

Requirements Document

Team PI-b

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Table 1: Team

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1 System

1.1 Purpose

Develop a working computer game based on the table top card game Codenames.

1.2 Context

The game is written in Java using the Java FX framework and will run as a desktop application. This will be a single user experience with only the person at the machine interacting with the device will be the user. The rest will be ran by the system.

1.3 Business Goals

To make a free and enjoyable experience with a quality user interface.

2 Domain Concepts

The domain we are working in is of the table top board game genre.

Therefore we are working with the concepts of cards, players, turns, a winner and a loser. The games basis is to start with a board with a 5x5 grid of cards with nouns on them. The SpyMasters have a matching card that acts as the key cards showing the words they want their given operatives to pick. The SpyMaster does that by giving a hint consisting of a single noun and a number. The Operative then has that many guesses to find the hint that the SpyMaster has given per round. The SpyMaster places down the appropriate card for the given guess, if it is a bystander or the other team's colour it ends the turn, if it is the assassin it is game over and the other team wins, if it is all of the colours that given team wins when they are out of their colour. This game is played until the assassin is struck or all the colours are chosen for any given team.

3 Actors

1. User
2. Spy Master
3. Operative

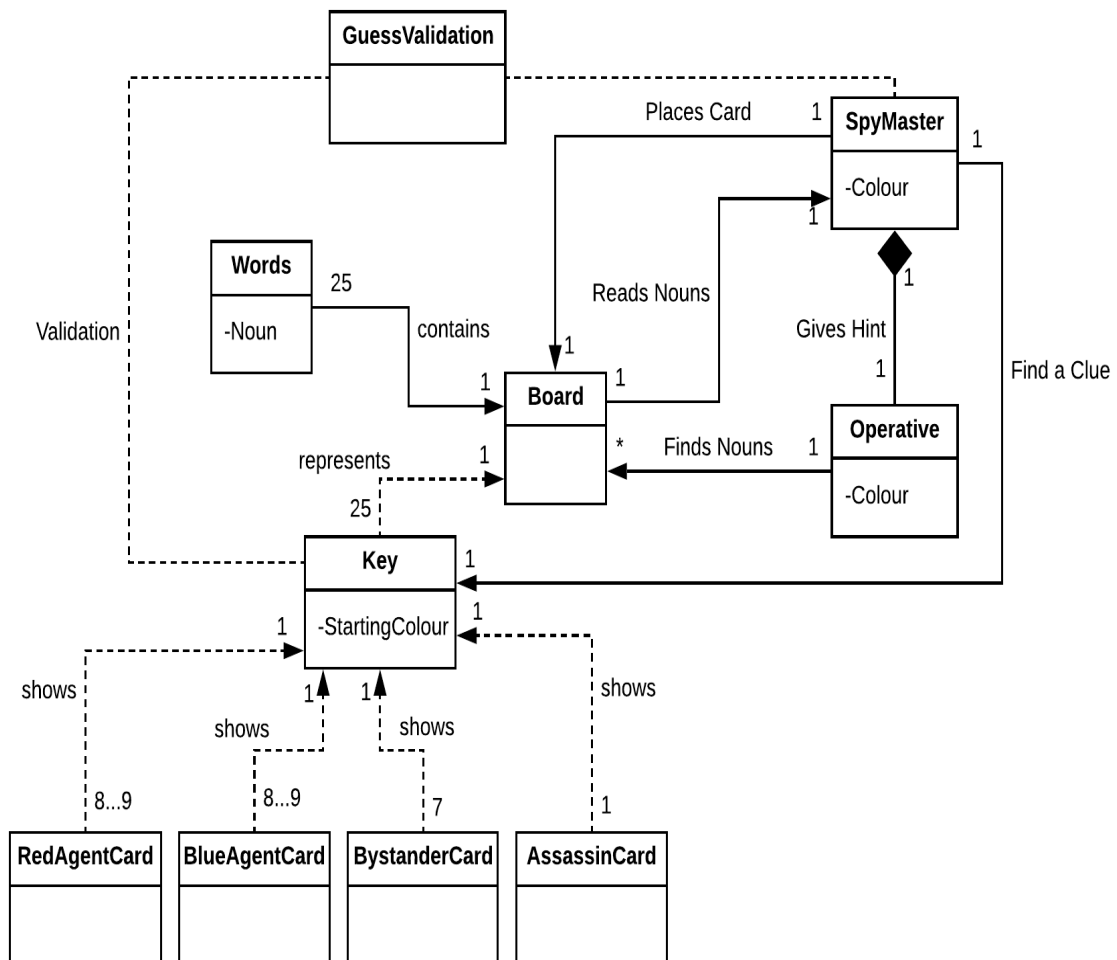


Figure 1: Domain Model

4 Use Cases

4.1 Overview

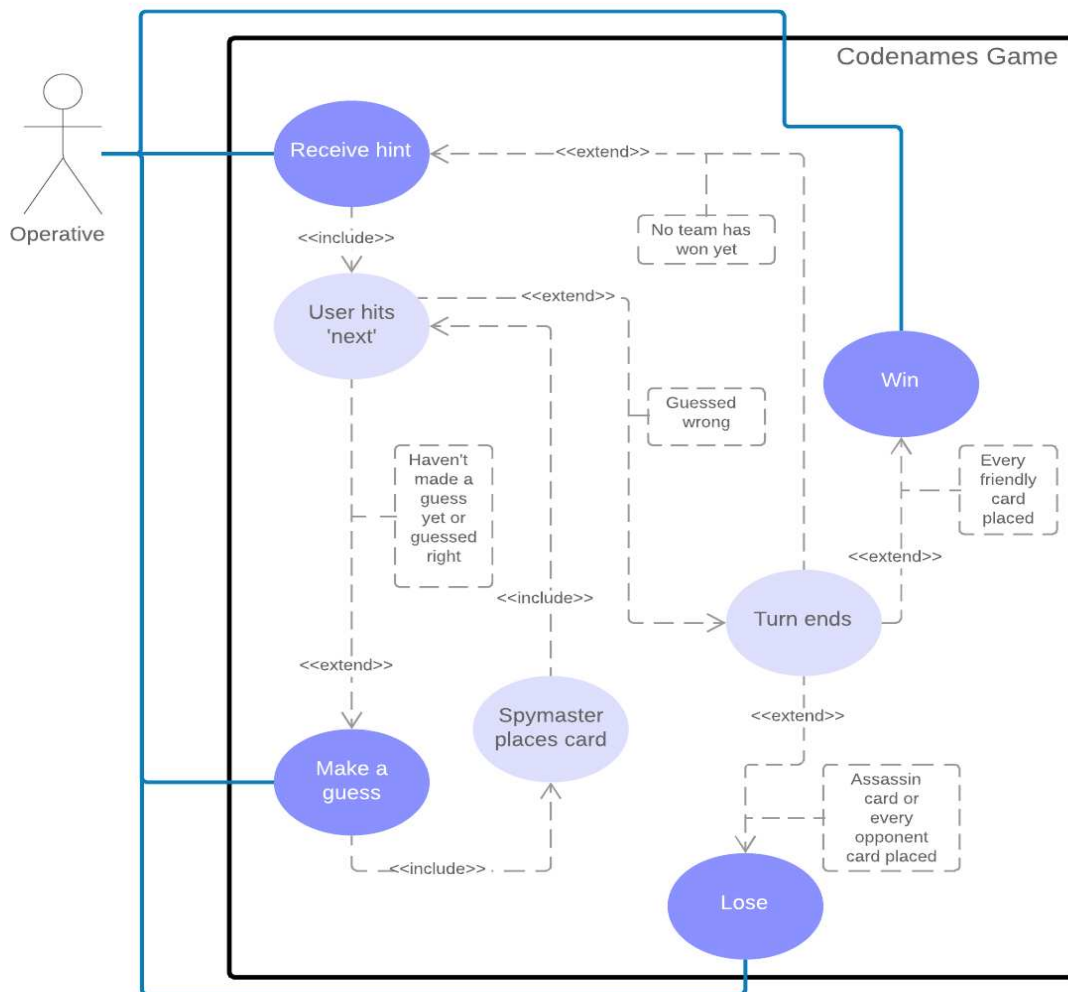


Figure 2: Use Case Operative Diagram

Use Case 1

Name

Find noun

Summary

Based on the hint given, find the nouns that match on the board. Hint is Word, Number.
the amount of guesses the Operator can make is Number + 1.

