Michigan Technological University

College of Computing

Computer Science Department

CS3141 Team Software Project

Spring 2022

Project Title

Section: 02

Team #: 15

Roll #	Name	Role
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Instructor:

Serein AL-Ratrout

Abstract

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Chapter1

Specification

1.1 Introduction

We plan to implement a java based Blackjack that can support multiple players at the same "Blackjack table". We plan to have a user interface in which the player can interact with their hand of cards as well as a betting interface that allows the user to bid chips. The program will require a AI dealer that makes decisions based on what the players choose. Some of the issues we expect to have is learning how to use group based programming software such as Github as well as programming the userinterface so that it looks clean and useable.

1.2 Problem Statement

We want a free offline version of blackjack, and don't want to have to buy an existing game. The lack of a free offline version of blackjack has a negative impact our lives because we want to play the game.

1.3 Aim and Objectives

Aim:

The aim of this project is to develop a computer based implementation of the game BlackJack that allows one or more players to play against a programed dealer on the same device. We aim to create an environment in which the players can bet artificial chips as they play the game.

Objectives:

- To allow users to play black jack
- To display the game in a pleasent way
- To keep track of bets
- To allow multiple players on the same device to play by passing the device
- To improve the happiness of blackjack lovers

1.4 Stakeholders

- Devolpment team
- Sowftware Proccese management team
- Users
- Serein AL-Ratrout

1.5 Methodology

(Describe the software process your team follows, the method used along the project activities. In other words, describe the flow of activities from the beginning until the end and we need to thoroughly explain the involved steps in the activities, add model/diagram for your software process)

We will be using the SCRUM methodology. We begin by discussing the specifications of the project as well as what the user requirements are for the game. We then split those requirements and specifications into 4 different sprints based on the priority and functionality. Each sprint will aim to implement certain requirements. At the end of each sprint we will take a look at what we accomplished and then revisit what tasks the next sprint will tackle.

1.6 Tools

(Mention the Software and/or hardware you will need to develop your project)

- Github
- Jira
- Java
- Zoom
- Discord

1.7 High-Level Business Requirements

- **Functional Requirements**

(The services the proposed system should provide)

- Multiple user accessible UI
- A deck of cards able to be shuffled
- User choices impact gameplay according to the rules of Blackjack
- NPC dealer that makes decisions based on the rules of Blackjack
- A chips betting system
- User can choose how much to wager from our hand
- each player has their own cards and chips

- **Non-functional requirements(**(The constraints)

- User inputs a number for how much they wish to bet on the hand
- Store users cards and chip total
- Clickable buttons to start the game, change settings etc.

- Dealer hits until break hand (goes over 21) or gets a higher number than the user

1.8 Product backlog

(List of Prioritised user requirements written in user story format.)

You can use the following table:

Priority	User Story	Tasks	Estimated effort	Sprint
2	As a user, I want to know whether I win or lose, so I can understand the game.	UI displays win or lose	1h	1
		win or loss is calculated based on cards	2h	
1	As a user, I want to be able to access the game, so that I can play it.	Start Screen with user options	4h	3
4	As a user, I want to play Blackjack, so I click start game and play.	make start on game	4h	2
1	As a user, I want to be dealt 2 cards, so I start the game	shuffle cards	3h	1
2	As a user, I want to be able to choose whether to stand or hit, so I can play the game	2 'buttons' in UI choice determines Dealers next action	2h	2
6	As a user, I want to be able to bet chips on the game, so I can increase my total chips.	chip "bank" per player Lose when out of chips	4h	3
1	As a user, I want a NPC dealer to follow the game's rules, so that the game is played properly.	'Dealer' that acts according to the rules and user decisions	4h	1
4	As a user, I want to be able to play with multiple people, so I can play the game with others.	Display multiple users at table Multiple people access the game	3h 2h	3

7	**As a user, I want to be able to play multiple games until I run out of chips.**	**users chips carry over between games**	**4h**	**3**

Chapter 2

Analysis and Design

Chapter 3

Implementation

The following report is a good example that you can follow for implementation please refer to pages 25 - 30, and here is another example for your reference.

Chapter 4

Validation

For Chapter 4 (Validation): here you need to write about the process of checking that your software system meets specifications and requirements so that it fulfils its intended purpose, and to confirm or to prove the accuracy of your project.

Write about your testing and validation; **level of testing** you had, unit testing, integration testing, validation testing and acceptance testing. Did you have **manual or automated** testing or both? specify the part(s) that have automated testing and part(s) that have manual testing, and **What is your oracle?**

Write the test cases for valid and invalid **input** (please see Week3 Automated Testing/ slide 11),

then confirm that no errors in the code and the application is able to operate in required condition (OS, web browsers) and you have created the code correctly.

For validation and acceptance testing write who tested your system? MTU students? computer science student? other department students? your group only? other college students? public users? How many students/users? How many times? could they use it easily or did they make mistakes?

Chapter 5

Limitations and Future Work

For Chapter 5

Limitations: address everything that the project left, if some project backlog items/ features/ requirements have not been implemented then mention them in this part with an explanation/justification why you couldn't implement them (Time constraints the time was not enough, some developers were unavailable, because of COVID19, or tool limitation ....etc.). Many students tend to feel that presenting the limits of their work makes work weaker. on the contrary, approaching this section shows maturity for the academic universe, and writing about them actually strengthens your work by identifying any problems before reviewers/readers find them.

Future work : if the limitations can be addressed in the future then add this in here in future work, moreover, if you believe this project can be extendable (add more features/ more parts) that the project is worth extending to a Final Year Project (FYP) by you or other students or can be adopted and extended by industry as a product so you can give directions for that in future work.

Chapter 6

Conclusion

For Chapter 6 (Conclusion),: write what you have concluded.

Examples:

I solved many problems in the project…

This application/project/system was applied to improve the learning process.

The results of this project showed that system significantly facilitated the students' learning process.

The system is useless, acceptable, usable, beneficial or maybe enjoyable and why do you believe that.

References

(Include any references to external documents or materials (for example, tutorials the team will be using, literature , web references or links to documentation of third-party tools you will use) here.

The references should be properly numbered and correctly used in the text.

The Reference section should be in the following fashion:

References

Journal, Magazine/ Newspaper Article

[1] Author, "Title," *Journal name,* p. pages, year.

Book

[2] Author, Book Title, publisher, year.

Internet Web page:

[3] Author, "Name of the Web Page," [Online]. Available: URL. [Accessed Date].