

# Planning Poker Tool for Story Point Estimation

Nayana Gajanan Naik<sup>1</sup>, Divya T L<sup>1\*</sup>

<sup>1</sup>Department of Master of Computer Applications, RV College of Engineering, Bengaluru, Karnataka, India

## Abstract

A classic bottleneck is the effort estimating process in which product managers, project managers and software developers must anticipate the amount of work required to accomplish a development project. Planning poker, sometimes known as scrum poker is a gamified approach used by development agencies to estimate the amount of time and effort required to perform tasks of a development project. The estimates using planning poker are more intriguing and trustworthy than those of other methods. To help assess the quantity of project story point for the activities that are required, teams use planning poker cards, which are similar to poker cards. Planning Poker teams frequently claim that their estimates are more accurate than any other strategy they've attempted. Although group estimation is superior to individual estimation, there is still room for improvement. Planning Poker improves effort estimations since it brings together a range of different voices and also to avoid the influence of the other participants. Because they function on a software project as either a merge team from diverse professions, these individuals are better equipped to estimating work compare to effort estimation in other tools like Jira.

**Keywords:** *Planning Poker, Story Board, User Room, Poker cards*

## 1.0 Introduction

In Agile Software development (ASD), the final software product is progressively designed by a group in rectified intervals or Sessions. In plan driven techniques of software development, a Project Manager (PM) will have final authority regarding what and how to focus on for each step and also what feature is needed at the end of each phase [1]. In contrast, the client representative (Product Owner, or PO) sets the order of work needs to be done in an ASD technique, and the software team selects more feature they will agree to providing on a Sprint-by-Sprint

---

<sup>1\*</sup>Mail address: Divya T L, Assistant Professor, Department of Master of Computer Applications, RV College of Engineering, Bengaluru – 59, Email: divyatl@rvce.edu.in, Ph:9986024692

basis. Sprint is small, time-boxed period for complete a set of work by scrum team.

Planning Poker is a widely utilized approach for guessing individuals will engage to for each software development phase[2]. It's an estimation for which features and functions should be in Sprint. This approach is based on a group evaluation of two factors: an estimate of the team's capacity for one sprint (the team's velocity), and an estimate of what all of the organized work the team can accomplish given this as team ability. Whereas Planning Poker employs a number of estimate strategies for forecasting the relevant software development work, such as the use of professional advice, analogy, and decoherence. In complicated settings, combining various procedures may help to increase estimation accuracy, resulting in as compared to a single method, more effective estimate outputs. Meanwhile, it is stated that Planning Poker provides other software effort prediction advantages, such as encouraging the combining of many viewpoints, minimizing so-called "Anchoring" effect (anchoring is decisions influenced by particular reference point or anchor. It happens if effort estimation is not done with agile techniques), and encouraging individual engagement, due to the specific estimation mechanism and process. The phenomena of 'anchoring' is a prevalent cognitive bias in group operations. It may be defined as the impact of one person's initial estimate on future estimations by others, even if the initial estimate is wildly optimistic. Additionally, the Planning Poker strategy can be used to organize work in a multi-specialist group in order to solve highly complicated software estimation challenges.

In planning poker tool, a scrum Master will log in to planned tool and preload the user requirement stories, which is required to estimate that stories effort. Backlog things (usually within the range of stories) can continue to be added throughout the project, most groups can realize it terribly useful to conduct resultant, Agile estimating and planning meeting sessions once per every iteration. This may be done one day before the highest of the sprint and straightaway following a daily rise, since the whole team is together at that point. Team could also be provided to an option to enquire for clarify on assumptions and risks. Members should not mention numbers during discussion time and summary can be recorded by moderator. One who estimated high and low should share their reasons. After discussion, every estimator one more time selects a card, and each one cards are again disclosed at a similar time. The strategy is continual until the estimators conclude that agile estimating and designing of a particular user story should be postponed until additional data are usually acquired.