Actors

The Operative

Precondition

Hint given by the Spy Master

Main Scenario

1. Pick a card on the board.

Exceptions

1. If the Spy Master says 0 or infinity the Operative can make as many guesses as desired.
2. If the Operative decides not to guess. Goes to the other team colour Spy Master to start giving a hint.

Postcondition

Give control back to the Spy Master to place the card or give control to other team to give a hint

Priority

Must have

Traces to Test Cases

Add when test cases done.

Use Case 2

Name

Continue guessing

Summary

Based on the hint given, find the nouns that match on the board. The hint was given on the initial portion of the turn by the Spy Master. Each turn that is taken increases cannot exceed the Number + 1 that was given out in the initial hint.

Actors

The Operative

Precondition

Card was placed for your team colour by the Spy Master

Main Scenario

1. Pick a card on the board.

Exceptions

1. If the Spy Master says 0 or infinity the Operative can make as many guesses as desired.
2. If the Number + 1 total is reached then this is the last guess. Goes to the other Team colour Spy Master to start giving a hint.
3. If the Operative decides not to guess. Goes to the other Team colour Spy Master to start giving a hint.

Postcondition

Give control back to the Spy Master to place the card or to the other team to give a hint

Priority

Good to have

Traces to Test Cases

Add when test cases done.

