

Analysis of Framework of Scrum and Analysing its Working Mechanism and Various Methodologies

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Abstract: - Scrum is methodology which is used for the software development which is based upon the incremental and iterative models of software development. It is a framework which is easy to adapt, flexible to make modifications, and gives faster results and also encourages involvement of the client throughout the process of development of the project. The focus of scrum methodology is to take feedback from clients at each stage and key achievements and always work for continuous improvement of the project. The development of the software starts from initialising and understanding what needs to be done and then by creating a list of detailed features of the project which the product owner wants to achieve. Scrum framework focuses around giving arrangements in steady methodology which implies that it centres around changing over couple of necessities into practical programming and afterward give it to the client to give criticism after which again a similar cycle is rehashed to accomplish fulfilment from purchaser's side. The upside of utilizing this approach is that assuming there are any progressions to be made than that can be put forth effectively absent a lot of attempts, since it is steady model. The paper will discuss the importance of Scrum, various stages, roles etc.

Keywords: - Introduction to Scrum, Phases of Scrum, Benefits of Scrum, Challenges of Scrum, Roles in Scrum.

Introduction: -

Scrum is derived from game called rugby where if something goes foul or wrong then the game is repeated with the mistakes learnt from the previous game. Scrum is the framework which allows all the team members working on a project for software development to work together by providing better platform for efficient communication, better planning, understanding requirements, assigning responsibilities etc. The objective of scrum framework is to encourage the team to work together and maintain self-discipline and learn from mistakes and make sure that in the next phase they will improve. It also provides the scope of customer satisfaction by involving them in the development of the software and takes regular feedback and include if there are any changes or modifications to be made. The Scrum framework is becoming one of the popular frameworks as it not only helps the development team but it can also be used for any kind of team work. It has features like tools used for meetings, documenting tools, roles etc which helps the team to organise and manage their work. Scrum consists of sprints which are small blocks whose execution duration is 2-4 weeks. This is so because they need to take feedback from the end user and reflect if there are any modifications. Each sprint is capable of providing complete result with less and minimum efforts which must be delivered to the end user to provide feedback. It has set of rules and standards that defines specific roles and responsibilities that must be included during the software development cycle. The scrum methodology can be applied in project management also where team work is required and it has effective tools and

policies and rules which helps to deliver efficient reliable product on time.

Phases of Scrum: - [1]

There are three groups of phases of scrum which are defined as following: -

1. Pre-game
2. Game
3. Post-game

1. Pregame: -

- This is the first phase of scrum which deals with the planning of the project to be delivered. First of all, backlog is created before dividing the large project into small components of the project.
- The tasks consist of user stories in the sprint backlog stage.
- The next step is to create architecture design where actual tasks to be executed in the sprint are defined.
- The focus will be on how to perform tasks, how to make modification, if necessary, filter tasks, analysis, fix the issues or provide solutions to fix them.

2. Game: -

- This is the second phase where the tasks are actually executed and marked as completed. It is make sure in this phase that the allocated tasks to the resources are started and finished also.
- Following are the four main tasks performed in this stage: -

1. Create sprint backlog, develop, test, document.
 2. Mark work status as close.
 3. Review meetings
 4. Make modifications.
- The initial stage of this phase is to conduct a stand-up meeting which should be attended by everybody involved in the development process of the software.
 - During the development phase, there could be issues which the product owner to scrum master should attend to and once they are solved then again, the sprint can be started.
3. Post-game: -
- This is the final stage of the scrum, where once the development is finished then the testing, integration, user documentation, marketing etc are released.
 - This is efficient approach as time is not wasted in this and also it is organised and time-oriented as compared to other techniques.

Stages of Scrum: -

There are following five steps of phases in the Scrum master:

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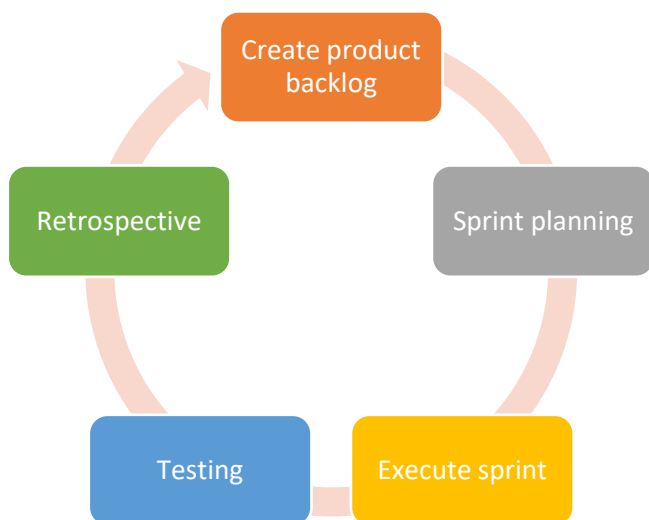


Figure 1 Steps of Scrum phases.

1. Create Backlog: -
 - In this first step, the large and detailed function are divided into small epics and user stories.
 - These user stories are included in the product backlog as they are smaller in size.
 - Following are the fields which are mandatory to be included in user stories: -
 1. Estimates defined during the meeting.
 2. Demo explaining the conversion of user stories into tasks.

