Scrum Implementation using ClickUp on Rentors Website Application Development

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Abstract. The Scrum methodology has been chosen as the software development approach for building the Rentors website application, as it can generate adaptive solutions to complex problems through iterative stages. Collaboration and team member management are essential to completing these stages. ClickUp is implemented to support the completion of these stages for scheduling, team communication, progress tracking, and monitoring, also to integrate all planning and management aspects of software development using the Scrum methodology. The team organizes tasks in the product backlog in ClickUp with their respective PIC and timeframes, then establishes job descriptions in the sprint backlog and perform daily scrums meeting for 1 to 4 weeks. There are 31 product backlogs that documented in ClickUp and the optimization of the measurement of the completion time is more than 90%. With ClickUp, collaboration and communication of each team members were highly efficient. ClickUp greatly facilitated task management and progress monitoring of Scrum Implementation.

Keywords: Scrum, ClickUp, Product Backlog, Time Optimization.

1 Introduction

The increasing number of events in Indonesia is marked by more and more events in the fields of sports, arts, music, or other entertainment. Organizing these events naturally requires systematic structure and dedication to ensure successful execution, one of them uses the services of an Event Organizer (EO). The need for event organizations using EO services because of ease and practicality shows promising business prospects for EO [1]. EO services certainly have different services in each company. One of the services offered by EOs is the rental and procurement of event-related items. However, in some companies, this service is still done manually and has not utilized technology optimally, such as recording goods that have not been integrated, rental systematics that have not been automated, and business promotion only with a Word of Mouth (WOM) strategy where individuals recommend products to others [2]. Miscommunication is very likely to occur because the system is still manual and can affect the event itself, both technically and formally [3], also can result in distrust and dissatisfaction with EO.

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Web application is one of the solutions to minimize miscommunication and expand the market of rental and procurement services. Developing software requires methods to ensure quality and systematic software production. The principle used to develop rental and procurement web applications is Agile Software Development, implemented using the Scrum methodology. Scrum is a structured framework for generating adaptive solutions to complex problems [4]. Collaborating and managing team members through these stages is not easy, given each member's unique job description. It is challenging for a leader or team member to oversee the work of others. Thus, tools are needed to support the completion of these stages and integrate all planning and management using the Scrum method.

Trello, JIRA, and ClickUp are a project management tool that enables any number of users in a team to plan, manage, and design their work in an organized and collaborative way [5][6][7]. However, among them, only ClickUp offers features to aid development and project management using Scrum methodology [8]. ClickUp helps compiling the sprint backlog and will automatically update so that all team members can monitor the project progress [9]. Therefore, for further work on collaboration and team management of website application development, ClickUp application was chosen.

2 Methodology

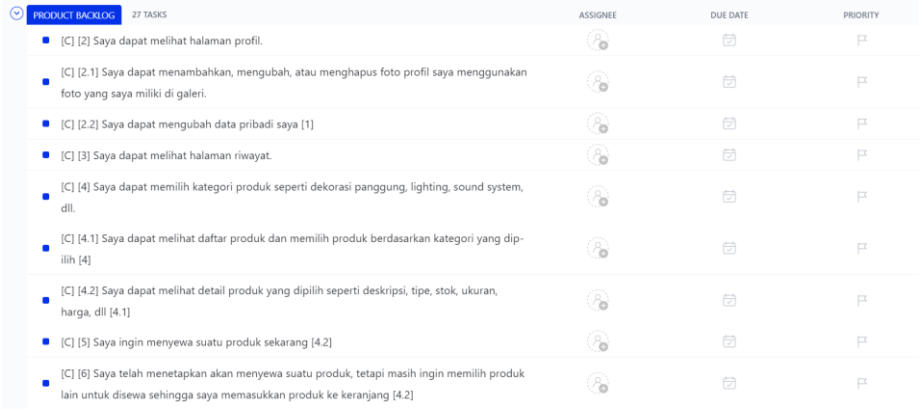
2.1 Problem Analysis

A website application called Rentors developed using Scrum methodology to overcome issues of rental and procurement service on event organizer company. The issues faced by the Scrum methodology were analyzed using the PIECES by classifying problems so as to compare to what occurred in the old system and the solutions in the new system [10, 11]. Based on the analysis, Scrum method involves the effectiveness of collaboration and team member management. Therefore, Clickup, a tool to facilitate collaboration and team member management is needed. Clickup provides features that make it easier for scheduling, communication, progress tracking, and monitoring of website application development using Scrum method.

2.2 Solution Design

Developing Software with the Scrum Method. Scrum is one methodology with principles of iterative and incremental development that produce a flexible system [12]. Every task that must be carried out by the team are organized in the product backlog and will be written in ClickUp along with their respective timeframes for completion. Before daily scrum for approximately 15 minutes every day within 1 to 4 weeks, team will establish their job description within ClickUp in sprint planning stage in the form of sprint backlog. After that, team will evaluate and review the website application product also their cooperation in project planning and management using ClickUp and the Scrum approach. Each stage of Scrum method in Clickup can be completed using one of the main features in ClickUp, namely Sprint Points Click-

App. This feature allows teams to customize workflows and lists for each product backlog in each sprint. Each completed product backlog list can be tracked and used to determine the speed of completion of a workspace or project. This list tracking can be seen through various feature views, such as ClickUp Dashboards, Box View, Workload View, Portfolio Cards, and so on. Scrum implementation using Sprint Point ClickApp feature in ClickUp on Rentors website application development can be seen in **Error! Reference source not found.**.

