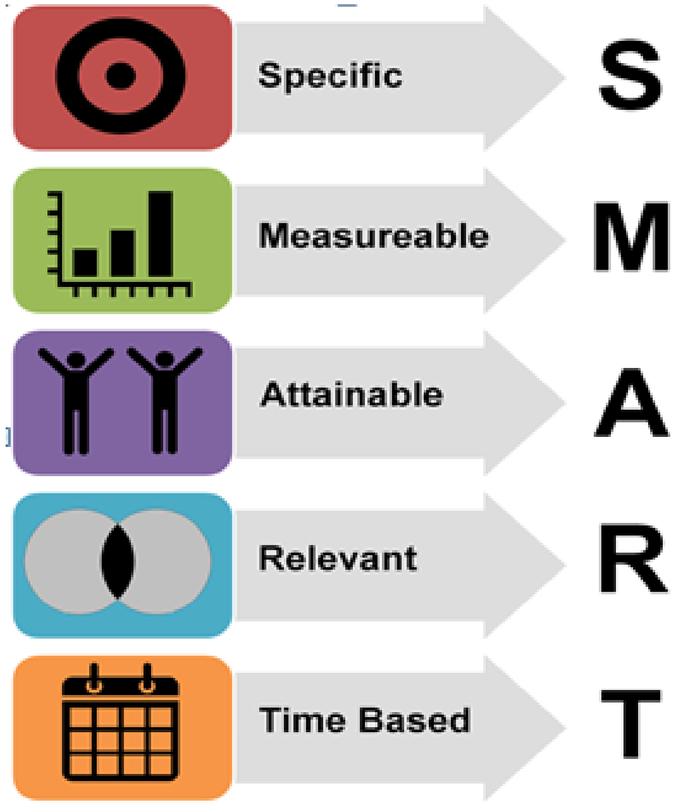
Requirement Gathering

What is a requirement?



Requirement Evaluation
Good vs. Bad Requirement

- SMART Criteria



- Requirement Characteristics

Examples of SMART Criteria

Specific

- if I go to buy a car, I should provide details like car needs to be 4 doors, SUV, back up camera etc.
- Authorized user with valid username and valid password should be able to sign-up and login

Measurable

- If I click this button the response time should be less than 2 seconds.

Attainable

- realistic and should make sense.

Realistic

- how much time and money for e.g. Building an entire application from scratch and delivering to the client in one month is not realistic.

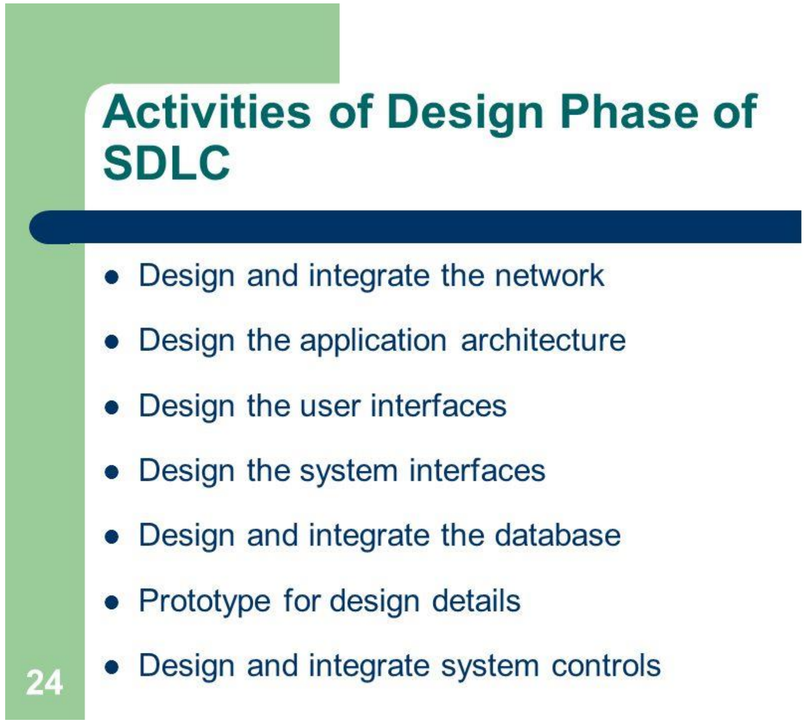
Testable

– A car test-drive or I should able to download the pdf file from web application in 2 seconds.

When does Testing Begin?

- As a tester, we should never assume that requirements are correct.
- Mistakes can be made. This is why Testing activity should start with testing the requirements against the SMART Criteria and requirement characteristics.
- If requirement itself is wrong, it means that we are going to build the application wrong. The end result will be a disaster and unsatisfied customer.