## 1.1 Related works

S Zhong et al. [1] in their paper discussed about Agile Planning and Agile methodology. This paper covers basic methods of agile planning based on practice experience from two aspects: estimation of iteration, release plan and three popular agile methodologies: Scrum, Xp, and crystal. S Basri, et al. [2] in their paper explains about the importance of role of an Effort estimation. Agile plays a very important significant role in any IT projects. Effort evaluated and estimated in any IT development project by the estimation value in terms of the number of resources available or time or days needed to complete project activities therefore on deliver the product or service that meets the provided functional needs to a client. P Rola et al. [3] in their paper have conclude that completely different estimation technique for the Scrum backlog items of Scrum based IT development comes. The matter of effort estimation is extremely important, as a result of estimating low quantity decreases the efficiency of project while implementation. The investigator found that the estimation methods that applied in ASD or in the other development environments were skilled Judgment, Neural Networks, Planning Poker, modified Use Case point, Wideband Delphi and Bottom-up/Top-down., Use Case purpose, statistical regression.

M Hamid et al. [4] in their paper explains about an Intelligent recommender and call support system (IRDSS), is being proposed which can facilitate the Scrum to estimate best value and additionally estimate upcoming software project cycle in terms of cost, time, and suggestions of human resources. This paper emphasizes that how IRDSS is better than designing Poker, and Delphi estimation. J Noll et al. [5] in their paper conclude that require to re-assess the role of Project Managers in organizations that adopt scrum as a code development approach. Project that it would be good option for Project Managers to become Product owners, because it helps and it's tasks in line with the do's and don'ts of a manager. R M Chopade et al. [6] have concluded regarding writing user stories by alternative ways in which it may be treated positively or negatively and the way it impacts on requirement verification. In this paper first given brief plan about user stories with examples, how it need to represented positive and negative user stories followed by conclusion and future work aligned to it. R Tamrakar et al. [7] in their study focus is given on why will we got to use cards to define an estimate in planning Poker is by Fibonacci scale. This paper confirms that use of a scale, and the other nonlinear scales, is similar to the effort the trouble estimates towards lower values compared to alternative other scales.

The main agenda of this analysis by T Gandamani et al. [8] is to present the results of a research study of which that has been applied to compare the accuracy of consensus value and average of the steered efforts of every stories. N Keshtaet al. [9] in their paper have said about main aim of this analysis is to differentiation of the plan based and agile IT project processes. The paper will help to discuss about the Planning methodology should be estimated based on their team availability and also the project domain. The final outcome of this paper may be a corporation should consider all factors and estimate the value for story. Finally, Agile will fits with minimal team sizes, for software system, Traditional ways that were followed earlier can best suitable massive team sizes, for reusable legacy project plans.

Z Zhang[10] in their paper focuses on researching the real-time working of Planning Poker methodology during a detailed case study report. It also aim to identify how the sensible method are coming up with Poker and how is different from the other theory, whether the expected advantages were met or not, and why we need these methods in planning. Many researchers taken the effort estimation process for agile and scrum models. The open source repositories also gives idea of calculation of effort[11-13].The portfolios of previous projects helps in the recommendation of effort involved the cost estimation task[14-17].

The literature survey gives that, software development have many types of estimation to develop project(Time, resource, cost, effort). The effort estimation have many drawbacks. Effort estimation is necessary in software development but every client expects low cost tool and if it's open space effort estimation cannot manage time intervals for estimate and expert estimators can easily mislead irrelevant information. In this paper, explained about tool how which can be overcome drawbacks of effort estimation.

## **2.0 Proposed System**

Planning Poker is a similar method used popularly as part of Agile Scrum framework, by which the size/effort of a user story is determined with averaging of estimated poker cards.The design of this Planning poker process was to help software organizations more accurately estimate development timelines by averaging the estimated poker cards values.

