SYNTAX
TECHNOLOGIES

SDLC

Class 1

Agenda

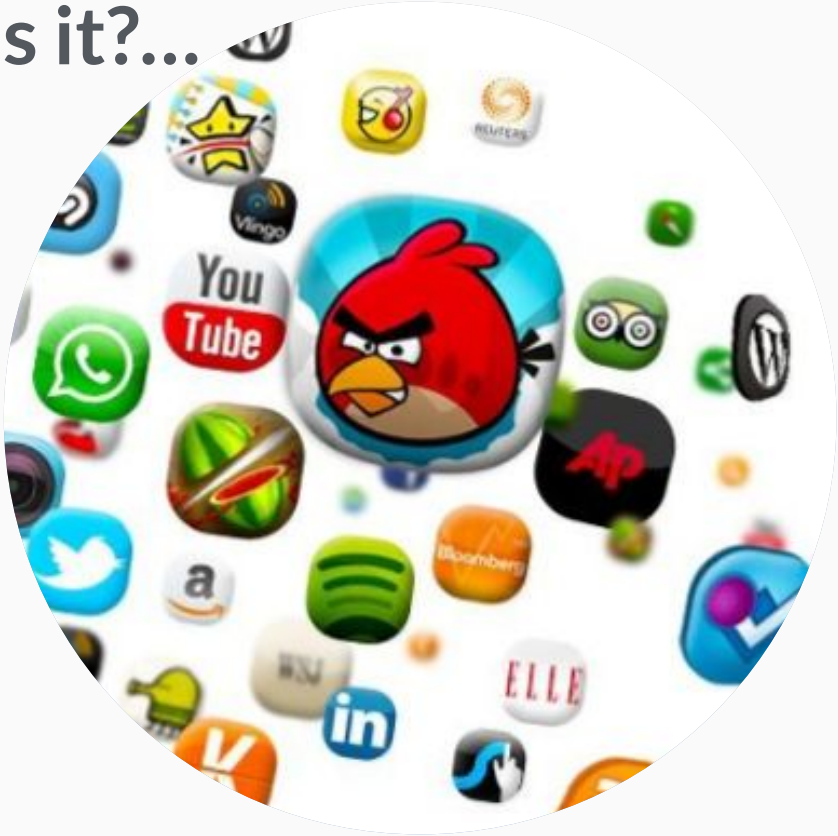
What is Software?

SDLC (Software Development Life Cycle)

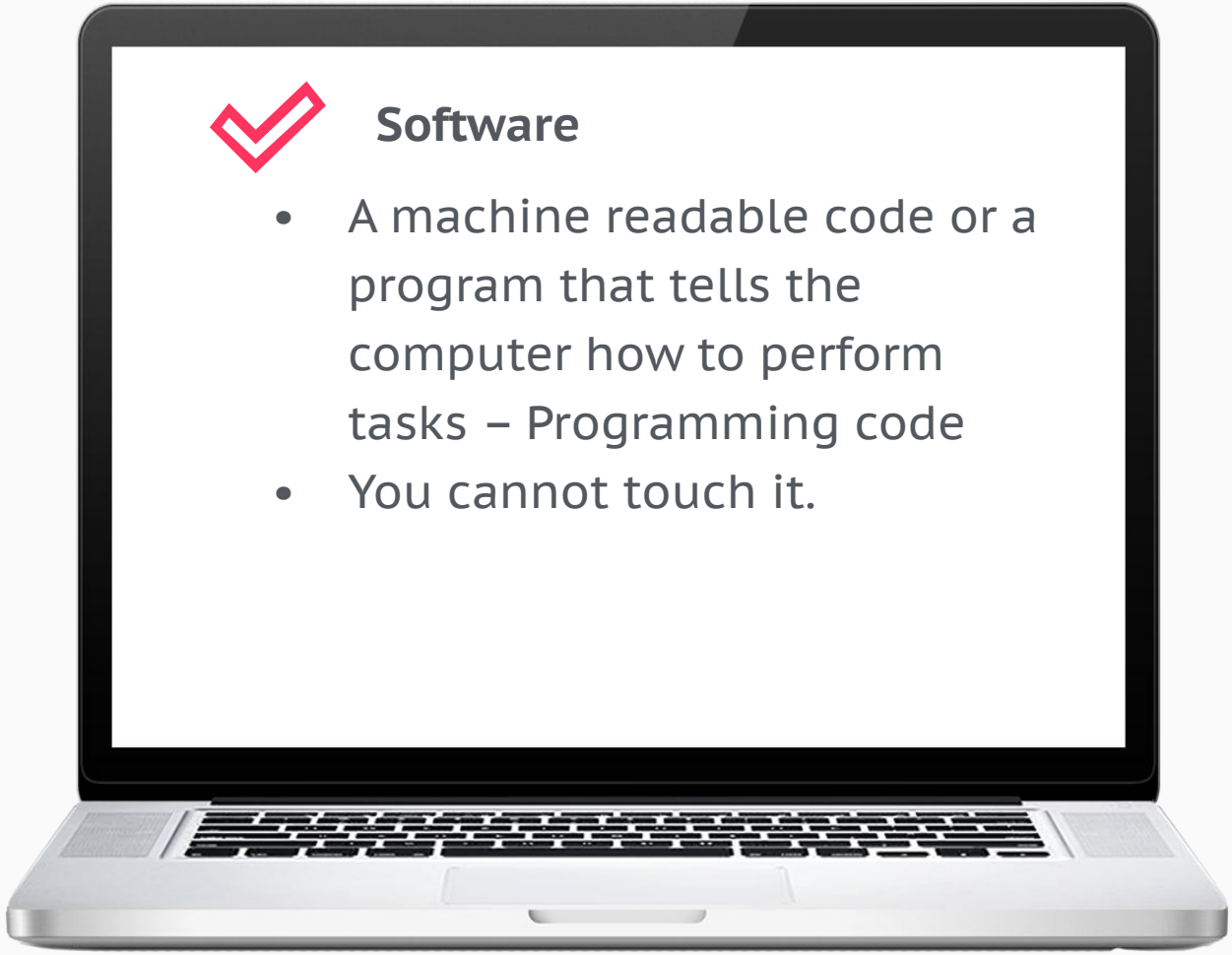
What is Waterfall?