3. Importance of user stories.

2. Sprint planning and creating back log: -
 - The objective of this function is to design the moves to be made for the impending run. The necessary data and information will be assembled and appropriate making arrangements for the errands to be finished for the following run will be talked about in this gathering.
 - Individuals engaged with this service will be the advancement group, item administrator, scrum ace.
 - This is significant function which will occur toward the beginning of each run to be performed.
 - Leading this gathering for one hour every week for each sprint is significant. In the event that in couple of associations, assuming run is of about fourteen days the time spend on the run gathering ought to be 2 hours of the week.
 - Individuals engaged with this service like item proprietor and so on will sit with the improvement group and spotlight on the things that will be expected for accomplishing the goal of the ongoing print.
 - The things are taken from the item accumulation and afterward it is assessed that what amount of time will it require for the overabundance thing to be finished.
 - The result of this function is that it is distinguished what run is going in the build-up and what are the objectives of the run.
 - Run excess is the rundown which comprises of things and errands which will be finished during the run. It likewise depicts that who will perform which assignments.

3. Execute Sprint: -
 - In this phase the actual work starts on the user stories. This means that the user stories are converted into actual tasks and assigned to the team members to execute them.
 - To initialize the process a board having number of cards called Kanban board is used.
 - The card will contain details about the owner of the particular task, assigne work details, time duration, due date etc.
 - The task board will contain the following items: -
 1. Product backlog/User stories
 2. To do list
 3. Work in progress
 4. Testing
 5. Work done
 - These cards can be moved which is based upon the task completion and the priority of the tasks.
4. Testing: -
 - The undertakings finished are to be acknowledged as a functioning item with full life cycle testing.

- The testing cost can be limited with the expansion of QA or having less client stories, notwithstanding, the first is the most ideal arrangement.
- Each run that is finished should be exhibited to the client for his acknowledgment and his perspective on the total arrangement.

5. Retrospective Meeting: -

- This gathering is directed to recognize the up-sides occurred in the past run and to examine about what turned out badly and how to further develop it in next run.
- Every one of the individuals who have worked in this run ought to go to the gathering alongside the advancement group, scrum ace and the item proprietor.
- This gathering happens at whatever point the run is finished and when the run survey meeting is likewise led. The span of this run gathering is around 45 minutes each multi week run.
- On the off chance that the run is fourteen days, the span of this gathering ought to be 90 minutes.
- The goal of this run is that it assists the improvement with joining to figure out the deficiencies of the run and to gain from it and perform better in the following run cycle.
- This is fundamentally a function which is a constant improvement process which happens to distinguish the key regions which needs improvement and should be possible in next iterative run cycle.

Roles in a Scrum Framework: - [2]

Following are the main roles of the Scrum framework: -

1. Scrum Master: - He is the person who is trained and expert in scrum methodology and make sure that everybody in the team follows the rules and methods of the scrum.
2. Product owner: - They are the representative of the client and the stakeholders. They are also responsible for the ROI of the business and also make sure that the user stories are validated.
3. Team: - People who are technically sound and have skills to convert the user stories into actual development task.

Advantages of Scrum Framework: -

Following are some advantages of scrum framework: -

- Flexible Methodology: - Scrum is the most flexible methodology which provides a framework in which it is very easy to make modifications.
- Time reduction: - Before the complete project is ready the client can actually start using the functions which are already ready.

- High quality final product: - Scrum make sure that the final product delivered to the end user is of high quality.
- Less risk involved: - The risks involved in this methodology reduces as the project is executed in the form of small sprints.
- Scalability: - Scrum processes are iterative and are taken care of inside unambiguous work periods, which makes it more straightforward for the group to zero in on clear functionalities for every period.

Challenges in Scrum: - [3]

There are following few challenges of the scrum framework:

1. Disrupt team work: - The product manager keeps on adding new requirements which leads to hindrance in daily work of the team members.
2. Insufficient sprint duration: - The scrum framework is not able to perform with complete efficiency if the duration of the sprint is short or are very long.
3. Lack of experience: - It is very essential that everybody working on scrum must have been trained well otherwise the project and execution of sprint does not run smoothly.

Conclusion: - Scrum is the system which permits all the colleagues dealing with an undertaking for programming improvement to cooperate by giving better stage to productive correspondence, better preparation, understanding necessities, doling out liabilities and so on. The target of scrum system is to urge the group to cooperate and keep up with self-restraint and gain from slip-ups and ensure that in the following stage they will move along. It likewise gives the extent of consumer loyalty by including them in the advancement of the product and takes standard criticism and incorporate assuming there are any progressions or changes to be made. The Scrum structure is becoming one of the well-known systems as it assists the advancement with joining as well as be utilized for any sort of cooperation. It has highlights like instruments utilized for gatherings, recording devices, jobs and so on which assists the group with coordinating and deal with their work. Scrum comprises of runs which are little blocks whose execution span is 2 a month. This is so in light of the fact that they need to take criticism from the end client and reflect assuming there are any changes. Each run is fit for giving total outcome less and least endeavours which should be conveyed to the end client to give input. It has set of decides and norms that characterizes explicit jobs and obligations that should be incorporated during the product improvement cycle. The scrum approach can be applied in project the board likewise where collaboration is required and it has compelling apparatuses and arrangements and rules which assists with conveying proficient solid item on time.

References: -

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