Moon jumper

Casual Games exam project

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Introduction

The following report covers the development process and concepts of a game called „Moon jumper". The game is created by KEA student Martin Arusalu and inspiration for this project came from a free Platform Game called „Doodle Jump" (by Lima Sky game development company). I chose this type of game because that's the only casual game that I have been addicted to for a while. Furthermore it has all the elements needed for this class and it's very scalable – meaning, the basic concept of the game is simple though the possibilities for expanding and making it more immersive and addictive are endless.

Game concept

Moon jumper is a single player game and the genre is a hybrid of Platformer and Endless Runner. Endless runner because eventhough it has an end goal it's almost impossible to achieve. Moon jumper is mostly targeted for children so the controls and instructions are kept as clear, intuitive and simple as possible.

In the game the player is a young boy named Fred who is trying to get to the Moon. To get there he has to jump on different kinds of platforms. Fred's journey starts from grass, then moving up from hills and trees he gets to the mountains. Up from there are the clouds and sky, end of our atmosphere, outer space and as a last level – approaching and finally getting to the Moon. Fred has endless amounts of attempts to get there though if he falls, he has to start all over again from the grass and hills. Throughout the attempts Fred gets badges for achievements and as a secondary goal in the game he needs collect all the badges.

Gameplay difficulty increases the higher player reaches. At first there are mainly simple, static, strong platforms (regular). As the player get higher through the game the diversity of platforms increases. There will be more sandstone platforms – platforms that can only support one jump after which the platform is destroyed. Even further through the game regular platforms are replaced by moving platforms which also start moving faster the higher player reaches. Also the frequency of platforms decreases through the game so the player has less and less options to find a platform to jump to or land on.

Game is split into 6 levels – Grass, Trees, Mountains, Clouds, Outer space and Approaching the Moon.

At first the game was meant to be played only on computers but I later added a possibility to control the character Fred with tilting the screen so it offers a different kind of experience when playing on mobile devices.

MDA-framework

Mechanics involved in Moon jumper are:

1. character sideways movement which is controlled by player with fixed speed on desktop version but in mobile depends on the degree of screen rotation.
2. character jumping which is not controlled by the player
3. The movement rules that character cannot move out of the left or right side of the screen and should the character fall below the bottom of the screen, the game ends.
4. The interactions with platforms – after jumping once on sandstone platform, it breaks and disappears and jumping on platform with a spring makes the player jump multiple times higher than from a regular platform. Platforms can also move from one screen side to the other with various speeds.

On the dynamics part of the game player has to make choices of where to jump next that is the main strategy point. Sometimes falling a few steps down to a spring is much more efficient than to just jump on the next platform. Also player has to consider that sandstones (yellow platforms) can only support one jump. This is important in a situations where player has jumped on a sandstone and then fallen on a platform below it. That makes the next jump impossible and the only option is to start a new game.

From the aesthetics point Moon jumper is firstly aiming to evoke the feeling of challenge. The game does not involve a lot of creative problem solving or decision making. Neither does it offer the player any fantasy world, characters or other imaginary elements. Instead it creates a challenge to stay focused and make quick decisions about where to jump next. Also the game is simple and actions repetitive which makes the end result entirely depend on players performance. Through receiving badges player is rewarded for completing challenges that require persistance and repetition.

The second thriving force of aesthetics that makes the game addictive is players curiosity and the need to discover. To see what comes next. The background of the game or in a sense environment is constantly changing as Fred advances through the levels. Though when Fred (the main character) should fall down, that makes people curios about what environment comes next and makes them press „New game" again to find that out.

Addictive gameplay

There are a few key points that make Moon jumper addictive.

First it is a really simple game that doesn't need a lot of instructions or tutorials to get started. The player can only move from left and right and by only having three types of platforms player learns all thats necessary in a minute of gameplay.

Secondly it has a story that many children have dreamed about – getting to the Moon. Outer space and the Moon are exotic environments that kids hear about from the media and movies but can only dream about visiting. The curiosity and mystery brings to play.

Then after the first game starts, player is immedietly awarded with achievement badge. Badges can be optained for a single game achievements (height reached, gameplay duration, platforms jumped on etc) or overall achievements (total distance jumped, total time played, longest streak of jumping only on platforms with strings and many more). Single game achievements makes player want to reach the highest possible and overall achievements makes people play the game again even after falling down. First badges will come easily and frequently. Then it is starting to take a little effort but still getting awarded with a badge for it. This will award players persistance and commitment to the game and creates addiction for getting the badges. During a game on the top left corner there is a text that shows how many badges the player has and how many are in total. That gives player the goal to collect all the badges.