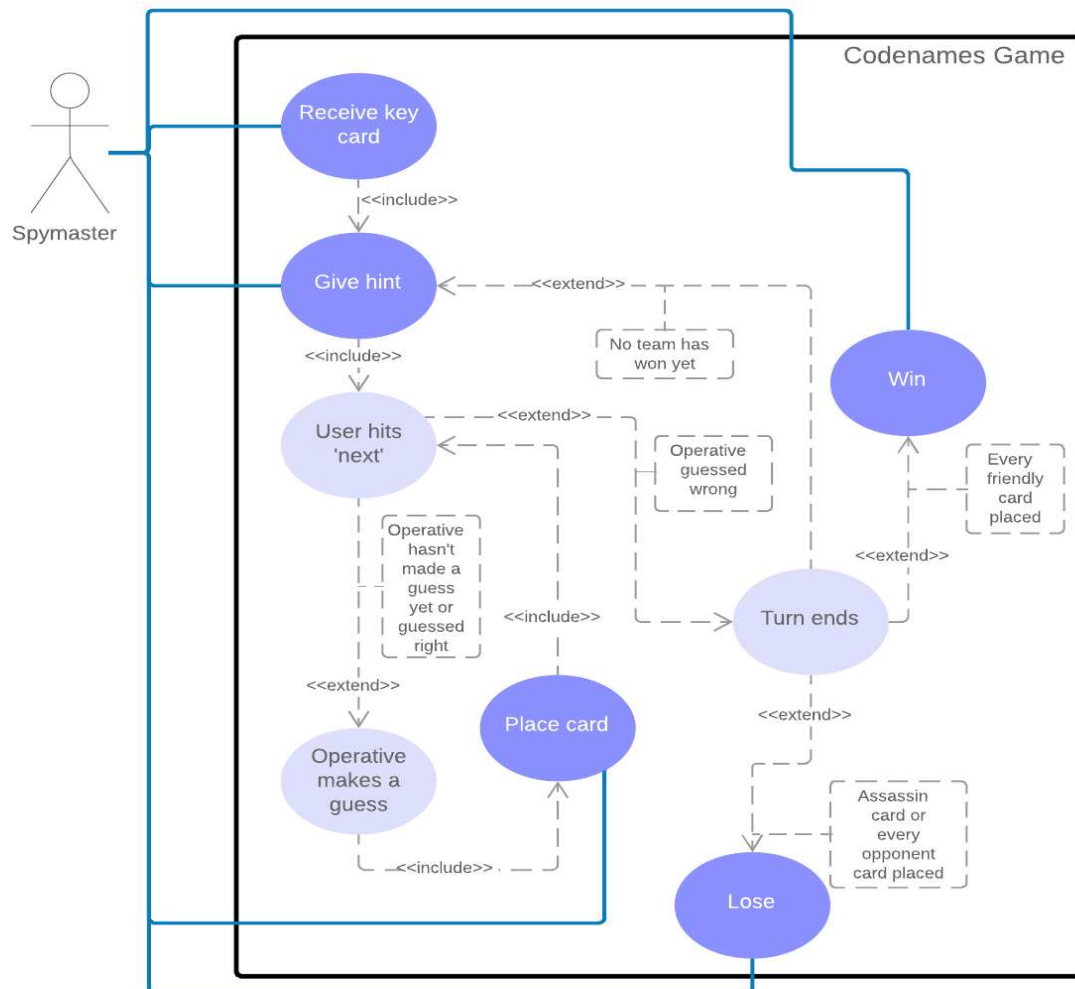


Figure 3: Use Case Spymaster Diagram

Use Case 3

Name

Give a hint

Summary

hint consisting of one word and one number to be given to the operatives

Primary Actors

Spy masters

Precondition

Other team is out of guesses and it is your team's turn, or start of game

Main Success Scenarios

1. Look at the remaining cards on the board
2. Say one noun
3. Say one number (0-infinity)

Exceptions

1. if the noun is illegal, give another hint

Postcondition

Give a hint that is insightful for your operatives

Priority

Must have

Traces to Test Cases

Add when test cases done.

Use Case 4

Name

Place a card

Summary

Place a card on the board depending on the operatives' answers

Primary Actors

Spy masters

Precondition

The operative has selected a card on the board

Main Success Scenarios

1. Listen to the operatives' guesses
2. Place the appropriate card
3. Give control back to the operative to make their next guess if any

Exceptions

1. if guess lands on the other team's operatives, place their card and end the round
2. if guess lands on a civilian, place the card and end the round
3. if guess lands on the assassin, place the card and end the game
4. if out of guesses end the round and the next team colour starts

Postcondition

Successfully place the appropriate card on the board

Priority

Good to have

Traces to Test Cases

Add when test cases done.

