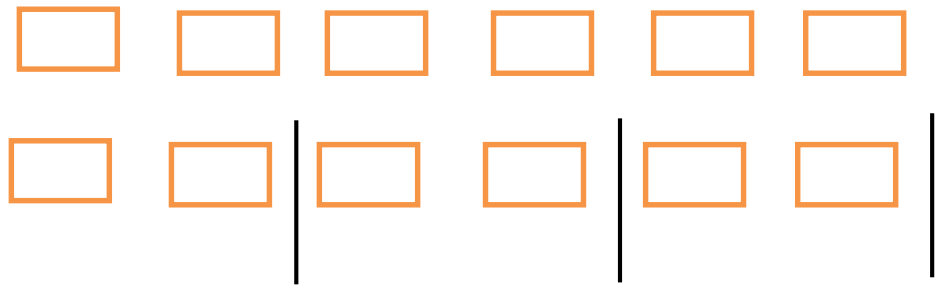
Agile Model

- Agile methodology is the module driven methodology
- In agile methodology requirements changes frequently, so it is not a plan driven methodology
- In agile methodology, stake holder/client can request for change in requirements at any point of development stage
- Stake holder can request for change at any stage (i.e. DIT, SIT, UAT, & Production)
- If any CR, that will be accepted at any point without extra money
- If any CR comes from stake holder then we will accept & check impact on current development, testing & production process
    1. If impact is more on current development & testing, then BA/PM will discuss with client or inform to client
    2. If impact is less then we will consider new CR
- Agile duration of delivery is of 2 to 3 week (fix no=2week)
- Agile methodology is a value driven methodology (we are giving priority to client)
- In agile methodology, project is divided in to no of modules/phases & releases
- As per the stake holders priority or top priority, no of modules have to be developed, module wise delivery is possible in agile or you can say it is a top priority release also
- It's a flexible process
- Ex. In agile method, project is divided into number of modules/phases & releases



Release I Release II Release III

- So, these 12 modules are divided in to release & if stake holder wants module 1 & 5 in release I then, module wise delivery is possible (i.e. 1 & 5 can be delivered in release I)