What is a Software?

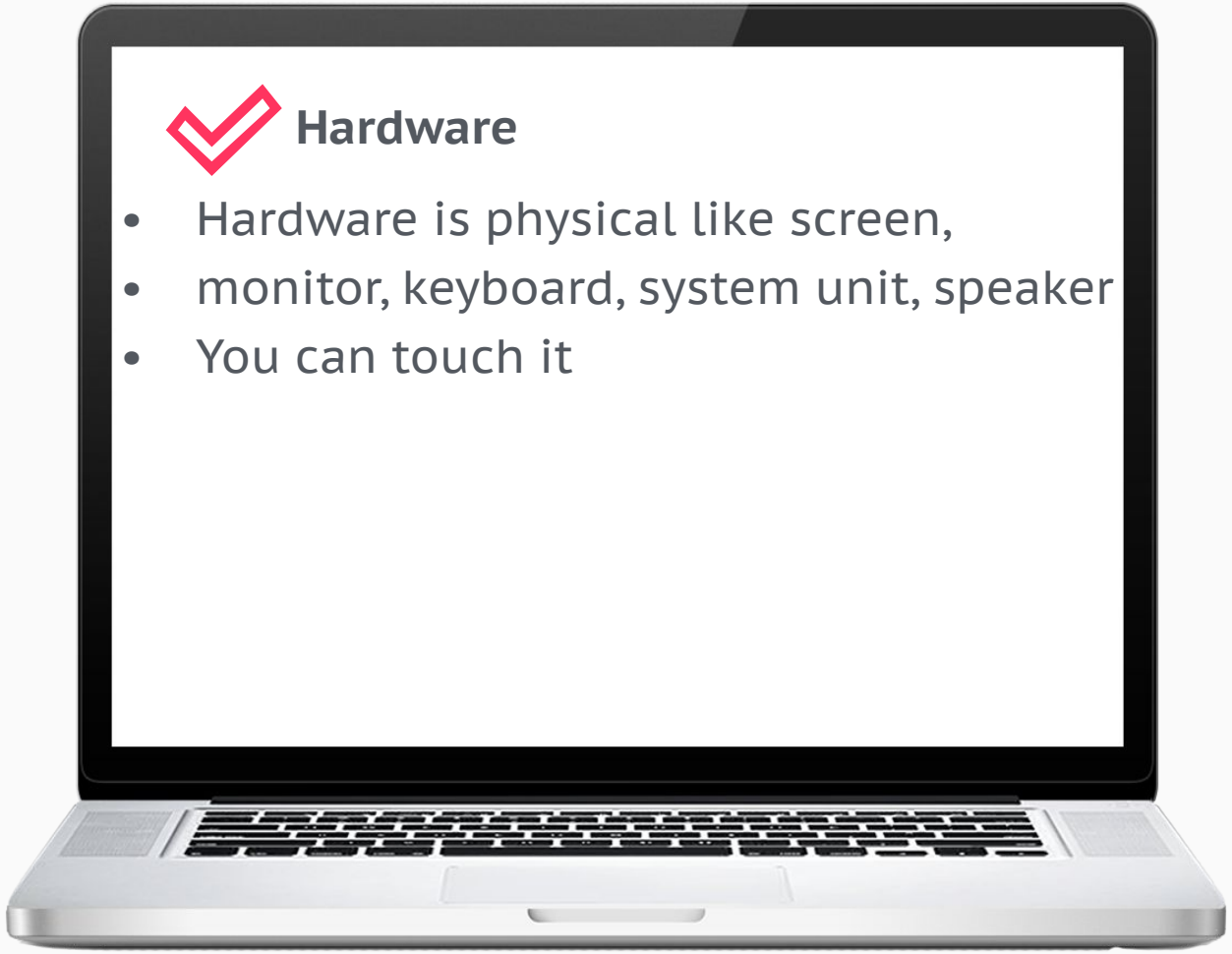
what is it?...



