Software Engineering - Analysis
Project: E-Scooter Rental Service

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1 Introduction

In this project, we will take the role of founding a start-up company in the E-Scooter rental business. For analyzing this project, our team decided to use the agile SCRUM method.

The purpose of this project is a clear understanding of requirements, developing use case scenarios and UML diagrams for describing the planned software product. Furthermore, the objective is to develop a high-level software architecture and build user interface prototypes for relevant parts of the functionality. For our project, the artifacts consist of diagrams and documentation of for describing the software functionality for outsourcing the development. The quality of these artifacts will be ensured by a proper definition of "Done".

The first step of our project is to collect additional requirements and refine these to build a list of backlog items and estimating the time for producing the artifacts for each backlog item. The purpose of a backlog item is to take a requirement description, in form of a use case description, as input and build an analysis model of our software capability as result.

2 Definition of "Done"

The definition of "Done" (DoD) is part of the SCRUM metrics. All members of the Scrum Team must have a shared understanding of what it means when the work is complete, to ensure transparency. [1] It is a (check-)list of items which need to be validated to consider a backlog item being “Done”. DoD is defined by the development organization to make sure that the results of multiple teams can be integrated into a releasable product. [2]

For our project, the result needs to match the following definition of "Done":

- ☐ Description of the requirement in form of a Use Case
- ☐ Categorization of requirement (functional/non-functional, client/ server)
- ☐ Business value of the corresponding functionality
- ☐ Effort estimation for the implementation of the requirement
- ☐ For UI related functions: UI prototype

☐ UML Diagrams

- Use case diagram
- Activity diagram
- Class diagram
- Sequence diagram

Depending on the type of the requirement, not all these diagrams may be applicable. If a diagram is omitted, describe why.

☐ Detailed documentation (e.g. table) about who worked on the item and what has been done during the sprint.

☐ Overall quality of the documentation meets general industry standards.

☐ The results have been reviewed and accepted by another member of the team (tester). It needs to be documented who has performed the review.

3 Backlog Items

Insert pdf-Document here!

4 Week One

- start to collect Requirements for the E-Scooter Project
- discussion which Requirement can fit
- save every Requirement in a google excel sheet
- talk about estimation, satisfactions, dissatifactions, priority, what the requirement should do, which classes we need for it and when the requirement fit
- scrum meetings over Discord
- every teammember collect more Requirement at home
- think about how these E-Scooter should or can work and interact with the client

- test a ride with an E-Scooter from Uber do get a imagination how the main concept is.

5 Week Two

- discussions about the setted Requirements, which fits which is to much or not necessary.
- collect more Requirements at least 40 up to 50
- start to talk about Use Case Diagramms, Use Cases and Class Diagram
- build a first concept of an Use Case Diagramm
- first Use Case Diagram was really big and must be adjusted in the future
- Build a Definition of done
- build a main structure for documentation

6 Week Three

- modified Use Case Diagram
- model some Activity and Sequence Diagrams
- First Prototype of the UI
- talk about actual use cases and modyfing or adjust it to get smaller
- think about an Class Diagram
- which classe do we need ?
- which specification do we have
- which multiplicity do we have ?
- start with documentation over every Requirement
- think about where do we need Sequence Diagrams

- think about where do we need Activity Daigrams
  - the Use Case we do not implemented a Sequence Diagram we note here whith an explanation why.(e.g We do not build a Sequence Diagram for Give an Feedback, because it is to laim :))
  - The same for Activity Diagrams
- start the Class Diagram
- modify and adjust our UI Prototype
- finished the Use Case Diagram

7 Week Four

- Week for adjust and modification
- What is missing ?
- Adjusting a last time the Requirements
- on Base of the final Requirements
- we finished the UI Prototype
- we finished the Class Diagrams
- we adjusted the Activity Diagrams(no cancelation)
- talk about the Presentation in Februrary
- adjusted the Sequence Diagrams
- talk about some missbuilded Diagrams and modyfied them
- talk about Documentation in the Definition of done
- adjust the documetation for the Use Cases

8 Week Five

- start to build the Presentation
- discussion about which role every member get in this project and how he could integrate for this project
- finished the activity diagram
- finished the sequence diagram
- finished the documentation
- finished the presentation
- generate Magic Draw report and add it to the Documentation
- add the scrum protocols ot the Documentation
- talk about the workflow table who did what and add it to the documentation
- add References to Documentation
- finished the project at this moment
- think about further work, which requirement we would build in at this moment we not implemented it
- think about the design engeneering
- which functions we would build in the next time

References

[1] https://www.scrumguides.org/scrum-guide.html#artifact-transparency-done

[2] Prof. Dr.-Ing Peter Thoma *02-3 Software Engineering Analysis (Scrum)*

9 Appendix

9.1 Workflow Table Week One

K. Birringer	N. Cacace	S. Hanzlik	M. Peluso	S. Stojanovic
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9.2 Workflow Table Week Two

K. Birringer	N. Cacace	S. Hanzlik	M. Peluso	S. Stojanovic
%	%	%	%	%

9.3 Workflow Table Week Three

K. Birringer	N. Cacace	S. Hanzlik	M. Peluso	S. Stojanovic
%	%	%	%	%

9.4 Workflow Table Week Four

K. Birringer	N. Cacace	S. Hanzlik	M. Peluso	S. Stojanovic
%	%	%	%	%

9.5 Workflow Table Week Five

K. Birringer	N. Cacace	S. Hanzlik	M. Peluso	S. Stojanovic
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9.6 Meeting Protocols