**ABSTRACT**

Today’s gaming industry is expanding more rapidly than ever, being helped by e-sports (electronic sports) and online streaming. There are over 2 billion people that use video games as a form of recreation around the world, and some of them have built entire careers around this industry. The purpose of this work is to develop an online 2D animated video game belonging to the CCG (Collectable Card Game) genre. The name of the game is ‘Clash of the Elements’ and it’s a card game played with decks made of special cards of two types (creatures and spells), that have different properties and execute all kind of special effects.

The technologies that were used to develop the game were mainly technologies developed by Microsoft. WPF (Windows Presentation Foundation) is the main building block used in this work, because it offers a lot of support for graphic interfaces, essential for building a video game, through the use of the XAML language, which is similar to HTML, and C#, a very powerful object oriented programming language. The support for online play comes through the use of TCP/IP stream sockets which are required since you need a reliable connection without any data loss that sends and receives data in order to have a continuous flow of the game throughout a match.

The project is made of two different apps, the Client and the Server. The server is able to answer multiple clients at once, and the Clients contain all of the visual and logic elements that make up the game. There’s support for a gaming lobby, where players can chat and make rooms to which other players can attend to in order to start a game. Players can also view the whole card collection, where they can build their own decks in order to battle other players. Users can create accounts, and all data is stored in databases by the server.

There are a lot of possibilities to further develop the project, one of them being simply adding new cards with different effects that will bring new strategies and gameplay keeping the game fresh for long periods of time. Another choice might be the addition of a ranking system that ranks the players according to their skill. Having a competitive game, can also mean an invitation to the e-sports industry which will bring a lot of attention to your game.

The game was inspired by a really old card game called Duel Masters that was played with physical printed cards, and had no support from a dedicated client in the digital world. My contribution was bringing the interesting gameplay of Duel Masters to life in the digital world, through my Clash of the Elements, creating my own set of cards that follow rules similar to those of Duel Masters, adding my own ideas, implementing animations and support for online play.

This work is the result of my own activity. I have neither given nor received unauthorized assistance on this work.

Date Signature

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