- V model & agile model- naming convention/keyword/notation are different

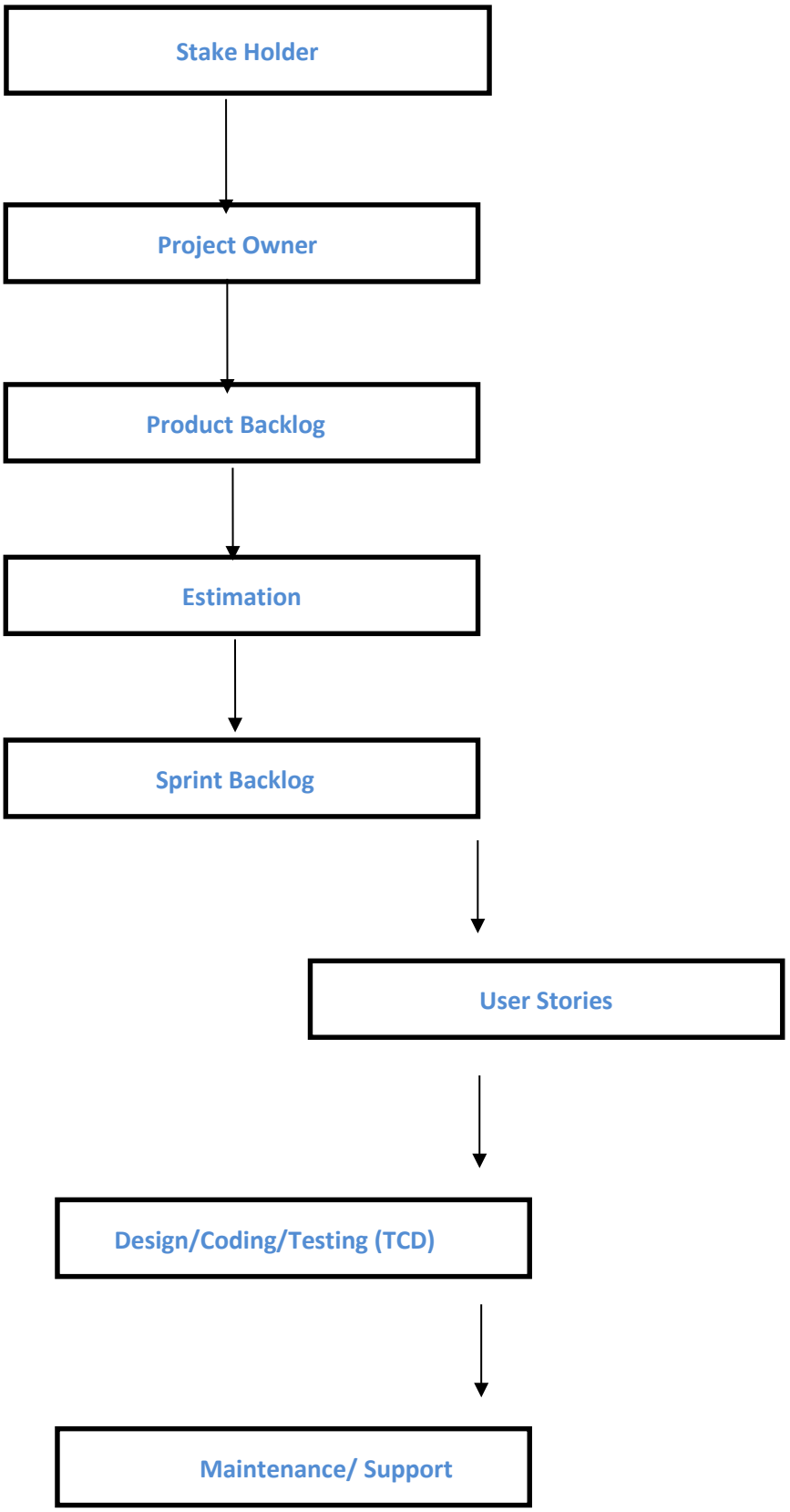
V	**Agile**
Customer	Stake Holder
BA	Product/Project Owner (PO)
BRS	Product Backlog/Project Backlog
SRS	Sprint Backlog
Use Cases/ Functional Requirement	User Story
Release-3 Month	Sprint -2 week
Project Manager	Scrum Master
Extra Money	No extra money
Developer	**Developer**
Tester	**Tester**
Designer	**Designer**
Delivery Manager	Solution Master

- Agile will contains **different** sub type/ sub model/ methodology/ framework/ flavor
  1. Kanban- Support team
  2. Lean- Support team
  3. XP- Extreme program (only dev. Team & no testing)
  4. Scrum- **Project team/main team-Sprint wise delivery to client with 2 week (Sprint 1)**
  5. FDD- Feature driven development
  6. DSSM- Dynamic system development method
  7. Crystal

- I have worked in **Scrum Agile Methodology**

❖ Agile architecture

SDLC		**Agile**
Information gathering (**BRS**)	**BA**	**Product backlog** (1 project = 2000 US)
Analysis (**SRS**)	**BA**	**Sprint backlog** **(Sprint 1 = 20 US**) (Priority – Stakeholder) **(Sprint 2 = 17 US**) No. Decide SM, PO, **(Sprint 3 = 18 US**)
Use Case (Specific 1 requirement) 1. Description 2. Acceptance criteria		**User Story (Specific 1 Req.)** 1. Description 2. Acceptance criteria
Designer (HLD, LLD**)**		**Designer (HLD,** LLD**)**
Coding (LLD)		**Coding (**US against LLD**)**
Tester – TCD, TCE		**Tester – TCD, TCE** against US
Support / maintains		**Support / maintains**


Stake Holder
Project Owner
Product Backlog
Estimation
Sprint Backlog
User Stories
Design/Coding/Testing (TCD)
Maintenance/ Support

1. **Stake holder**
    - Stake holder is a client/customer
    - Stake holder comes with bunch of requirement/own ideas
    - Stake holder is a member of the top most body of the company
    - In agile methodology, stake holder can request for change in requirement at any point of development stage / at any stage