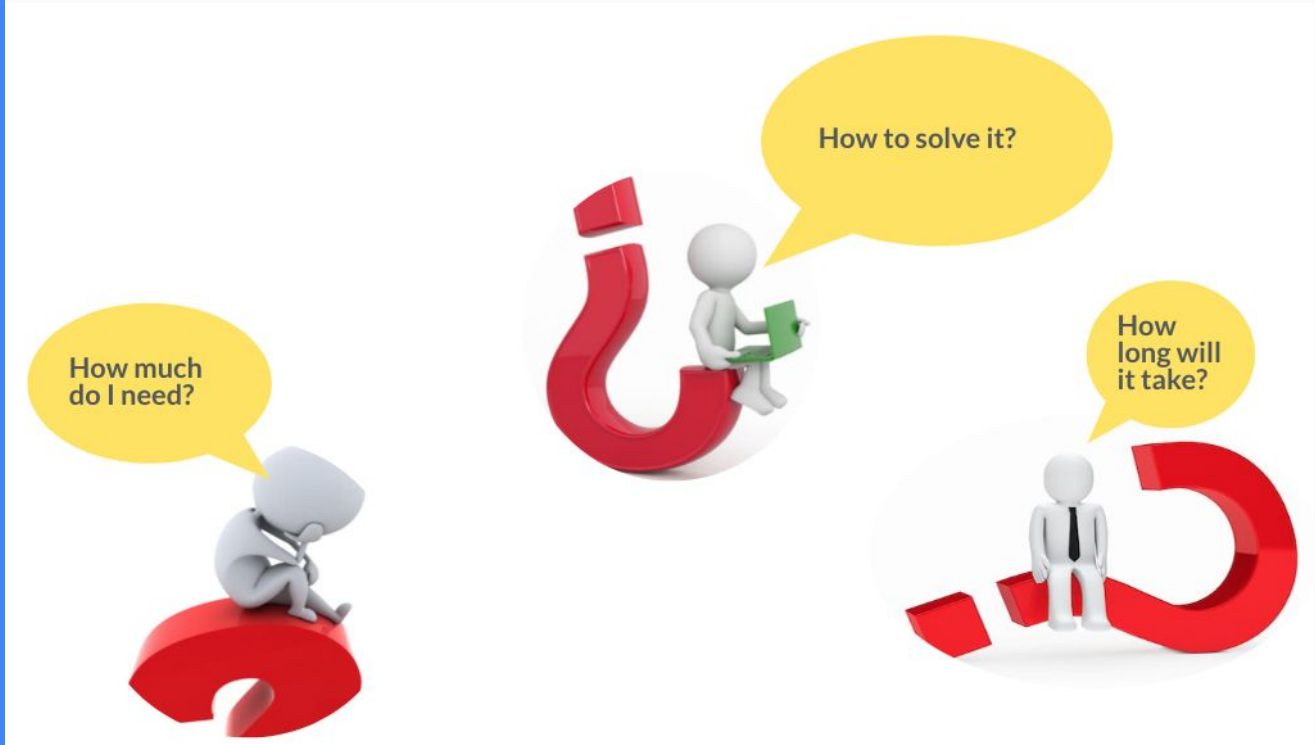
Software vs Hardware?



Software vs Hardware?

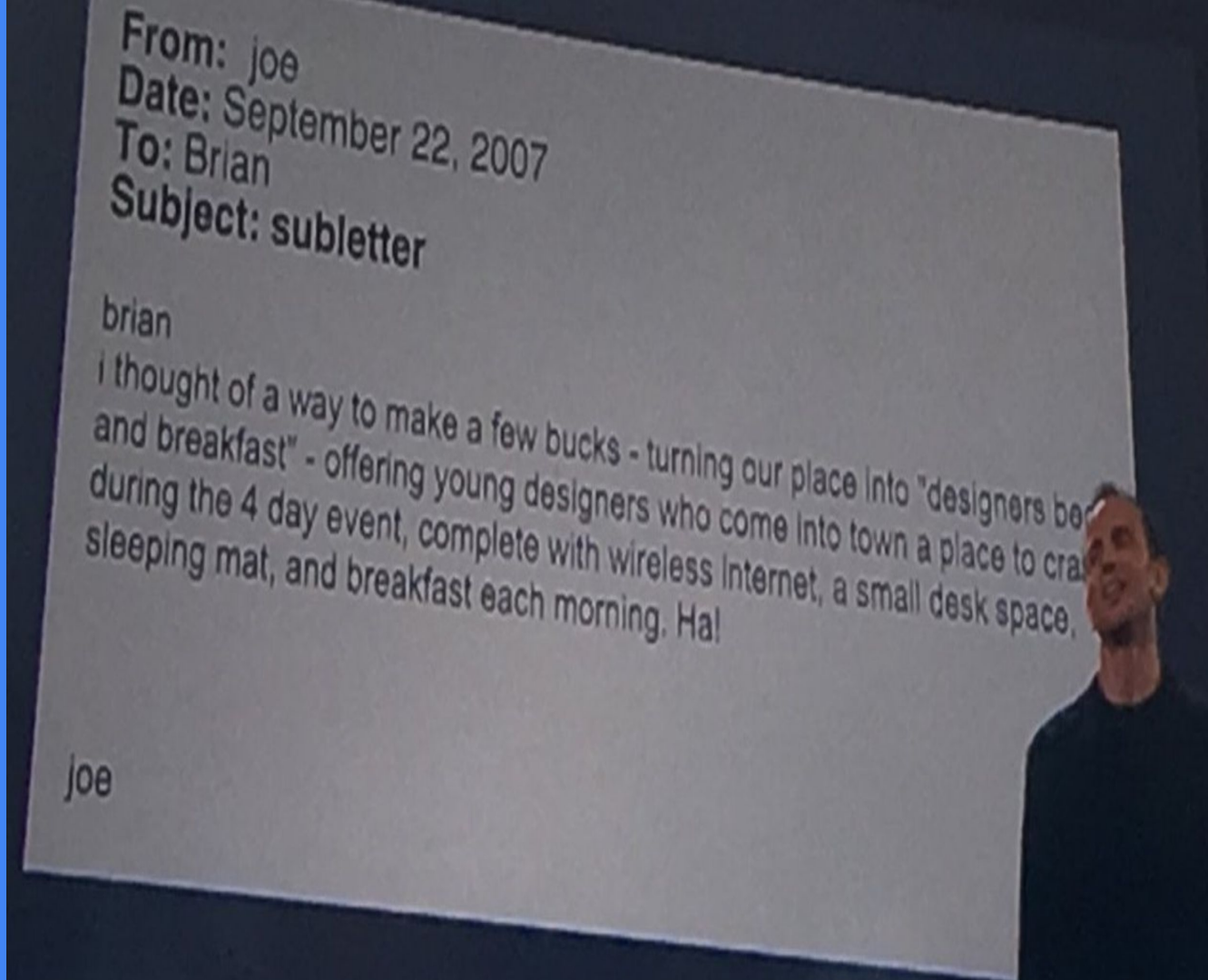


I have a Problem?



