

System Requirements Specification

Version 2.0
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Project Team:

Chih-wei Ho, Team Lead
Hema Srikanth, Quality Assurance Manager
Nachi Nagappan, Requirements Analyst
Lucas Layman, Project Manager
Mark Sherriff, Development Manager

Document Author(s):

Nachi Nagappan, Requirements Analyst

Customer Representative(s):

Michael Gegick, Raleigh

I. Introduction

The goal of this project is to create a Java-version of Monopoly board game. This game provides several features we can see in the board game version. This document describes the requirements of this program.

II. Functional Requirements

FR0. Game Initialization

Description

FR0.1 Enter Player's Information

There shall be two dice in the game. Each dice shall have six faces. The player's movement shall be based on the dice roll. If the dice roll is two, the player shall move forward two cells; if the dice roll is three, the player shall move forward three cells; etc.

Origin:

Priority:

Implementation Completed Date:

FR1. Player Movement

FR1 describes the rules of the movement.

FR1.1. Roll Dice

There shall be two dice in the game. Each dice shall have six faces. The player's movement shall be based on the dice roll. If the dice roll is two, the player shall move forward two cells; if the dice roll is three, the player shall move forward three cells; etc.

Origin:

Priority:

Implementation Completed Date:

FR1.2. Play in Turn

Monopoly is a turn-based game. The players shall play in turns in this game. Player sequence shall be determined by the order the names are entered before the game starts. A player's turn shall end when the player presses the End Turn button.

Origin:

Priority:

Implementation Completed Date:

FR2. Cells

FR2 describes the rules of different types of cells that are used in the game.

FR2.1. Pass Go Cell

When the player passes or lands on the Go cell, the player shall get paid \$200.

Origin:

Priority:

Implementation Completed Date:

FR2.2. Jail Cell

If a player is sent to jail by either landing on the Go to Jail cell or drawing a go to jail card, the player shall pay \$50 in bail money to get out of jail at their next turn. If a player lands on jail as the result of a dice roll, nothing shall happen.

Origin:

Priority:

Implementation Completed Date:

FR2.3. Do Nothing on Free Parking

When the player lands on the Free Parking cell, nothing shall happen.

Origin:

Priority:

Implementation Completed Date:

FR2.4. Go to Jail

When the player lands on the Go to Jail cell, the player shall be sent to the Jail cell. The player shall not receive \$200 if she or he passes the Go cell on the way to the Jail cell.

Origin:

Priority:

Implementation Completed Date:

FR2.5. Buy Property

When the player lands on a tradable cell, including properties, railroads, and utilities, she or he shall have a chance to buy that cell given that the cell is available. If the player clicks on the Buy button, the cell shall be sold to the player. See FR3 for the price rules of the properties, railroads, and utilities.

Origin:

Priority:

Implementation Completed Date:

FR2.6. Draw Card

When the player lands on a card cell, including Community Chest and Chance, she or he shall click on the Draw Card button and draw a card from the Community Chest or Chance. The player shall perform the actions specified in the cards. See FR4 for the rules of the cards.

Origin:

Priority:

Implementation Completed Date:

FR3. Tradable Cells

Tradable cells are properties, utilities, and rail roads. When a player lands on an available tradable cell, she or he shall have a chance to buy that cell. If player A lands on a tradable cell that is owned by player B, A shall pay rent to B.

FR3.1. Buy Properties

When a player lands on an available property cell, the player shall have a chance to purchase it. The price shall be the land value of that property.

Origin:

Priority:

Implementation Completed Date:

FR3.2. Buy Utilities

When a player lands on an available utility cell, the player shall have a chance to purchase it. The price shall be \$150.

Origin:

Priority:

Implementation Completed Date:

FR3.3. Buy Rail Roads

When a player lands on a rail road cell, the player shall have a chance to purchase it. The price shall be \$200.

Origin:

Priority:

Implementation Completed Date:

FR3.4. Pay Rent to Properties

When a player (A) lands on a property cell owned by another player (B), A shall pay rent to B. If there is no house on the cell, A shall pay the base rent of the cell. If there are n houses on the cell, the rent shall be (base rent * (number of houses + 1)).