2. **Product owner**
    - Product owner gather/collects requirements from the stake holder
    - Product owner prepares product backlog
    - Product / project owner is a team member of sprint planning meeting

3. **Product backlog**
    - Created by Product owner
    - In product backlog total/overall requirement of entire product / of entire application / whole project is given
    - It includes requirement of all modules

4. **Estimation**

    A. Estimation

    - In agile methodology the focus is on module base delivery/release
    - We get requirements & those requirements are not for one specific/particular module
    - So, in estimation requirements are sorted for development
    - Estimation is an important parameter of sprint planning meeting

    B. Estimation

    - It is a process to check how we can deal with problems when obstacle occur
    - Estimation of number phases / modules in the projects

      So, we can assign number of developers & Testers according to that
    - Priority based module

      Depends on client's requirement

- Estimation is one kind of parameter of sprint planning meeting
- People involved – PO/DL/TL
- There are 3 main factors in the estimation
    1. Knowledge
    2. Efforts
    3. Complexity

1. Knowledge

- Domain of the project & knowledge about domain of the project are checked
- Experienced & non experienced resources are taken into the consideration
- After that team is formed, after formation of team each member of the team should have knowledge about domain of the project
- KT (knowledge transfer)

2. Efforts

- Authority decide how much efforts are required for project/module
- Authority decide how many resources are required for project/module
- Selection of user story depends on the module

3. Complexity

- Complexity of the project measured to do estimation of time, cost & resources

5. Sprint Backlog

- Created by product owner
- Sprint backlog contains user stories of that particular module
- Product owner prepares sprint backlog
- Sprint backlog contains detailed information of requirements, which are required for development in sprint

6. User stories

- User stories are nothing but functional requirement
- User stories are decided into the estimation phase
- In estimation, sprint planning members decide which module have to develop & what are the requirement of the module, those sorted requirements are included in the sprint backlog
- So those user stories are functional requirement for the modules are to be developed.
- User stories have two criteria

  Description criteria – Details about requirement

  Acceptance criteria-Does & Don't about requirement

  Description Criteria- it is a description about what user want to do (process) & what is his desired output

  Acceptance Criteria- these are the scenarios when these scenarios are true then system generate correct output otherwise system show failure

  Description criteria template

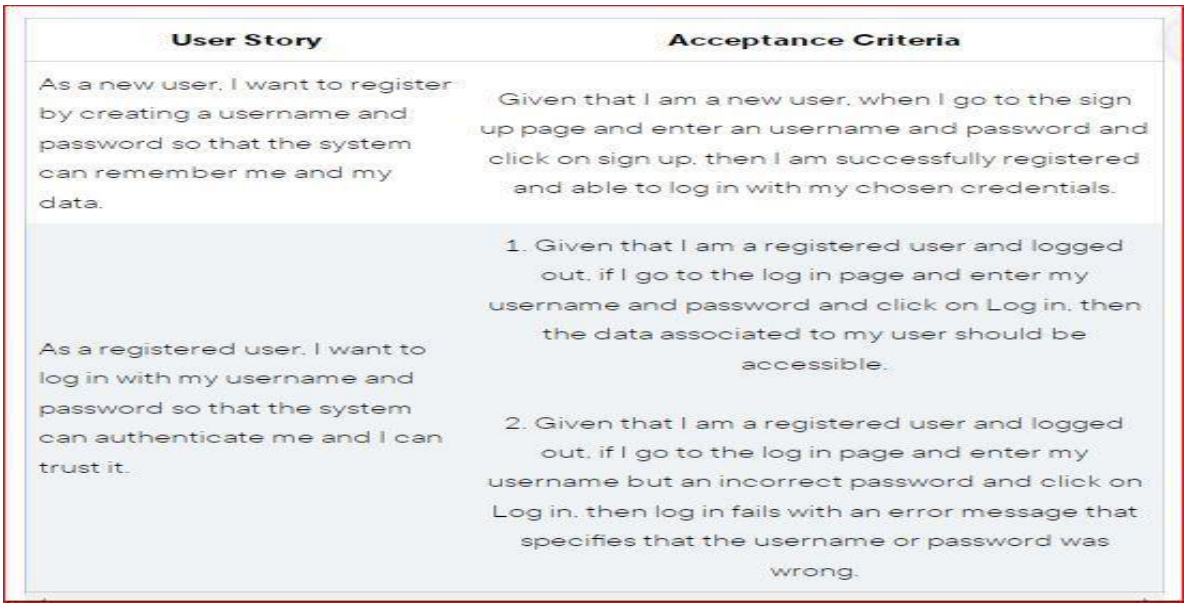
  As a [person/user], **I want** [process], **so that** [benefits]