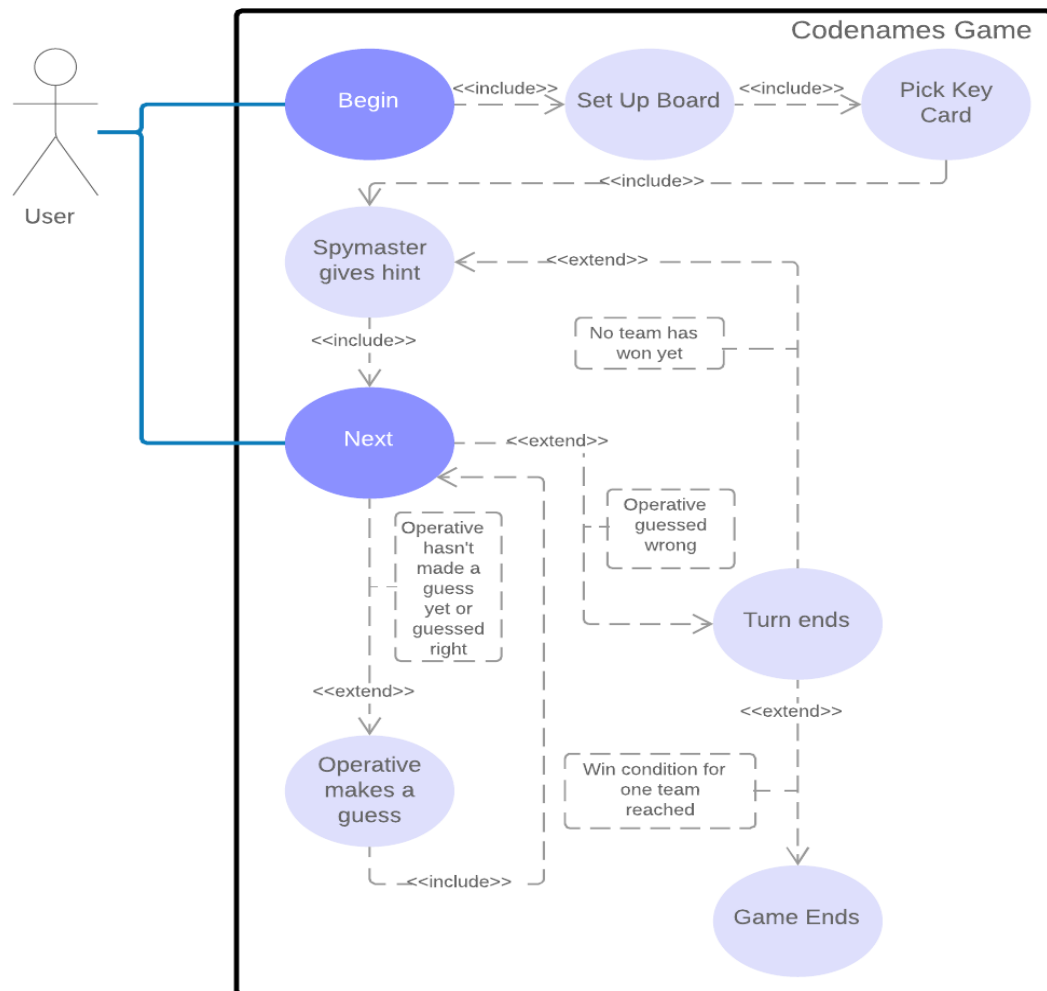


Figure 4: Use Case User Diagram

Use Case 5

Name

Start the Game

Summary

User clicks begin to start the game

Primary Actors

Users

Precondition

The game must successfully load and display a "start" button

Main Success Scenarios

1. Click on "start"
2. display the board
3. display who is the first team to start

Exceptions

1. if the game doesn't load, display an error message

Postcondition

The game is successfully initiated and the board displayed

Priority

Must have

Traces to Test Cases

Add when test cases done.

Use Case 6

Name

Click "next"

Summary

User clicks "next" to simulate the game until the program ends

Primary Actors

Users

Precondition

The game must have successfully started and a "next" button is displayed

Main Success Scenarios

1. Click on "next"
2. Display the next simulated move
3. Display the winner of the game: red or blue team
4. Terminate and display a "new game" option

Exceptions

1. if the program terminates but does not display the winning team, display a "reload" button
2. if the game ends but does not display a "new game" button, reload the game

Postcondition

The program successfully terminates, and provides the option to start a new game

Priority

Good to have

Traces to Test Cases

Add when test cases done.

System Scenario 1

Name

Set up board

Summary

25 word cards to be placed in a 5 rows by 5 columns board.

Actors

The System

Precondition

New game or new round.

Main Scenario

1. Draw 25 word cards from the stack.
2. Place the words in a 5 rows by 5 columns formation.

Exceptions

None

Postcondition

Pick the key card

Priority

Must have

Traces to Test Cases

Add when test cases done.

System Scenario 2

Name

Pick key card

Summary

Key card shows the Spy Master where the Agents are placed and what colour starts first. The team that starts first has 1 more Agent location on the board. Included on the key card is the 7 Bystanders and the 1 Assassin location.

Actors

The System

Precondition

Place the 25 cards.

Main Scenario

1. Draw a key card

Exceptions

None

Postcondition

Spy Master colour that starts gives first hint

Priority

Must have

Traces to Test Cases

Add when test cases done.

System Scenario 3

Name

Win Game

Summary

All agent cards are placed by the Spy Master of one of the colours. **Actors**
The System

Precondition

Spy Master placed a card

Main Scenario

1. End current team colours turn.
2. The team with all the Agents on the board Wins.
3. End Game

Exceptions

1. None

Postcondition

Game is finished

Priority

Must have

Traces to Test Cases

Add when test cases done.