Priority:

Implementation Completed Date:

FR3.5. Pay Rent to Utilities

If player A lands on player B's utility, player A shall pay rent to player B based on a dice roll and the number of utilities player B owns. If player B owns one utility the system shall charge player A rent of 4 times the dice roll. If player B owns two utilities the system shall charge player A rent of 10 times the dice roll. The game board shall have no more than two utility cells.

Origin:

Priority:

Implementation Completed Date:

FR3.6. Pay Rent to Rail Roads

If player A lands on player B's rail road, A shall pay rent to B based on the number of railroads B owns. The base rent of railroads shall be \$50. If the number of the railroads B owns is N , the amount of rent A shall pay B is $\$50 * 2^{N-1}$.

Origin:

Priority:

Implementation Completed Date:

FR3.7. Build Houses

A player has the monopoly of a color group if she or he owns all the property cells in the color group. During a player's turn, before she or he rolls the dice, the player shall have a chance to buy houses for the monopolies she or he owns. A player shall not build more than five houses on one cell.

Origin:

Priority:

Implementation Completed Date:

FR4. Cards

There shall be two decks of cards in the game: Community Chest and Chance. When a player lands on a Community Chest cell or a Chance cell, the player shall draw a card from the top of the Community Chest cards or Chance cards, respectively.

FR4.1. Draw jail card

If the player draws a jail card, the system shall move the player to jail. If this move causes the player to pass the Go cell, the player shall not receive the \$200 salary from the system.

Origin:

Priority:

Implementation Completed Date: July 9, 2004

FR4.2. Draw lose money card

If the player draws a lose money card, the system shall decrease the player's money by the amount specified on the card.

Origin:

Priority:

Implementation Completed Date: July 9, 2004.

FR4.3. Draw gain money card

If the player draws a gain money card, the system shall increase the player's money by the amount specified on the card.

Origin:

Priority:

Implementation Completed Date: July 9, 2004.

FR4.4. Draw move player card

If the player draws a move player card, the system shall move the player to the specified cell. If this move causes the player to pass the Go cell, the player shall receive \$200 salary from the system.

Origin:

Priority:

Implementation Completed Date: July 9, 2004

FR5. Trading

A player (A) shall have the chance to buy properties from another player (B) during A's turn, before A rolls the dice. The trading shall begin when A clicks the Trade button. A shall select which player to trade with, and which tradable cell to buy. A dialog shall pop up to ask B whether he or she agrees with the price. If B clicks the Yes button in the dialog, the amount of money they agreed upon shall be transferred from A to B, and the selected tradable cell shall belong to A. If B clicks No, nothing shall happen.

III. Nonfunctional Requirements

NR1. Performance

The system shall wait for all user inputs, and execute only the necessary functions given a user input to the system. All functions shall be completed quickly.

NR1.1. User response

The system shall respond to any user input within 0.01 seconds.

Origin:

Priority: 3

Implementation Completed Date: July 9, 2004.

NR1.2. Update user data

The system shall update user data within 0.01 seconds.

Origin:

Priority: 3

Implementation Completed Date: July 9, 2004.

NR2. Usability

A user shall be able to determine quickly what player options they have to perform.

NR2.1. Player options

A user shall only have access to functionality that is allowed to them at a given time.

Origin:

Priority: 3

Implementation Completed Date: July 9, 2004.

NR2.2. User Interface

The system shall allow a user to interface with it through mouse events on buttons and drop down boxes and keyboard events on text fields. The amount of user keyboard input shall be minimized by the system to include only entering the number of players, player names, and a trade price.

Origin:

Priority: 3

Implementation Completed Date: July 9, 2004.

NR2.3. User Errors

The system shall catch improper input from all text fields in the system.

Origin:

Priority: 3

Implementation Completed Date: July 9, 2004.

IV. Constraints

All code development shall be done with the Java programming language.

All testing shall be done using JUnit and FIT.

VI. Development and Target Platforms

1. Windows XP Operating System
2. Intel Pentium IV processors
3. Eclipse IDE

VII. Project Glossary

VIII. Document Revision History

Version	2.0
Name(s)	Sarah Smith
Date	August 23, 2005
Change Description	Minor updates

Version	1.0
Name(s)	Dright Ho and Sarah Smith
Date	July 19, 2004.
Change Description	Original creation of the SRS.