  As a [who], **I need** to [what], **so that** [why]

  Acceptance criteria template

  Given [context] **when** [a specific action is performed] **then** [set of consequences should occur]

  Given [situational pre-condition] **when** [user action 1] & [user action 2]…..[user action n] **then** [product action 1] & [product action 2]…..



User Story	Acceptance Criteria
As a new user, I want to register by creating a username and password so that the system can remember me and my data.	Given that I am a new user, when I go to the sign up page and enter an username and password and click on sign up, then I am successfully registered and able to log in with my chosen credentials.
As a registered user, I want to log in with my username and password so that the system can authenticate me and I can trust it.	1. Given that I am a registered user and logged out, if I go to the log in page and enter my username and password and click on Log in, then the data associated to my user should be accessible. 2. Given that I am a registered user and logged out, if I go to the log in page and enter my username but an incorrect password and click on Log in, then log in fails with an error message that specifies that the username or password was wrong.

Ex.

As a user, **I want** to be securely login in to the system **so that** my information can only be accessed by me

As a online customer, **I need** to search for products, **so that** I can find the once I want to buy

7. Test case design

- Test cases are designed by tester
- Test cases are mapped with the user stories to cover all the requirement

Agile meetings / ceremonies

- **In agile 5 types of meeting / ceremonies**
    1. Grooming meeting
    2. Sprint planning meeting
    3. Scrum meeting / daily stand up meeting
    4. Sprint review meeting
    5. Sprint retrospective meeting

1. **Grooming meeting**

- Grooming session is conducted, **before the start of sprint**
- **Purpose**
  1. To understand the objective of project
  2. To understand the purpose of stake holders requirement
  3. To understand the user stories of that particular module will develop in the sprint
  4. Product owner shares essential information & provides guidelines to development & testing team
  5. If we have doubt about the requirement so, discuss with product owner & clear doubt
- **People involved in grooming**

  Product owner, scrum master, designer, development team, testing team
- **Duration**- 30 to 60 min

2. Sprint planning meeting

- Sprint planning meeting is conducted by scrum master on the 1st day of the sprint
- People involved- product owner, scrum master, designer, development team, testing team
- In the grooming session, we get overall idea about the project or current sprint user story (ex. sprint 1=20US), so in sprint planning meeting, scrum master allocates work/task & user stories to the development team lead & testing team lead as per requirements & priority of stake holder.
- The development team lead distributes work/task to the development team members, according to experience of the employee, requirement & priority of the stake holder
- The testing team lead distributes work/task to the testing team members according to experience of the employee, requirements & priority of the stake holder
- Scrum master asks for estimation/story point (i.e. how much time, it will take to complete the assigned development & testing task or time span for every user story)
- Ask for estimation= task & story point (hour/day)

  Day-8hr/week=40hr each team member

  Ex. 1 US estimation/story point = Design (2hr) + Developer (14hr) + Tester (8hr) = (22hr)
- Once the sprint planning is done, scrum master monitor each activity on daily basis
- Duration- 30 to 60 min

3. Scrum meeting / daily stand up meeting / scrum call / status call

- It is daily / everyday status call or daily / everyday stand up call meeting
- **People involved**-Scrum master, product owner, designer, development team, testing team
- Scrum master is a chairperson of the stand-up call meeting
- **Agenda** of this meeting is discussion about the progress of the project or work progress of the designer, developer & tester
- Topics are discussed in meeting / 3 question ask in scrum meeting
    1. **What we did yesterday? / What you have yesterday?**
       It is the report of previous work which was completed by team member's whether they are tester or developer.
    2. **What we will do today? / What are you doing today?**
       It is the work from pending work which team member have to complete by the end of day (EOD)
    3. **Discussion about blocker/road blocker / what are roadblock or issue?**
       This include- difficulty in executing test cases, error or defect in code compilation, lack of cooperate from team
- **Duration** – 15 to 30 min

Ex.