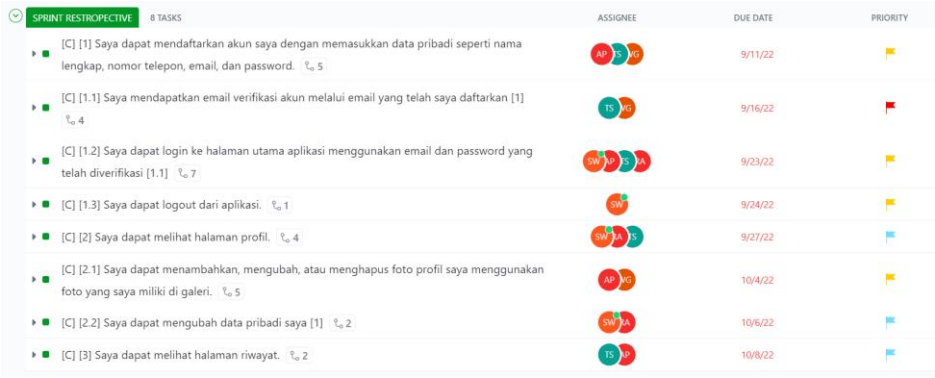


(a)

(b)

(c)

(d)



(e)

Fig. 1. Each stage of Scrum in ClickUp, (a) sprint planning, (b) daily scrum, (c) sprint review, (d) sprint retrospective.

Manage Member Planning and Management with ClickUp. ClickUp serves as a platform for team communication and collaboration, allowing tasks to be assigned, tracking progress, collaborating on various projects, managing sprint developments, and so on [13]. Given the versatility ClickUp is used as it aids in managing the planning and development of the website application by implementing the Scrum method. ClickUp supports website application development by offering features that facilitate member management and project organization. Besides the Sprint Point ClickApp feature that can customize workflows and lists for scrum implementation on software

development, there are other features used to carry out sprints in the development of the Rentors website application, namely:

1. **Custom Fields.** Customize tasks to display dates, phone numbers, emails, dropdowns, links, and so on. Team members can add or subtract fields contained in a product backlog and can sort based on alphabet.
2. **Sprints.** Create sprints as a collection of lists and track the progress of the project being worked on. This feature can customize unfinished tasks to the next sprint and mark completed sprints.
3. **Priority**. Set and assign priority levels to each task based on importance. There are four priority levels in ClickUp, namely urgent, high, normal, and low.
4. **Multiple Assignees**. Allows one task to have more than one person receiving and working on the task.
5. **Time estimates**. Add an estimate of the time it takes to work on a task and calculate how much time it will take to complete a project. This feature can also set different time estimates for each team member.
6. **Time Estimates Rollup**. Calculates total estimated time based on subtasks of a task product backlog.
7. **Time Tracking**. Track time using the global timer or log time manually. This feature can track the time each team member has worked on a product backlog and compare it with the estimated time that has been given.
8. **Time Tracking Rollup**. Calculates the total time tracked based on subtasks of a product backlog task.
9. **Docs**. The place to work on all website application development documentation from each member in one centralized location. Each team member can create documentation that contains what they have worked on, obstacles faced, and other details.

3 Result and Discussion

3.1 Result

Application Concept Design. The designed application concept takes the form of stories from customer, written in the format of a product backlog, outlining what tasks the team needs to undertake to create the Rentors website application. This product backlog is documented in ClickUp, accompanied by code. There are 31 product backlogs and one of the examples is *{2} I can see my profile page*.

Determination of the Software Development Design Agenda. The second phase involves breaking down the product backlog into sprint backlog. In this stage, the team engages in an 8-hour brainstorming session to determine which tasks will be worked on and how many can be completed within the upcoming one-month sprint, along with the time frames for their completion. Additionally, tasks are assigned with Person in Charge for each subtask. The purpose of this allocation is to enable each

member to focus and complete their tasks punctually. Below is the sprint planning outcome of product backlog {2} in **Error! Reference source not found.** .

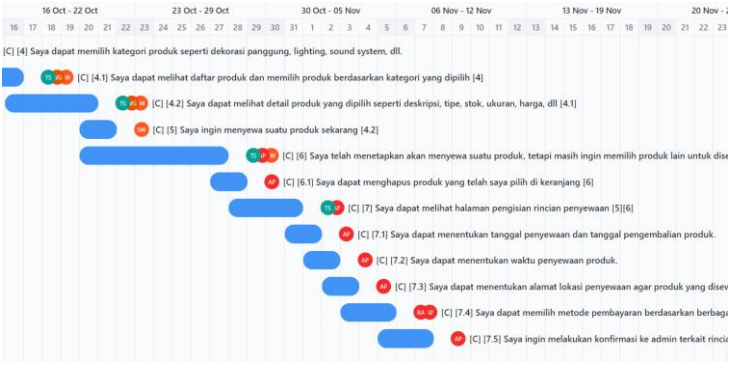
Table 1. {2} Sprint planning outcomes.