### **2.1 Background**

Estimation has an important place within the software development world as any scaled development, especially within remote teams, can make the cost, resources and have availability difficult for business. With

a proven and widely accepted estimation practice like Planning Poker with potential visibility on cost, resource usage and time to market. Via Planning Poker, teams can estimate a feature development effort without getting influenced by other participants, thus making effort estimates reasonable, predictable and just about a typical practice. Planning Poker is predicated on the Fibonacci series to assign story in iteration. The Fibonacci series could be a series of numbers generated by adding the 2 preceding numbers collectively to urge the subsequent number within the series: 0, 1, 1, 2, 3, 5, 8, 13, 21, and so on. Table 1.1 gives values to all the participants to estimate cards estimated cards reveal at the same time after a round of feature related discussion and finally effort is calculated by averaging the estimated card values.

**Table 1.** Card values for estimation

Card Value	Interpretation
0	Task finished.
1/2	Task is very small.
1,2,3	For small sized tasks.
5,8,13	For medium sized tasks.
20,40	For large sized tasks.
100	For very large sized tasks.
?	No idea about how much time it will take to complete the task.
Infinity	Used for very large sized tasks.
Cup of Coffee	I need a break.

The design methodology of proposed tool are HTML, CSS and Boot Strap for frontend user interface design. And ReactJs for complete flexibility to develop and to use in any devices to estimate effort. For back end, Node JS is used and connection of module is established through socket.io. The purpose planning poker proposed tool will be the next step in providing planning environment for agile groups (user room) that meets the requirement of distributed teams. This proposed tool is developed to enhance process of Planning strategies by providing groups with a digital user interface based mostly environment that supports information management in addition to person-to-person interactions by chat box. The steps involved in proposed planning poker tool in Agile Software Development.

### 3.0 Methodology

#### Step1: Starting a session

The scrum master plays a key role, who can create an environment and user room for effort estimation (Fig. 1).



Fig. 1. Planning Poker scrum master login page

#### Step 2: Story board creation

A product manager or scrum master provides an overview of the feature set or user story that is to be estimated. A user story, in software development refers to description of a software feature from an end-user perspective in normal natural language.

#### Step 3: Inviting other users using invite link

To invite others to the estimating session, we need to copy the invite link URL in the left side of the screen or from address tab. Send the link to everyone that who has to participate (Fig. 2). This could also be done via e-mail, IM, SMS or by any communication mechanism you like.



Fig. 2. Sending invite link page

#### Step 4: Chat box / Discussion

The user can have a discussion about features & asking question of Product manager and when needed (Fig. 3).



Fig. 3. Chat Box Page

### Step 5: Estimation of effort

When the scrum discusses on feature, Each user estimate privately and selects one card to represent their estimate for that user story. All cards are then revealed later point at same time. After everyone is ready and choose their estimation, averaging the estimated poker card values will be due to estimate final effort for that particular story. This result will be final estimation value and which tellsthat we can develop project within 7 days (Fig. 4).



Fig. 4. Average of estimation Result

Fig. 1 to 4 gives about methodology adopted for creation of story board and effort estimation.

### Advantages

Planning poker tool is different and have advantages compare to relative methods of other planning tool like Jira software given in the table 2.2.



**Table 2.** Advantages of Planning Poker tool versus Jira software

	<b>Jira Tool</b>	<b>Planning poker Tool</b>
Compatibility	This tool is not easy to set up and its not free tool for every users.	The tool is easy to set up - Planning poker tool along with the technologies like HTML, CSS, bootstrap, Java-Script, Node Js, React Js, Rest API really makes it easy and helpful.
Usability	For beginner it's not easy to use	Easy to user for every users
	Interface is not User friendly	It have user friendly interface can make managing tasks easy.
Accessibility	Detailed communication will not be possible	Collaboration features helps to communicate with estimation team
	Jira is not free tool	It's a free tool to users
Performance	It's very slow with long query load times.	Effort Estimation will happens within 3 seconds

## 4.0 Conclusion

With the intensive competition in the current market, planning poker has become more important to save precious time and optimize the work to lead team in right direction to get maximum yields. It is an excellent way for estimation, and since it's average-based, it provides accurate results and helps to achieve organization and project goals. Planning poker tool which enables the effective estimation meetings for distributed agile teams. The tool is built by integrating the Agile Planner process. It will enable iteration planning through scrum master login, Story board view and helps to send Invite link to all required user and cope with the exchanged information from different user. Probably, our review of current tools for performing planning poker agile estimation revealed a lack of some specific features those were then added in this planner method to handle effective planning such as Tea break, invite links which helps to achieve the project goals.

