HOW TO DEVELOP AN IT SYSTEM?

WATER FALL APPROACH

Phase 1 – Analysis / Idea
Phase 2 – Design
Phase 3 – Construction
Phase 4 – Test

Depends on a perfect understanding of the product requirements from the beginning and minimal errors made in each phase.

ITERATIVE / INCREMENTAL APPROACH

Develop a system through repeated cycles (iterative) and in smaller portions at a time (incremental).
Break down software development of a large application into smaller chunks.
Start with a simple implementation of a subset of the software requirements and iteratively enhance the evolving versions until the full system is implemented.
Deliver working software early and often.
Feature code is designed, developed and tested in repeated cycles.
With each iteration, additional features is designed, developed and tested until there is a fully functional software application ready to be deployed to customers.

SCRUM

Iteration of many small waterfalls called sprints.

Scrum is not a methodology; it is a framework that has to be adapted to specific situations.
Organization is split into small, cross-functional and self-organizing teams.
Work is split into a list of small, concrete deliverables.
> Sort list by priority
> Estimate effort of each item

Time is split into short fixed-length iterations, usually 1 – 6 weeks, with potentially shippable code demonstrated after each iteration.

Runnable is produced for every iteration.

After each iteration…
> Runnable must be tested and work properly
> Optimize release plan and update priorities in collaboration with the customer, based on insights gained by inspecting the release.
> Optimize the process by having a retrospective after each iteration.

PRODUCT BACKLOG (PBL)

Core of scrum
Can have many different formats
A prioritized list of everything needed in the product
- Requirements / Features / Stories
- Things that the customer wants, described using the customer's terminology.

Example – Product backlog

ID	Name	Role	Action	How to demo	Notes	Time	Importance	Status
1	Deposit	Customer	Deposit an amount	Log in, open deposit page, deposit 10$, go to balance page and check it has increased	Need a UML sequence diagram. No encryption yet.	4	10	Done
2	Transaction history	Customer	See transaction history	Log in, click transactions, do a deposit, go back to transactions and check deposit shows up	Use paging to avoid large db queries. Design similar to view users.	2	2	Not done

PRODUCT BACKLOG ITEM (PBI)

Often called user story
Short, simple description of a feature told from the perspective of the person who desires the new capability (typically user or customer)

User stories can be written informally
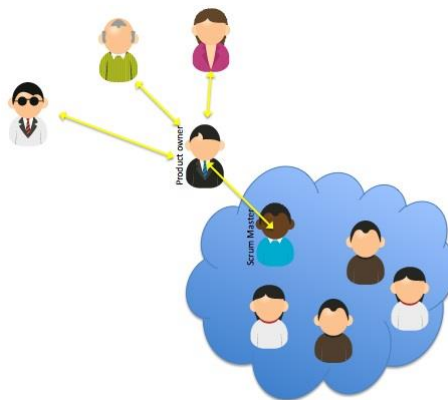> Registered users can reset their password

Or use a more formal template (As *who*, I want *what*, so that *why*)
> As a registered user,
> I want to reset my password,
> so that I can get back into the site if I forget my password

ROLES

Scrum product owner
> Customer voice
> Owns what is desired and why it is desired
> Represents the stakeholders
> Responsible for the business value of the project, maximizing product value and managing the PBL:
> - Creates product backlog items (user stories)
> - Prioritizes product backlog items
> - Ensures teams understand items

Scrum master
> Process owner
> Keeper of scrum process
> Responsible for ensuring scrum is understood and enacted
> Reporting / Communication / Monitoring / Tracking
> Servant / Leader / Facilitator / Coach
> Ensures quality and that the team is functional and productive
> Helps the team perform at their highest level
> Protector of the team
> Resolves conflicts and impediments

Scrum delivery team
> Owns how and how quickly work is delivered
> Self-organized to get the work done

Negotiates commitments with the product owner, one sprint at a time
Decides how to reach commitments
Responsible for getting the work done
3 – 12 in size

ACTIVITIES

Scrum meetings
- Sprint planning meetings
- Daily scrum / Backlog refinement meeting
- Sprint review meeting
- Sprint retrospective meeting
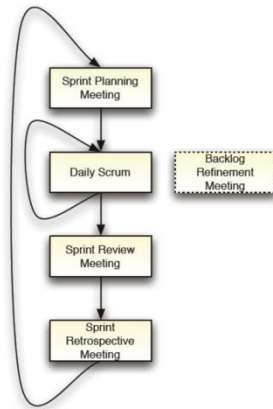
SPRINT PLANNING MEETING

A time-boxed conversation attended by the product owner, scrum master and entire scrum team.
During the sprint planning meeting, the product owner describes the highest priority features to the team.
The team asks enough questions that they can turn a high-level user story of the product backlog into the more detailed tasks of the sprint backlog.
The product owner and the team negotiate which stories the team will tackle in sprint.
When the team agrees which stories to tackle, the product owner adds the corresponding stories from the product backlog into the sprint backlog.
There are two defined artifacts that result from a sprint planning meeting:
- A sprint goal
  - Short, one- or two-sentence, description of what the team plans to achieve during the sprint, written collaboratively by the team and the product owner
- A sprint backlog
  - List of the product backlog items the team commits to delivering plus the list of tasks necessary to delivering those product backlog items.

Afterwards the product owner may choose to leave while the team decomposes the sprint backlog items into tasks.

PLAN

- Make team contract
- Create and estimate product backlog
- Do sprint planning meeting