The simplest yet probably the most important element is High Score. First beating your own high score is the first thing that makes player play the game again. Secondly talking about your high score, comparing it with others and then beating others high scores is also very addicting. Lastly there is this phenomena that I personally experienced a lot – approaching your or somebody elses high score creates excitement, distracts your focus and therefore makes the game more difficult at that point.

Finally there's the changing environment which is making you curious to discover what comes next. When falling down you know that there is some scenery or level that you haven't yet seen and that makes you start a new game, beat your high score and see what's more up there.

Target audience

The target player for Moon jumper is definitely more of a casual gamer than core gamer because the game is meant to be played for just a quick entertainment, it is easy to learn and easy to play. From my personal measured experience the average game time is 5-10 minutes per game. Thats perfect in situations like waiting for somebody or something.

As for the gender and age the ideal gamer would be a young boy in the ages of 5-10 who can releate to the main character (Fred) thereby making the experience even more personal and immersive.

Moon jumper is most appealing to the achiever type of gamers. In the game there's a lot of statistics gathered and a dedicated statistics page where players can see their best, last and average scores, times, streaks and much more that an achiever can brag about to friends. There are also achivements (badges) to unlock and of course always a high score to beat. Secondary group is the explorer type of gamers. They are the ones who are curious about the changin environment and seeing what's up there.

Development process

The idea to make a game based on Doodle Jump came to me after thinking about cames that have made me addictive. This was the only one.

I started out by writing down first steps for developing minimal viable product. After creating a quick MVP I got a glimpse on the possibilities and possible difficulties. The MVP was just a bouncing white square on a dark background with some randomized rectangles as platforms. I decided to commit to this game and keep developing it.

Next step was to create the sense of upwards movement with moving the platforms down. That also meant that player was still supposed to look like moving up. I believe that was tho most difficult part of the coding part for me.

After I created the basic functionality – scoring system, moving system, powerup (spring) and different types of platforms, I started with graphics. I had to decide on the theme of the game. First idea was a man escaping a tower. Idea from the movie „The Dark Knight Rises" by Christopher Nolan where Bruce Wayne was escaping the prison by jumping on rocks. Though addition to upwards canvas movement it would have required circular sideways movement as well to create a feeling of jumping around the inside of a tower. The second idea was to make a game for children who have dreamed about going to the Moon. It had interesting and varying scenery to create and also a good story with a certain target audience. The graphics I chose were to be simple, flat style, colorful and maybe even a little bit childish.

The most timeconsuming part of the development was creating and combining graphics and sounds. Of which the sounds were one of the last steps in my development process. Regarding the IEZA framework almost all of used sounds fall into the Effect domain. Only the sound of a new badge could be categorized as an Interface domain sound.

Product documentation and perspectives

The structure of the code is as follows:

1. JSON data of levels
2. JSON data of badges
3. Game object that contains all the elements except global utility functions like time formating, cookie parsing, keypress and tilt detection etc and also the creation of window event listeners. Addition to game specific methods and properties game also contains the Player object, stage, array of Platform objects and data about levels and badges.
4. Player class defines all methods and properties associated with player. It extends the createjs.Sprite class to have a jumping animation.
5. Platform also extends createjs.Sprite class because all the platform images are combined into one spritesheet. Every Platform class instance can have a Spring object as an attribute.
6. Spring class – originally named and meant as a Powerup class but I then decided to just have one type of powerup – spring. Extends createjs.Sprite class to have the animation ability.

The graphics and sounds used in this project are mostly not created by me. Graphics Created by Freepik [1] and sounds combined from various packs of 99Sounds sound design tools [2].

For future developments I'm planning to have a „next mission" functionality. Where you always have a mission or a mini goal to accomplish. The missions could be just the badges but in order of difficulty. When completing the mission you immedietly get another. Also the game lacks an end-game or the acutal getting to the moon scenario so that's also on the to do list. I've also received feedback on poor performance on mobile devices and the need for more interesting platforms so the next version could be bringing for example burning platforms that wil only exist for example a second and maybe a upwards-downwards moving platform.

Conclusion

This project was created as an exam project for KEA's Casual Games 2017 class. As a result of this project a casual game called „Moon jumper" was created. The game is a single player platformer game where the main goal is getting to the moon by

jumping on various platforms. The target audience for this game are males in the ages between 5-10. Targeted gamer type is a casual achiever gamer.

References

1. http://www.freepik.com/ retrieved June 16, 2017
2. http://99sounds.org/sound-design-tools/ retrieved June 16, 2017