## References

1. S Zhong, C Liping, C Tian-en, Agile planning and development methods, *13rd International Conference on Computer Research and Development*, 4, 488-491, 2021.
2. S Basri, N Kama, H M Sarkan, S Adli, F Haneem, An Algorithmic-based Change Effort Estimation Model for Software Development, *23rd Asia-Pacific Software Engineering Conference (APSEC)*, 177-184, 2016.

3. P Rola, D Kuchta, Application of Fuzzy Sets to the Expert Estimation of Scrum-Based Projects, *Symmetry*, 11 (8), 1–23, 2019.
4. M Hamid, F Zeshan, A Ahmad, F Ahmad, M Ali Hamza, An Intelligent Recommender and Decision Support System (IRDSS) for Effective Management of Software Projects, *IEEE Access*, 8,140752 - 140766, 2020.
5. J Noll, M A Razzak, J M Bass, S Beecham, A Study of the Scrum Master's Role, *International Conference on Product-Focused Software Process Improvement*, 10611, 2017.
6. R M Chopade, N S Dhavase, Agile software development: Positive and negative user stories, *2nd International Conference for Convergence in Technology(I2CT)*, 297-299, 2017.
7. R Tamrakar, M Jorgensen, Does the Use of Fibonacci Numbers in Planning Poker Affect Effort Estimates?, *16th International Conference on Evaluation & Assessment in Software Engineering*, 228-232., 2020.
8. T J Gandomani, H Faraji, M Radnejad, Planning Poker (KBEI), in cost estimation in Agile methods: Averaging Vs. Consensus”, *5<sup>th</sup> Conference on Knowledge Based Engineering and Innovation*,66-71, 2019.
9. N Keshta, Y Morgan, Comparison between traditional plan-based and agile software processes according to team size & project domain, *8th IEEE Annual Information Technology, Electronics and Mobile Communication Conference*, 567-575, 2017.
10. Z Zhang, The Benefits and Challenges of Planning Poker in Software Development: Comparison Between Theory and Practice, *Thesis -Auckland University of Technology*, 2017.
11. F Qi, XY Jing, X Zhu, X Xie, B Xu, S. Ying, Software effort estimation based on open source projects: Case study of Github, *Information and Software Technology*, 92, 145-157, 2017.
12. A Lee, J C Carver, A Bosu, Understanding the impressions motivations and barriers of one time code contributors to FLOSS projects: a survey, *Proceedings of the 39th International Conference on Software Engineering ICSE*, 187-197, 2017.
13. M Alhamed, T Storer, Estimating software task effort in crowds, *IEEE International Conference on Software Maintenance and Evolution ICSME*, 281-285, 2019.

14. V Mahnič, T Hovelja, On using planning poker for estimating user stories, *Journal of Systems and Software*, 85 (9), 2086-2095, 2019.
15. B Tanveer, L Guzmán, U M Engel, Effort estimation in agile software development: Case study and improvement framework, *Journal of Software: Evolution and Process*, 29 (11), 1862, 2017.
16. K Schwaber, J Sutherland, The scrum guide, *Scrum. Org*, 2, 17, 2021.
17. G Robles, J M González-Barahona, C Cervigñn, A Capiluppi, DÍzquierdo-Cortázar, Estimating development effort in free/open source software projects by mining software repositories: a case study of Open Stack, *Proceedings of the 11<sup>th</sup> Working Conference on Mining Software Repositories*, 2016.