System Scenario 4

Name

Stop Guessing

Summary

A bystander card was placed or other team's colour Agent was placed. Turn goes to the other Team colour Spy Master to start giving a hint. **Actors**

The System

Precondition

Spy Master played a card or other team's colour Agent was placed

Main Scenario

1. End current team colours turn.
2. Other team starts their turn.

Exceptions

1. None

Postcondition

Give control to other team colour's Spy Master to give hint

Priority

Good to have

Traces to Test Cases

Add when test cases done.

System Scenario 5

Name

Stop Game

Summary

Assassin card was placed. Winner of the game is the other team's colour.

Actors

The System

Precondition

Spy Master placed a card

Main Scenario

1. End current team colours turn.
2. Other team colour Wins.
3. End Game

Exceptions

1. None

Postcondition

Game is finished

Priority

Good to have

Traces to Test Cases

Add when test cases done.

5 Non-Functional Constraints

6 Data Dictionary

Table 2: Data Dictionary

Attribute	Required	Type	Length	Default	Notes
Word	Yes	Text	25	n/a	All the nouns for the game
KeyCard	Yes	Array	26	n/a	Variety of key cards array that contain the first player playing R:RED, B:BLUE. Then the values for the board, 7 BY:BYSTANDER, 1 A:ASSASSIN, 8-9 B:BLUE, 8-9 R:RED, Totaling to 25 values there

7 References

<https://boardgamegeek.com/boardgame/178900/codenames>

8 Glossary

8.1 Board

The board represents the layout of the game. The board setup consists of 25 cards, placed in a 5 x 5 grid. The entire game revolves around the board. A word is written on each card that makes up the board. This word represents the Code name that the operatives from each team has to guess. Once the game starts, all the different types of cards that the Spy Masters hold must be placed on top of the appropriate card on the 5 x 5 board. Each card belongs to a team.

8.2 Cards

Description of all different types of cards

Key Card

The Key Card is the initial card that is picked by the Spy Masters. This card determines which team starts: red or blue team. It also shows the spy masters a map of the board and specifies which cards belong to the blue team, which cards belong to the red team, which cards are bystanders, and which card is the assassin. The team that starts the game always has one extra card on the board.

Blue Cards

There are 9 Blue cards in total in the game. These are placed on the board every time a card that belongs to the blue team has been guessed. If the blue team starts the game, 9 blue cards will be placed on the board in total. If the blue team is second (does not start the game), only 8 blue cards will be placed on the board in total

Red Cards

There are 9 Red cards in total in the game. These are placed on the board every time a card that belongs to the Red team has been guessed. If the Red team starts the game, 9 Red cards will be placed on the board in total. If the Red team is second (does not start the game), only 8 Red cards will be placed on the board in total

Bystander Cards

There are 7 Bystander Cards in the game. If a team guesses the Code name of a bystander, their turn terminates and the opposite team can retaliate.

Assassin Card

There is one assassin card in the game. Each map card specifies which Code name on the board is the assassin. in order to win a game, the assassin card should not be guessed. As soon as the assassin card is guessed, the game terminates and the opposite team wins.

8.3 Clues

Description of a legal clue.

Clues are given by the Spymasters to the Operatives so they can start guessing. Several rules determine if a clue is legal. These rules are: Each clue consists on exactly one word and one number. The word is a hint that is related to one or more code names on the board. the number represents tells the operatives how many instances on the board are related to the word in the clue.

The words in the clues cannot rhyme with their associated code name on the board, nor can it be a synonym or a description of the word.

If the number given in the clue is zero or infinity, this means that the operatives have an unlimited number of guesses. However, once they guess a wrong card from the board, their turn terminates.

8.4 Spy Masters

Description of Spy Masters role

Spy Masters are the one that start the game. Spy masters are not allowed to do anything else other than give a clue that consists of one word and one number.

8.5 Operatives

Description of Operatives role

Each game can have one or more operatives. Operatives have to guess which card the board the clues belong to. If they guess the wrong card, they can save the guess for a later turn.