No	Subtask	PIC	Estimated Time	Duration
1	Create a profile page UI (UI/UX)	TS	24 hrs	72 hrs
2	Create a profile page (FE)	SW	24 hrs	
3	Retrieving personal data from a database (BE)	RA	12 hrs	
4	Display personal data on profile page (FE)	SW	12 hrs	

PIC: RA = Rama Arditya, SW = Syafira Widiyanti, TS = Titin Suhertian

Writing Software Development Plans to ClickUp. The design of the Rentors website application development in ClickUp is written using Gantt Chart in **Error! Reference source not found.**.

(a)



(b)

Fig. 2. (a), (b) Gantt Chart Display in ClickUp.

Monitoring Website Application Development with the Scrum Method. The daily Scrum is a daily 15-minute meeting with team members to monitor and discuss the project's progress. The progress discussed includes what has been accomplished, any

obstacles faced during the work, and the next steps. The output of the daily Scrum is referred to as the increment, which is a collection of products completed by team members. Below is the daily scrum outcome of product backlog {2} in **Error! Reference source not found.**.

Table 2. {2} Daily scrum outcomes.

No	Subtask	PIC	Time Tracked	Duration
1	Create a profile page UI (UI/UX)	TS	1.58 hrs	6.08 hrs
2	Create a profile page (FE)	SW	3 hrs	
3	Retrieving personal data from a database (BE)	RA	0.5 hrs	
4	Display personal data on profile page (FE)	SW	1 hrs	

The development of the Rentors website application for product backlog {2} in sprint planning estimated the completion time of 72 hours, while in daily scrum the completion time was only 6.08 hours. The optimization of the measurement of the completion time in the product backlog {2} of 91.5%. After a daily Scrum session is concluded, the subsequent stage is the sprint review and sprint retrospective. The sprint review focuses on discussing the outcomes of the tasks and subtasks completed by team members during the daily Scrum sessions. While the sprint retrospective discusses the methods employed and the processes undertaken during the project's execution. This meeting also serves to assess what went well and what did not, as well as to identify tasks that need to be addressed going forward.

3.2 Discussion

The development of the Rentors website application, using the Scrum method with ClickUp, has successfully achieved its goals. In the first stage, each story was clearly detailed and assigned a code for easy reference. Additionally, task codes were provided to establish connections between tasks within the product backlog. In the second stage, each task was broken down into details of what the development team will work on that written in the form of subtasks, called sprint backlog, including the responsible person's name, deadline, technology used, to-do list, etc. The third stage, each subtask's progress was described in detail, including its status (completed, in progress, or to-do), its completion timeliness (on time or overdue), total time spent, etc. The fourth stage was the evaluation phase of the work done during the daily Scrum. Finally, the sprint retrospective was the internal evaluation stage among team members included discussions about what went smoothly, what could be improved, and future plans.

The implementation of the Scrum methodology using ClickUp demonstrated its effectiveness in collaborative and intensive software development or creation, allowing for iterative management. With ClickUp, the Rentors website application was completed on time and met its targets. Collaboration and communication among team members from various fields were highly efficient. Scrum's flexibility allowed for adjustments to changes during the application development process. ClickUp greatly facilitated task management and progress monitoring.

However, it's important to note that implementing Scrum using ClickUp may have limitations. The methodology needs to be tailored to specific and detailed development needs and environments. Additionally, its successful use depends on the technical abilities and accessibility of team members. Some members might need reminders to consistently update their progress reports in ClickUp. Incomplete reports from team members could pose challenges for project managers. During daily Scrum meetings, each member's report needs to be individually addressed and corrected, if necessary, as this directly affects collaboration with others.

4 Conclusion

Rentors website application development implements the Scrum method using ClickUp tools that facilitate collaboration and management of team members during sprint implementation. The Scrum method is used in this project because it is adaptive to change and applies the principle of collaboration between team members. ClickUp is used as a tool to run the development stages of the Scrum method because there is a main feature, namely Sprint Point ClickApp which can manage workflow software development stages, also other features such as custom fields, time estimates, time tracking, and so on that support planning and managing specific and detailed tasks. In this project, there are 31 product backlogs that have been completed and the percentage of the completion time is 91.5%. It can be concluded that the development of Rentors website applications that implement the Scrum method using ClickUp is effective in collaborating and managing team members. ClickUp greatly facilitated task management and progress monitoring of software development. ClickUp features are able to run five stages of Scrum from product backlogs, sprint planning (sprint backlogs), daily scrums, sprint reviews, and sprint retrospective where team members can assign tasks and optimize task completion time measurements. In the next project, ClickUp can also be used to measure KPIs to determine the maturity level of the software development method used.

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