I got an Idea !!!

Airbnb Started with an Idea



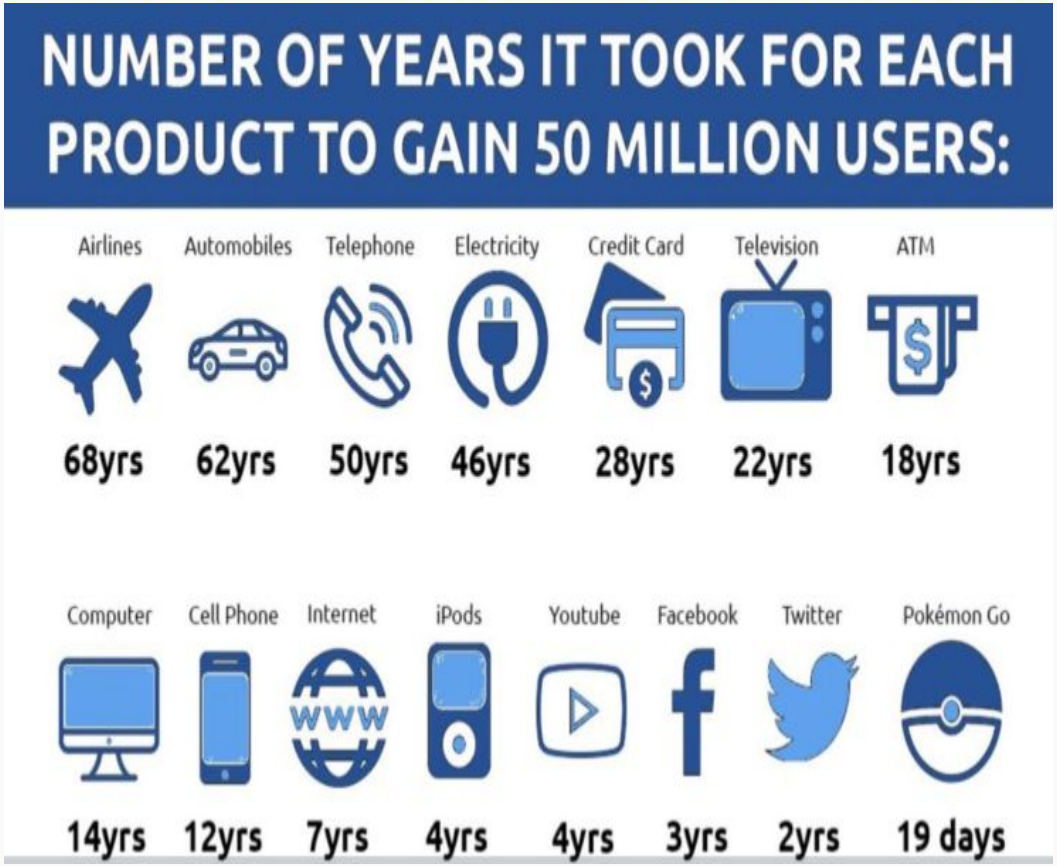
Evolution of Technology

60 years ago

Evolution of Technology

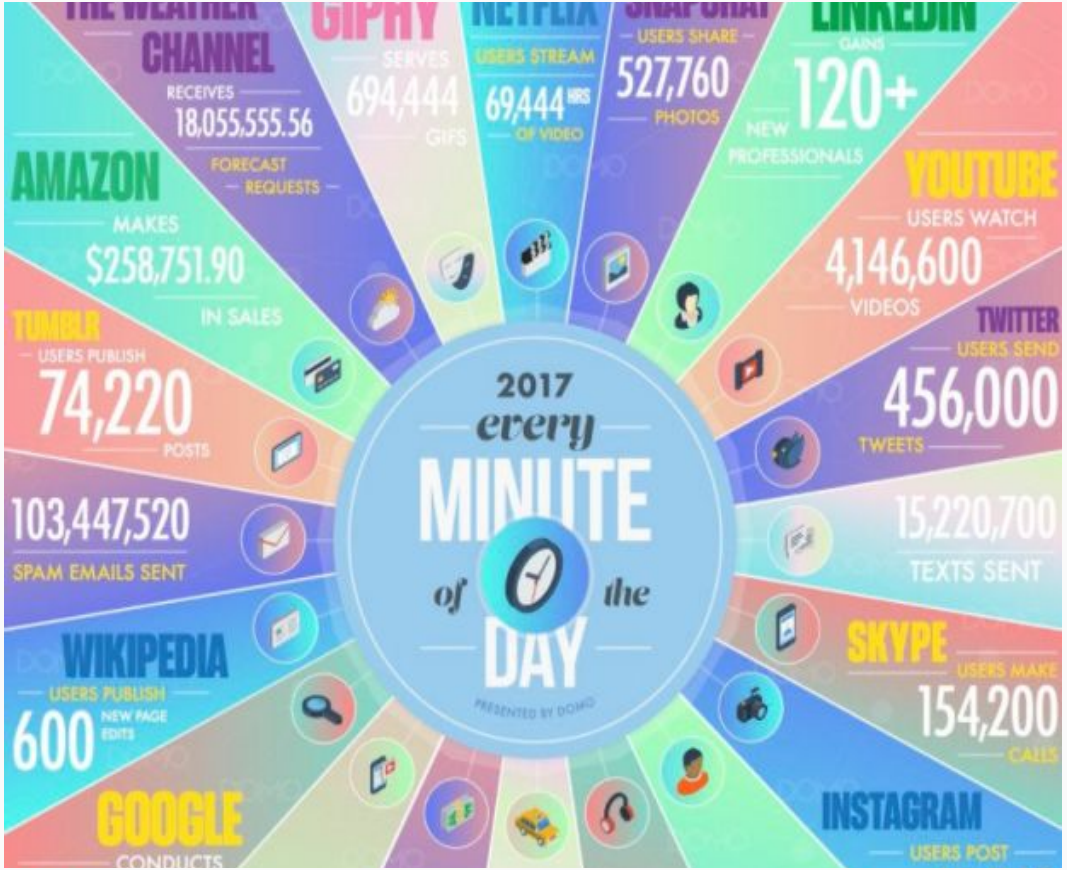
30 years from now....