1. **What we did yesterday?**
   Good morning all, so, yesterday I have understood user stories & I started with test case design of this particular module "Mobile". I have completed 70% of the test case of the particular module "Mobile". In between I had some doubt, so I had connected with development team leader/ developer to write down the scenarios

   What we did yesterday? (After development)
   Good morning all, after the completion of scenario preparation. I have executed few scenarios & here is the results, so, it's working fine. I have I have found defect, so that I have raised & having raised defect. I have communicate with developer for that particular defect

2. **What we will do today?**

   We will complete remaining part the test cases, so at the end of the day I will share test case sheet along with team & whatever is the deployment there, I will execute the scenarios according to that

3. **Discussion about road blocker/issues?**

   While executing scenarios there was a blocker, so due to this we could not test that module

Summery

Scrum meeting is a standup / status call meeting. In this meeting scrum master, development team, designer, testing team & product owner are there. The main agenda of this meeting is "discussion about the progress of project" as well we discusses What we did yesterday? , What we will do today? , Discussion about road blocker/issues? & CR (open discussion). At the end scrum master summarize all the things that we have discussed.

Scrum master simply monitor the health of the project in scrum meeting

4. Sprint review meeting

- Sprint review meeting is conducted on the last day of sprint
- Product owner / scrum master take review of the work
- **Peopled involved**- stakeholder, product owner, scrum master, development team, designer, testing team
- Development team or test team prepares demo of application/product (about functionality /user story of the product) & delivers to the product owner or scrum master or stakeholder
- In this review, requirements are cross checked, some suggestions & some additional changes are also told
- This review is taken to check completeness & correctness of the product/application as per the customer requirement
- **Duration** – 60 min

5. Sprint retrospective meeting

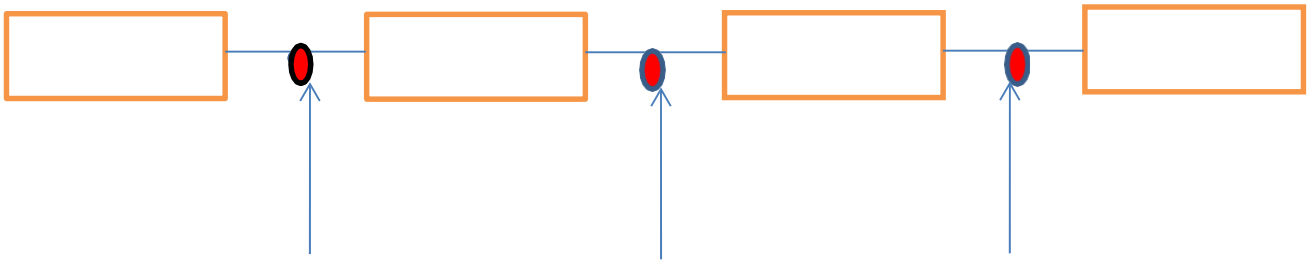
- Sprint retrospective meeting is conducted by scrum master on the last of the sprint
- **People involved**- product owner, scrum master, development team, designer, testing team
- In this meeting we discuss about the sprint
    1. What went well- good
    2. What didn't go well- bad
    3. Difficulties faced by development & testing team
    4. What were the action plans for next modules & sprint?
    5. Overall experience is shared about the sprint (good/bad)
- This meeting helps to avoid mistakes in next sprint
- **Duration**- 30 to 60 min

