**Design**

S/m and s/w design documents are prepared as per SRS.

S/m architecture is defined.

**3 tier architecture**

Server

Web server

(HTML CSS)

App server

(JSP, Spring)

DB server

(My SQL)

client

Two kinds of documents

**High Level Design**

Description of modules and their names

Functionality of module

Interface relation and dependencies b/w modules

DB tables and their key elements

Architecture diagrams with technology details.

**Low level Design**

Functional logic of modules

Db tables type and size

Details of interface

Types of dependency issues

Error messages

Inputs and outputs of each module

**Coding**

**Testing**

Tested for defect

Retesting regression testing

Refer SRS to make sure customer standards are reached.

**Deployment**

Deployed in the production environment

UAT is done first (User Acceptance testing) (replica is given to clients. If okay client sign off is done)

**Maintenance**

Bug fixing

Upgrade

Enhancement

SDLC focuses on needs to be met and system perform well.

**SDLC Models**

1. Waterfall
2. Incremental
3. V shape
4. Prototype
5. Spiral
6. Big Bang
7. Agile

**Agile Methodology**

Continuous iteration of development and testing

Waterfall model

Req Analysis

Final product

Review and adjust

Review and adjust

Review and adjust

Testing

Testing

Testing

Coding

Coding

Coding

Define

Define

Define

I1

I2

I3

If client requirement not met then the stage at which the problem is found should be redefined.

Final product

Maintenance

Deployment

Testing

Coding

Design

Agile Model

idea

**Difference Between traditional and agile model**

|  |  |
| --- | --- |
| Agile | Waterfall |
| Incremental and iterative approach | Sequentially |
| Can see product early and make decisions | Can see the product at end only |
| Broken into individual models | Not broken |
| Unstructured | Plan oriented |
| Quick to implement small ones but larges ones to estimated time is difficult |  |
|  |  |
| Planning is less Iteration take only 2 to 4 weeks | Process is phased and phase is bigger than iteration. |
| Testers and developers work together | Separately |
| User acceptance done at end of every iteration | UA done at end only |
|  |  |

**Agile Methodologies’**

1. Scrum
2. Kanban
3. Extreme Programming
4. Features driven Deployment
5. Dynamic S/w Development method
6. Lean

**SCRUM**

Concentrate on how to manage tasks within a team based development environment

Scrum derived from rugby game

Three roles

1. Scrum master – plan for meetings
2. Product owner - client
3. Scrum team – entire team (developer and testing)

**Process flow of scrum**

1. Each iterations is called sprint
2. Product backlog – list of details to get end product
3. In Scrum requirements are called user stories
4. At each sprint top user stories of product backlog are used as sprint backlog
5. Team work on defined sprint backlog (scrum master defines based on the requirements given by product owner)
6. Team checks for daily work and at end of each sprint team delivers product functionality

**Scrum Master**

1. Facilitator of team
2. Enable close cooperation b/w all roles and function
3. Remove any block
4. Shield team from any disturbances
5. Track progress and processes of company
6. Ensure agile inspect and adapt processes are leveraged properly:
   1. Daily stand ups
   2. Planned meetings
   3. Demo
   4. Review
   5. Retrospective meetings
7. Facilitates team meetings and decision making process

**Product Owner**

1. Drives product from business perspective
2. Define requirements and prioritize them
3. Release date and contents
4. Active role in iteration planning
5. Ensure team is working
6. Represent voice of customer
7. Accept user stories which meet the definitions and criteria

**Scrum Team**

Descriptor

Developer

Tester

Developer

Scrum Master

Product Owner

Tester

Developer

Tech Lead

**Scrum events**

1. Sprint – max one month time for 1 sprint consistent throughout the process
2. Sprint Planning – entire scrum team get together
3. Daily Scrum – 15 minutes (check progress of everyone)
4. Sprint review – informal meeting at end of sprint
5. Sprint retrospective – meeting to discuss previous sprint and improve next sprint

**Scrum Artifacts**

1. Product backlog – by product owner , all req needed are listed in order of priority
2. Sprint backlog – tasks to be completed in next sprint
3. Burn up charts work completed
4. Burn down charts – work to be completed
5. User Stories business requirements
6. Epic group of user stories
7. Task
8. Task board: board showing progress of project

* User story : business requirements
* To do tasks to be done
* In progress
* To verify
* Done

1. Stand up meetings

**Software Testing**

1. Intro
2. Into to test levels
3. Test types
4. Test Plan
5. Test design and implementation
6. Write test cases
7. Test data
8. JIRA
9. Test execution
10. Defect Life cycle
11. Defect tracking
12. Rev

Software Testing

Check software meet the requirements and analyze the defects

STLS Life cycle

1. Requirement Analysis
2. Test Planning
3. Test case development
4. Test environment setup
5. Test execution
6. Test cycle closure

Test Planning

1. Senior qa manager determine effort and cost
2. Finalize the test plan
3. Test strategy

* Prepare test plan
* Test tool selection
* Test effort estimation
* Resource planning giving roles and responsibility
* Training requirements

Test case development

1. Creation verification and rework of test cases and test scripts
2. Create test cases automation scripts
3. Review baseline test cases scripts
4. Create test data

Test environment setup

1. Environment decide the software and hardware conditions in which a product is tested
2. Critical aspects of testing
3. Done in parallel with test case development stage
4. Test team may not be involved if client/developer given
5. Understand the required architecture environment set up and software and hardware
6. Set up test environment and test data
7. Perform smoke test

Test Execution

1. Testing is done on test plans and cases
2. Bugs will be reported in a defect management tool/ test management tools (JIRA(atlantis), ALM (Application Lifecycle Management – advanced version of QC developed by hp), QC (Quality Centre, hp))
3. Retesting done

* Execute tests as per plan
* Doc test results and log defects for failed cases
* Map defects to test cases in RTM (requirement traceability matrix)
* Retest the defect fixes
* Track the defects to closure

Test Cycle Closure

Test tea will discuss and analyze testing artifacts to identify strategies used.

Remove the process bottlenecks in future

Evaluate cycle completion criteria based on Time