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.....

Exponential Growth in TECH



We have created more data in the last 2 years than in all human history combined before that..

Exponential Growth in TECH

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

Software Development Cycle

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

I need to find right People

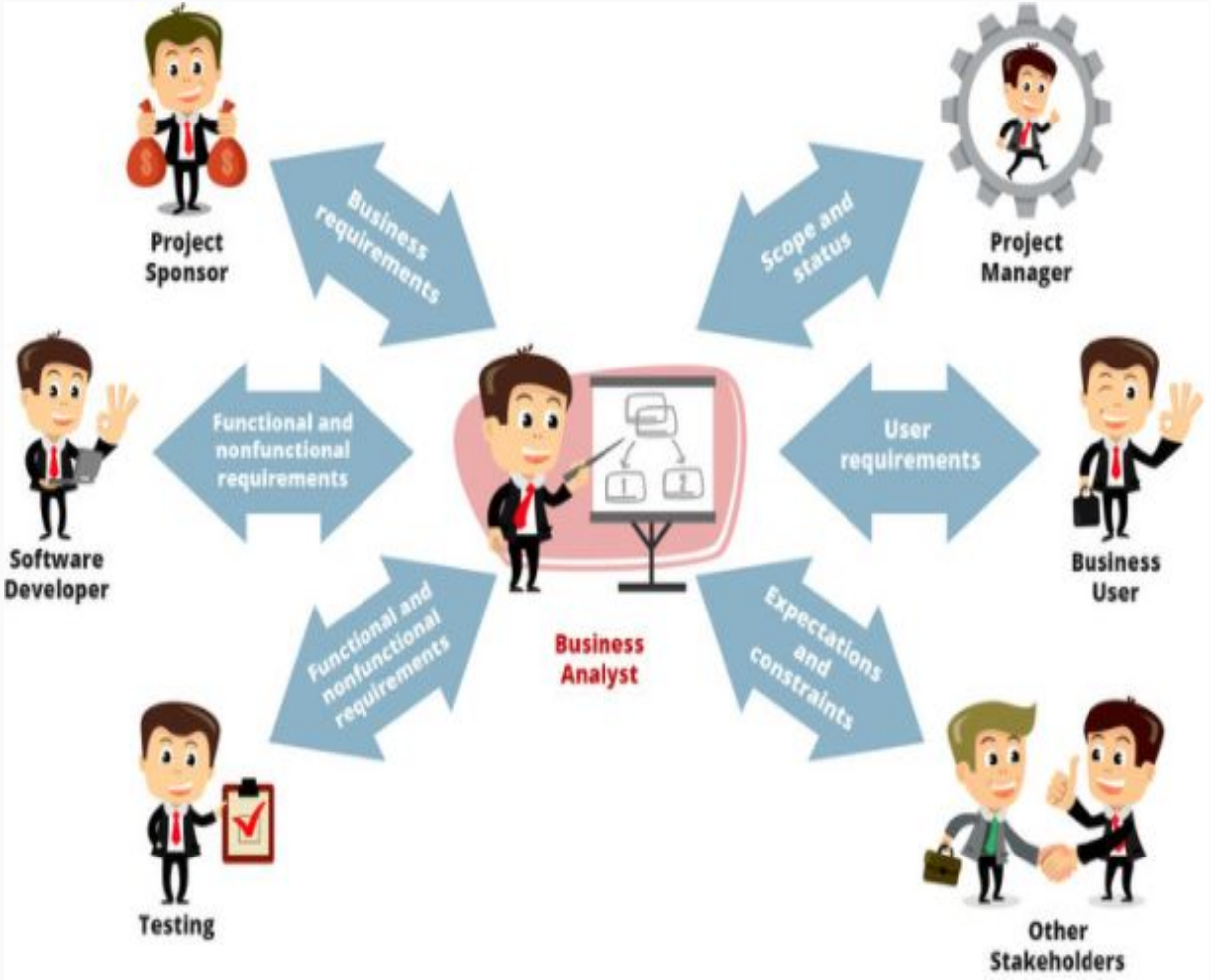
Business Analyst: What do you want?

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.