Summary of all meetings

Agile Meeting	**Purpose**	**Involved**
Grooming meeting **(** Any time- 2week) (Before start of Sprint)	- US / requirement **doubt/ Clarity understand**	**1hr – PO,** SM, Development team, Testing team, Designer
Sprint planning meeting **(**1 times – Start day of sprint) (1 Sprint - 2week)	- **Current sprint = 20 US added / work decide** → SM, PO & Designer - **Estimation provide** Ex. 1US = designer (2hr) + developer (14hr) + Tester (8hr) → total = 24h	**30 min/ 1hr** – **PO,** SM, Development team, Testing team, Designer
Daily stand up meeting/ Scrum meeting (Daily – 10 am to 10.15am)	- **What you have done yesterday** - **What are you doing today** - **Issue/ roadblock**	**15 min –** PO**, SM**, Development team, Testing team, Designer
Sprint review meeting **(**1 times – End day of sprint)	- US → **Tester or developer demo/ review to Client/ UAT** / **PO**	**1hr – Stakeholder/ UAT** / **PO, SM**, Development team, Testing team, Designer
Sprint retrospective meeting **(**1 times – End of day sprint)	- Current sprint (Sprint 1 → 2 week complete) → Sprint 2 work **Good & Bad things discuses**	**30 min/1hr- SM,** PO**,** Development team, Testing team, Designer

Advantages of Agile methodology

1. Check points



- In every application/product there are main module & in each main module there are no. of sub modules
- In v model- if defects at the production phase/stage, the developer has to check all the modules, he has to perform WBT & he has to find root cause of defect i.e. post mortem testing. it's not feasible always because it's a time consuming
- In agile model- in agile model after every module there are some check points, so if defect occurs at any stage or production stage then tester checks check points only & if defect occurs in check point then send it to developer, developer checks on the check points then coding appear there, defected code is highlighted with red color. So here developer doesn't have to do post mortem testing

2. Scrum meeting

- Scrum meeting is advantages of agile methodology because here we monitor daily status & progress of the project. We go one step ahead each & every day
- If CR comes, then open discussion is there in scrum meeting so this is the advantages, so where we can understand the CR clearly.

3. Implementation of automation

- We can implement automation in agile methodology
- Now a days 70% is manual & 30% is automation testing
- Selenium is the main tool for automation
- Advantages
  1. Less resource requirement
  2. High accuracy
  3. Less cost
  4. Less time is required to complete

4. Sprint wise delivery

- In agile methodology, the focus is on module wise, priority wise delivery or release (i.e. module wise, priority wise delivery is possible, & requirement wise delivery is possible this is biggest advantages of agile)
- 1 sprint – 2week

Disadvantages of agile methodology

- To implement new module in previously developed software, developer & tester should have a total knowledge about flow of software, scenarios, dependencies & relationship of the module.
- If developer & tester have knowledge of all this then they can work in agile.
- If **frequently change in the requirement**, then delivery / deployment will take time
- If **you module is depends to another module**, then delivery / deployment will take time

Agile Daily wise plane-

- Project team size – 18 peoples (10 Developer + 4 Tester)
- Agile duration **for deployment/ delivery = 2week** (5 * 2 = 10 days) (Mon to Friday)
- 1 Team = Recharge module → 3 developer + 1 Tester
- 2 Team = Electricity module → 2 developer + 1 Tester
- **3 Team = Invest in stock module → 3 developer + 1 Tester**
- 4 Team = Rent module → 2 developer + 1 Tester
- Scrum agile → Sprint 1 wise delivery = 18 US → (**4 US – assignee 3 Team**)

1 Week -

Monday (Start day of Sprint)-

- **Grooming meeting (30 min)** – US doubt celerity
- **Sprint Planning meeting (30min) –**
    1. **Sprint 1** = 18 US → Assignee work/ Task to developer + **Tester (4US)**
    2. **Estimation** = 1US – Developer (14hr) + Tester (10hr)
       2US – Developer (16hr) + Tester (12hr), etc

- **1US →** 3Developer – 1US coding- In-Progress + **Tester – 1US TCD (5/6hr)- Complete**

