

*“Custopoly”*

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**1.0. Introduction**

## 1.1. Overall description

Custopoly will be an Android application which allows to play a famous board game based on the management of properties, fictitious money and trading.  The game will consists of a board with a certain number of counters on it, which are controlled by each player and that are moved around the edge of the board according to the roll of two six-sided dice.

Players move around the board buying, selling or mortgaging properties developing them with a system of improvements.  Also the players will have to collect rents from their opponents. To achieve this, the player will have to use fictitious money that they have collected in the game. The game will end when all the players except one are driven into bankruptcy, leaving only one player as the winner. This application will allow to play among 2 and 4 players in local multiplayer. In addition will contain a certain number of themes.

This game is innovative as it will be flexible to include new themes, taking into account the possibility of adding new themes and skins in future versions. Besides, the possibility of including themes, with new cards, counters and squares will allow a funny and dynamic experience to the player, that will be rewarded as he plays and therefore, increasing his interest. This opens a possibility of creating a micropayment system inside the game.

Additionally in the main menu the player will be allowed to enter on a music player. This music player allows the player to choose a certain number of tones and play it from internet.

## 1.3. Glossary

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Application  (app) | The application itself. It contains all the features like the game, the shop, etc. |
| Game | The game that is played in the application. |
| Player | Each of the players of the games is a person that moves a token across the board, being able to buy properties, upgrade and sell them. |
| Main player  (Owner) | The owner of the application. |
| Theme | Each of the existing visual representations for the scenario that are available to play. |
| In-game currency | The curency that the players earn during a game and that serves to buy and pay anything within a game. Once the game finished it is lost. |
| Cell | The in-game board is represented as a series of discrete cells, connected only to the previous and next cells. Each player can only be in one cell at any given time, and can only travel to the next cell. Each cell may contain up to one property. |
| Board | Spatial representation of the game. It consists of a number of cells, connected in a circular manner. |
| Property | Representation of a real state property that can be bought by the player, and which is tied to a single cell. Every property has special attributes, the most common of them being a price in In-game currency. A property can have up to four houses built in it, and up to one hotel. |
| Token/Skin | Graphical representation of the player in the board. |
| House | A building that can be built in a given property. Every house has associated a cost in in-game currency, and an increase it provides to the rent of that property. |
| Hotel | A building that can be built in a given property when there are four houses in that property. A given property can have only one hotel and the effects of having a hotel in a property is the same as houses. |
| Turn | A discrete amount of time inside the game. The length is variable. In any given turn, there is an active player, and all other players are non-active. |
| Buy (a property) | Action that can be carried out by the active player only. It consists on decreasing the amount of in-game currency that player has, and adding a given property to the properties owned by that player. Properties can be bought to another player. |
| (Pay) Rent | Action that is performed automatically by the system when a player falls into the cell of a property owned by another player. It decreases the in-game currency of the player that moves into the cell and increases the in-game currency of the player that owns the property in an amount depending on the property value. |
| Mortgage | Is an option that each player has with all its properties, they can be mortgaged to earn a certain amount of in-game currency. After it the property that is mortgaged changes his status to a special one where it doesn’t belong actually to none of the players. This property can be recovered by the player that mortgaged it paying a certain amount of in-game currency. |

**2.0. Requirements Specification**

## 2.1. Functional Requirements

* It will allow to play a game following the basic rules of Monopoly: [*http://en.wikibooks.org/wiki/Monopoly/Official\_Rules*](http://en.wikibooks.org/wiki/Monopoly/Official_Rules)*.*
* The application will be cooperative, from two players up to four.
* The application will be run, only, in one device. So the device will be needed to move from one physical player to other physical player at the change of each turn.
* The player will be able to move, buy, sell and mortgage his properties as well as buy houses and hotels for them.
* The game will auto-save itself at the end of each turn, when the application is paused and when the player exits the game.
* It will allow to use the unlocked and purchased themes from a selection menu before starting a new game. Themes will not be able to be changed once the game has begun.
* It will display three menus at the beginning of the application: one which will allow the player to play the game (which will lead to another one that will allow to create a new game or load a saved one), another menu to unlock themes and skins and one to select an unlocked theme.
* Before starting the game a menu will be displayed that will able to select the number of player that will play that game and also their player’s skins.
* The selected theme will determine the appearance and the content of the game but not its functionality. The elements modified by a theme are:
  + The board background, this includes the cells.
  + The back of the cards.
  + The player’s skin.
* The game language will be English. All the text strings will be located in a file, so it will be easy to translate the game modifying this file.

## 2.2. Non-Functional Requirements

* Developed for Android. Android version 4.2.2 (around 80% of the active market).
* The installation size of the app will be lower than 50 MB.
* The minimum screen size will be large.
* Internet connection to will be required for playing music.
* The application won’t need to be up to date for playing it.
* No internet connection will be needed for using the application.

# **3.0. Use Cases Specification**

## 3.1. List of Use Cases

* **(UC1)**  Configure a single game
* **(UC1.1)** Selection of the theme
* **(UC1.2)** Choose players
* **(UC2)** Play a single Game
* **(UC2.1)** The player throws the dice.
* **(UC2.2)** The player buy the house.
* **(UC2.3)** The player build houses or hotels.

## 3.2. Description of Use Cases

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| --- | --- |
| **Use case information** | |
| **Use Case Name** | Configure a single game |
| **Reference** | UC1 |
| **Description** | The user selects the theme and players for a new Curropoly Game. |
| **Precondition** | The home screen has been displayed on the screen. |
| **Basic Path** | 1. **UC1.1** The player selects “Choose a theme” in the home screen. 2. The player can choose one unlocked theme from an available list. 3. **UC1.2** Choose players 4. The player can choose up to 4 players. 5. The user configuration is saved for the current game. |
| **Alternative paths** | - The user tries to select a non-available theme, a message will be shown on the screen  - The user doesn’t select any theme, the system will put a pre-configured theme. |
| **Postcondition** | A new game configuration is created. |

|  |  |
| --- | --- |
| **Use case information** | |
| **Use Case Name** | Play a single game |
| **Reference** | UC2 |
| **Description** | The user can play a Custopoly Game until one player win or quit the game |
| **Precondition** | The configuration of a single game has been done **(UC1)** |
| **Basic Path** | 1. **UC2.1** The player throws the dies    1. By clicking on the dice image, the system will generate a random number which will represent the next position for the player. 2. **UC2.2***, The player buy the house.* 3. Once the player enter on a “box”, a menu will display the option to buy the house.   3. **UC2.3** The player build houses or hotels.   1. If the player bought the “box” on previous turn, an option to build houses or hotels will be shown. |
| **Alternative paths** | - The current “box” is owned by another player, a tax will be charged to the current player. |
| **Postcondition** | One of the player has won or a user has quitted the game. |

# **4.0. Design**

## 4.1. Sequence Diagrams

### 4.1.1. SD2: change the theme

### C:\Users\fran\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Change Theme Sequence Diagram.png

### 

### 4.1.2. SD3: edit player settings

### 

### C:\Users\fran\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Edit Player Settings Sequence Diagram.png

### 4.1.3. SD4: Creates new game/load a game