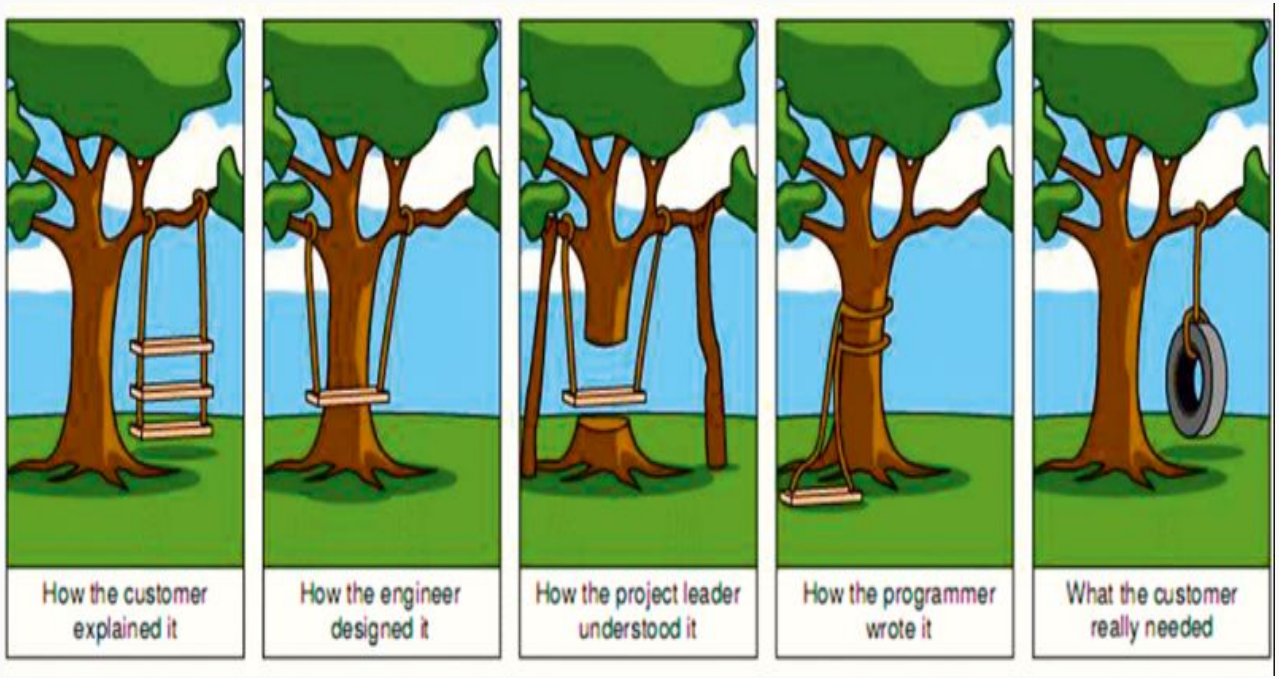
What is a requirement?

Requirement gathering is done mostly by BA (Business Analyst). They gather the requirements by Talking to client - Customers give requirements for the application

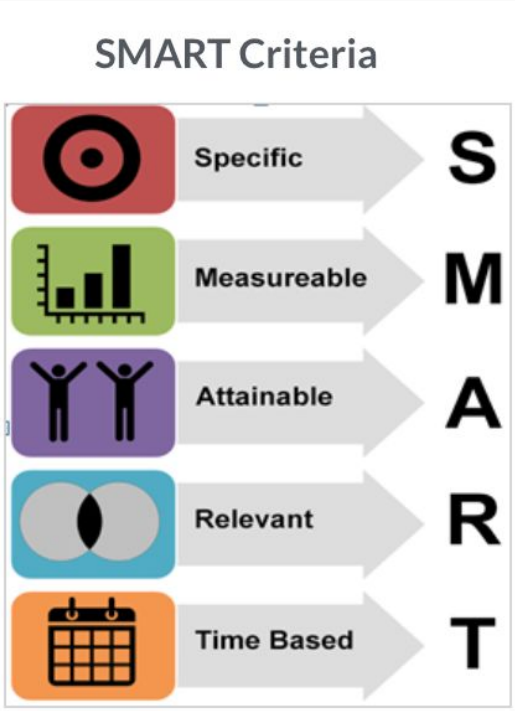
- End-users - the person that will be using this application the most
- Stakeholders
- Industry Analyst
- Domain Experts - coders and developers that have already build this application similar
- Before or someone that is an expert in type of product being built
- Collecting information about competitors.

Requirement Gathering/ Analysis Phase

Requirement Gathering...



Requirement Evaluation Good vs. Bad Requirement



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 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

Activities of Design Phase of SDLC

- Design and integrate the network
- Design the application architecture
- Design the user interfaces
- Design the system interfaces
- Design and integrate the database
- Prototype for design details
- Design and integrate system controls