Tuesdays-

- **Daily stand up meeting(15 min)-**
    1. What you have yesterday (1US – TCD- Complete)
    2. What are you doing today (1US – TCE)
    3. Issue/ roadblock
- **1/2US →** 3Developer –1US coding(2hr)- Complete – Build sent for 1US, 2US- Coding - In-Progress + **Tester – 1US TCE (7/8hr)- Complete**

Wednesday-

- **Daily stand up meeting(15 min)-**
    1. What you have yesterday (1US – TCE- Complete)
    2. What are you doing today (2US – TCD)
    3. Issue/ roadblock
- **2US →** 3Developer – 2US- Coding(7/8hr) - Complete + **Tester – 2US TCD (5/6hr)- Complete**

Thursday-

- **Daily stand up meeting(15 min)-**
    1. What you have yesterday (2US – TCD- Complete)
    2. What are you doing today (2US – TCE)
    3. Issue/ roadblock
- **2/3US →** 3Developer – 2US- Build sent to tester, 3US – coding (4/5hr)- In-Progress + **Tester – 2US TCE (7/8hr)- Complete**

Friday-

- **Daily stand up meeting(15 min)-**
    1. What you have yesterday (2US – TCE- Complete)
    2. What are you doing today (3US – TCD)
    3. Issue/ roadblock
- **3US →** 3Developer- 3US – coding (4/5hr)- In-Progress + **Tester – 3US TCD (4/5hr)- In-Progress**

2 week –

Monday-

- **Daily stand up meeting(15 min)-**
    1. What you have yesterday (3US – TCD- In-progress)
    2. What are you doing today (3US – TCD- Complete + 3US - TCE)
    3. Issue/ roadblock
- **3US →** 3Developer- 3US – coding (3hr)- Complete- Build Sent, 4US - coding (3hr)- In-Progress+ **Tester – 3US TCD (2hr)- Complete, 3US – TCE (4/5)- In-Progress**
- **3US – TCE (2defects)-** Defect we will inform to developer + Developer will fix defects (2/3hr) + **Tester** will check defects(2 defects) **(2/3hr)** - **Complete**

Tuesday-

- **Daily stand up meeting(15 min)-**
    1. What you have yesterday (3US-TCD-Complete, 3US- TCE- In-progress, 2 defect)
    2. What are you doing today (3US – remaining TCE)
    3. Issue/ roadblock

- **3/4US →** 3Developer- 4US - coding (5/6hr)- In- Progress+ **Tester – 3US TCE (4/5hr)- Complete**

Wednesday-

- **Daily stand up meeting(15 min)-**
    1. What you have yesterday (3US- TCE- Complete)
    2. What are you doing today (4US – TCD)
    3. Issue/ roadblock
- **4US →** 3Developer- 4US - coding (5/6hr)- Complete + **Tester – 4US TCD (5/6hr)- Complete**

Thursday-

- **Daily stand up meeting(15 min)-**
    1. What you have yesterday (4US- TCD- Complete)
    2. What are you doing today (4US – TCE)
    3. Issue/ roadblock
- **4US →** 3Developer- 4US - coding (1hr)- Build sent + **Tester – 4US TCE (4/5hr)-**
- **Tester 4US – TCE – found 7 defect →** Tester will inform to developer **→** Developer **defect - 1to 5 fixed** & developer say **defect no. 6 to 7 is not valid** (**Developer not accepting defects**) + Tester will check/testing **defect 1 to 5 –has been Testing (3hr)**

Friday (Last day of Sprint)-

- **Daily stand up meeting(15 min)-**
    1. What you have yesterday (4US- TCE- In-Progress, 7 defects, 5 defect -test)
    2. What are you doing today (4US – Remaining TCE)
    3. Issue/ roadblock (Developer is not accepting defect 6 and 7)
- **4US →** 3Developer- 4US – Defect fix (2/3hr) + **Tester – 4US TCE (3/4hr)- Completed, Defect 5 to 7 check /testing(1hr) – working/ fix - Completed**

- **Sprint review meeting(1hr)-**
    1. Tester 4US test – **4US Demo to Client/ UAT/ BA**

- **Sprint retrospective meeting (30min)**
    1. Current Sprint (Sprint 1)- Good & Bad discussion