Design Phase



Primary goal of the design phase:

- Build the technical architecture required to support the system
- Includes architecture of the system and different interfaces, modules, and type of data that goes through system

End goal is to meet:

- Current system needs
- Future system needs

Development/ Coding Phase

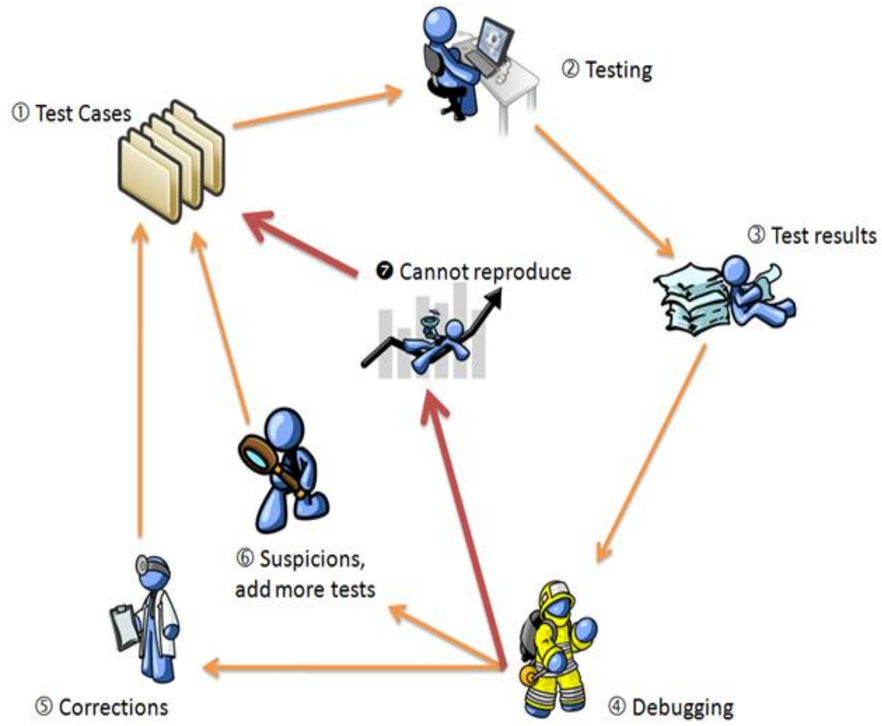
Coding phase:

- Take all the detail design documents from the design phase and transform them into an actual system.

Activities :

- coding programs
- creating database
- installing hardware and software etc.

Testing Phase



Testing Phase:

- Verifies the system works and meets all the business requirement defined in the Business requirement document

Activities:

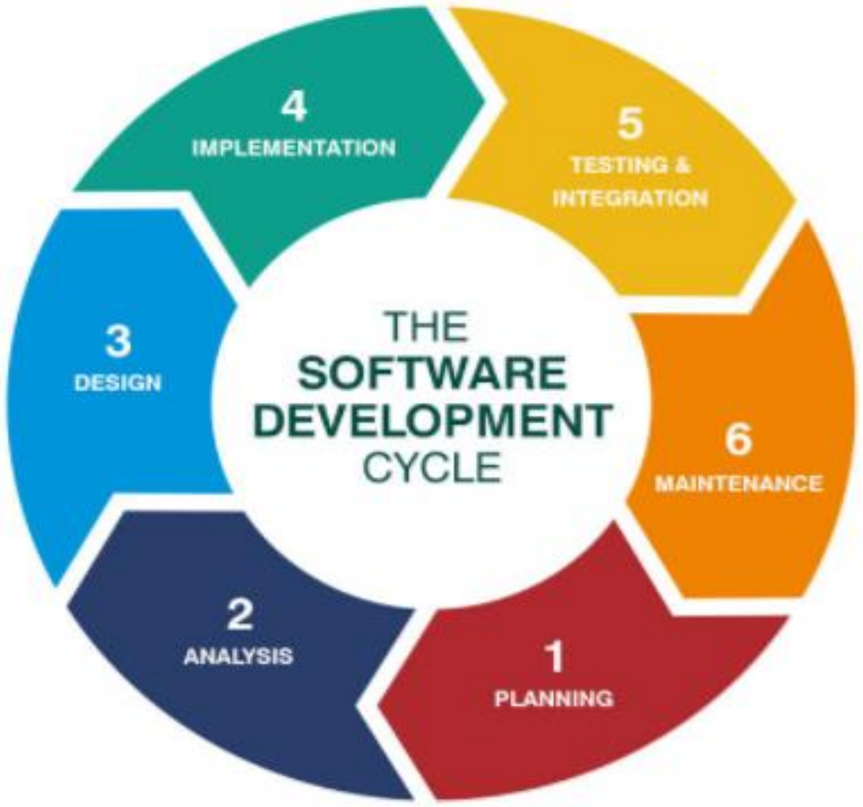
- Write test plans
- Write test cases
- Automate test cases
- Execute test cases
- Log defects
- Retest executed Defect

Production

- Production Phase:
- This is the final phase of the software development life cycle. In this stage, if the software runs smoothly on the system without any known flaws, then it is considered to be launched.
- Before the product gets launched into production, all the previous phases must be completed such as:
  - Requirement fulfills customer needs
  - Coding is completed
  - Testing is performed

What is SDLC?

SDLC is a model or a framework used in project management that describes the activities performed at each stage of a software development project.



SOFTWARE DEVELOPMENT LIFE CYCLE