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

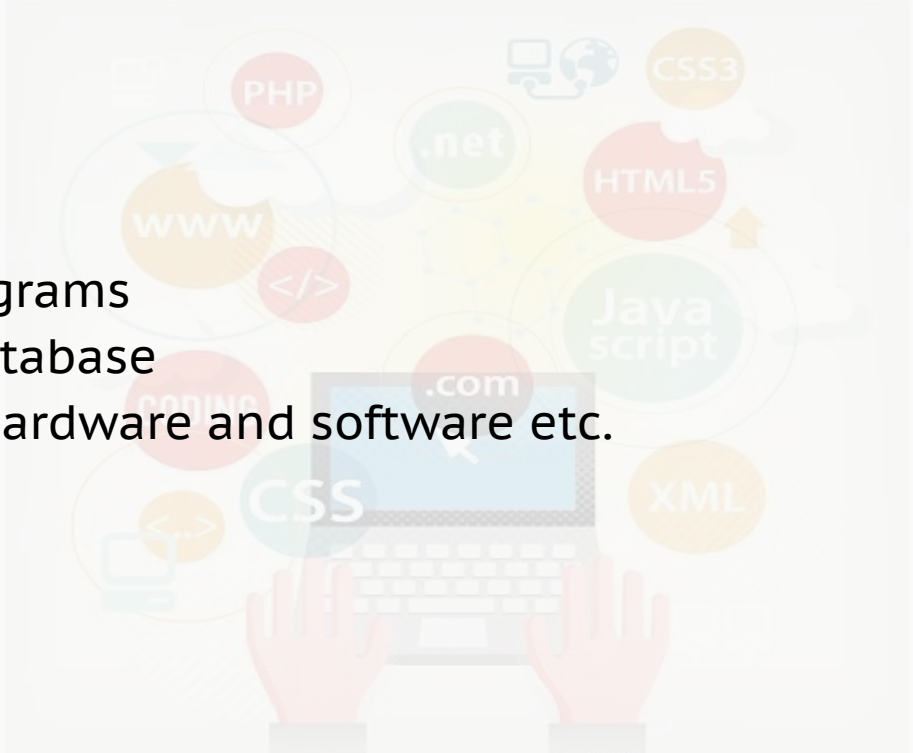
Development / Coding Phase

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.



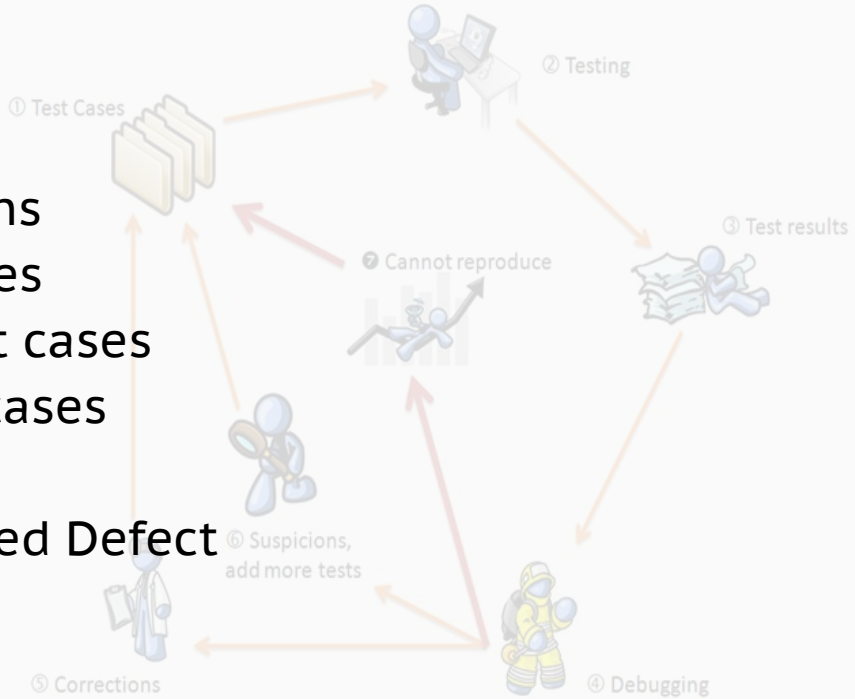
Testing Phase

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

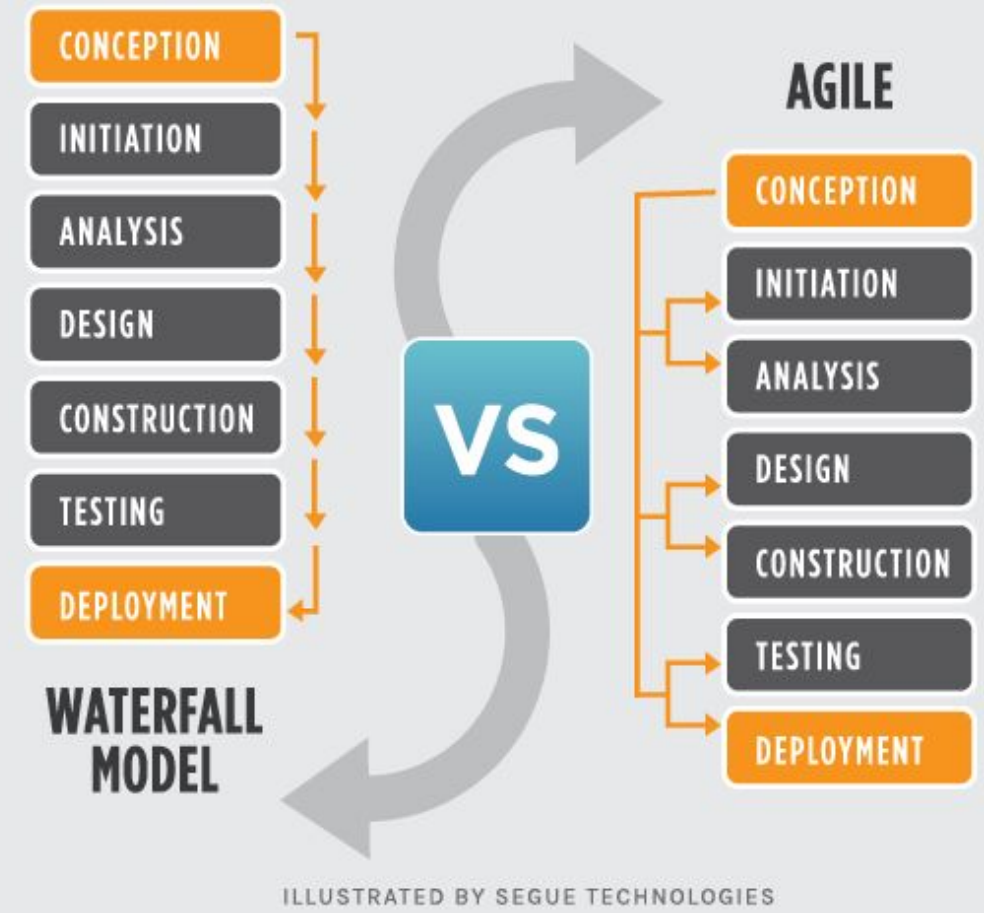
Production Phase:

- 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

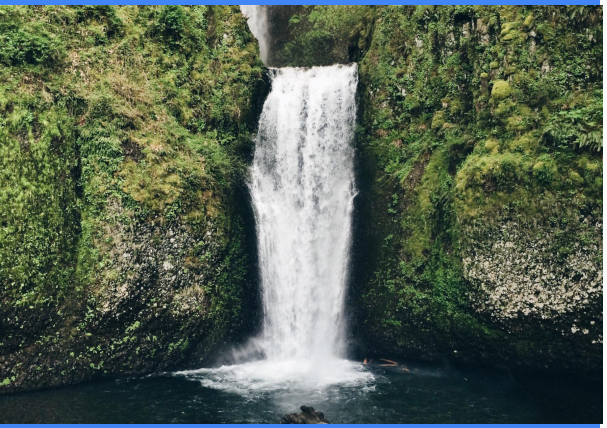
What is SDLC?

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

Waterfall & Agile



Waterfall



Like Construction, waterfall methodology is a sequential design process.

Once a step has been completed, developers can't go back to a previous step – unless they scratch the whole project and start from the beginning.

No room for error, so project outcome & plan MUST be determined before starting it.

When to use Waterfall?

- When there is a clear picture product should be.
- When Quality/Definition not speed.
- When the client wont change the scope of the product once the project has begun.

Advantages of Waterfall

Easy to understand - This model is simple and easy to understand and use

Easy to manage - each phase has specific deliverables and a review process

Suitable for simple or smaller projects - Waterfall model works well for smaller projects where requirements are very well understood.

Step by step process - The phases are processed and completed one at a time. Phases do not overlap.

Disadvantage of Waterfall

Step by step process - Once a step is completed, developers cannot go back to a previous step and make changes

Clear initial requirement - Waterfall relies heavily on initial requirements. The project is doomed if requirements are not clear.

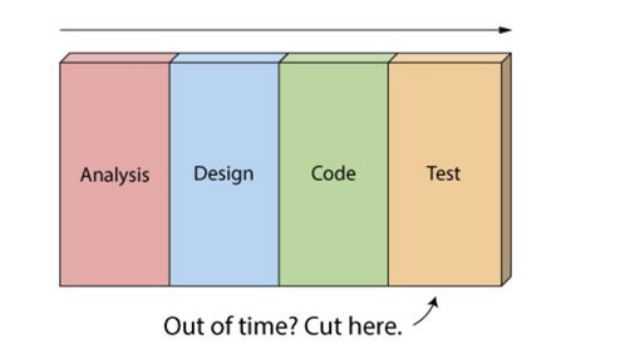
Does not allow for requirement change - If a requirement error is found or change needs to be made, the whole project has to restart from beginning.

No working product until near completion - All the steps/stages have to be independent completed before the final product is delivered.

Disadvantage of Waterfall

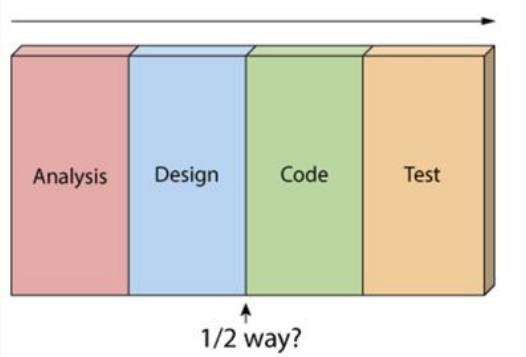
Poor Quality

First off, When the project starts to run out of time and money, testing is the only phase left. This means good projects are forced to cut testing short and quality suffers.



Poor Visibility

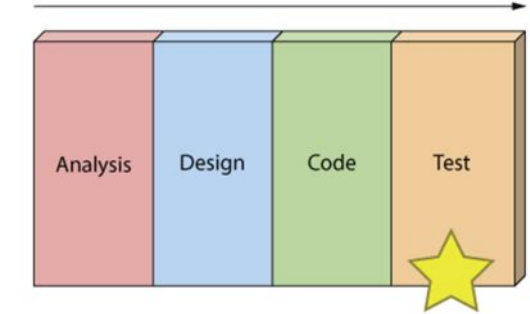
Secondly, because working software isn't produced until the end of the project, you never really know where you are on a Waterfall project. That last 20% of the project always seems to take 80% of the time.



Disadvantage of Waterfall

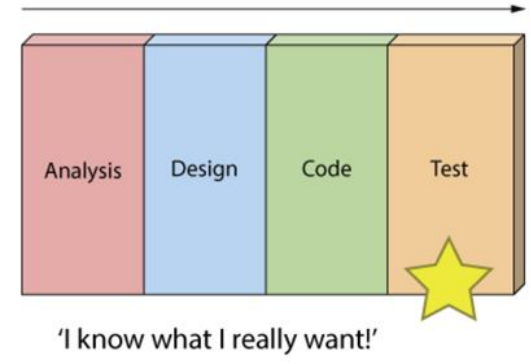
Too Risky

Thirdly you've got schedule risk because you never know if you are going to make it until the end.
You've got technical risk because you don't actually get to test your design or architecture until late in the project.
And you've got product risk because don't even know if you are building the right until it's too late to make any changes.



Can’t handle Change

And finally, most importantly, it's just not a great way for handling change.



Waterfall methodology