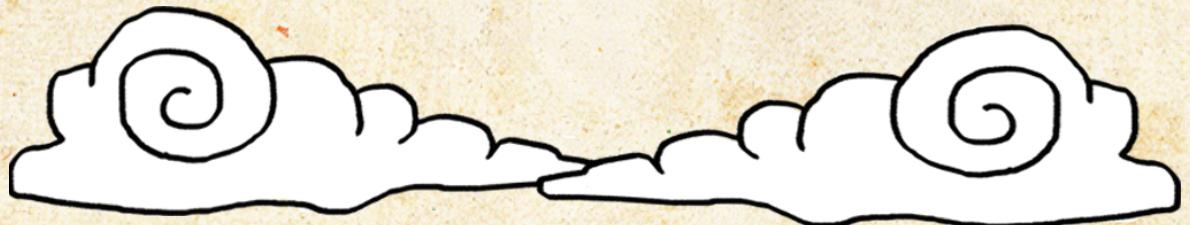




Fall Season



Game Design Document



by

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1. Design History

1.1. Brainstorming

The game design project was initiated rapidly by doing a brainstorming session where we discussed different ideas and how we wanted the futural game to be. We decided upon doing a game involving an umbrella where the main character was supposed to fall down throughout an endless level - that was going to become harder and harder the further down the character had fallen. Other inputs from the brainstorming session was to make it into a mobile-phone game that was supposed to be easy to play, wherever the user tends to be at the specific moment. The outcome from this was a vision of a game called Fall Season that was going to be presented and pitched at class on 10/11-15.

1.2. First pitch/prototype

At the lecture on November 10, we pitched our first idea of the game named Fall Season. After a short pitch of the game, we talked a bit about the unique selling points (USP) of the game, what target group we were aiming at, toward what platform we were creating the game but also showed our first prototype - just to get a glimpse of how the game could look like further on even though it was going to be changed in some extent. We had some great feedback from the audience which we later on had use for while developing the actual game. The overall feedback was really positive from this session and it felt like we had green light to move on with our project.



Figure 1 - First prototype of the game

1.3. Project responsibility

We were clear at the beginning that we wanted to use this course in order to learn new things and try out some parts we've never done before. However, to make sure the project could move on smoothly and to have a working demo in the middle of December we did an early matrix of how the responsibility within the group would look like. This was done to give everyone an overview of who had the supremely responsibility for the specific area.

Table 1 - Initial project responsibility

Mikael E	Documentation, Design
Mikael K	Documentation, Design
Lisa	Design Authority
Omid	Main Developer
Emilie	Main Developer

1.4. Graphic design development

We decided early on that the graphics are a chance to make our game selling. Very often the design can make the difference between the hundredth good game that does not get a

lot of attention or one that makes it into one of the upper places in the App Store charts (Schell, J. 2014). Since we make use of a common gameplay we have to add our own unique touch to it if we want the game to be successful. And that touch has to be outstanding. So nothing less than this is what we demanded from ourselves, the mechanics and the design. This is the reason why we discarded our first design concept of the main character. It was a 2D anime girl, in a neat and sweet style. One that can be found in a huge amount of other games. We felt

that this would not work. It was just too boring, people have seen this over and over again and it has lost its effect. It is still nice to

look at but it does not stand out neither. The design had to be something that made people curious to try out the game. That is why we came up with the design which can be seen in the figure on the right. As it can be seen, it still provides similarities to the typical Manga style. The special detail here is that it looks like a drawing. Only some parts are coloured and others are transparent so that the background can shine through. This design seemed to fulfill our requirements much better than the first one. The additional graphics were developed in the same style as the main character.



Figure 2 - Early prototype of first design for main character



Figure 3 - Final design of the main character

2. Section I - Game overview

2.1. Game concept

Fall Season is a casual falling game where you guide the main character equipped only with an umbrella downwards using gusts of wind as your primary interaction tool. The game is played either on a smartphone or a tablet, using swipe motions to control the wind and taps to affect the game environment. The game gets progressively harder the further down your character has fallen, with more obstacles and smarter enemies. While descending the character will travel through a wide variety of enchanting landscapes, each with a different color theme.

2.2. Features

- New twist of the classic falling levels in platformers.
- Physically-based control of the fall by the gusts of wind.
- Beautiful graphics and artwork throughout the game.

2.3. Genre

The game belongs to the genre of casual platform games. Its gameplay reminds of must-have mobile games such as Mega Jump or Doodle Jump. The main differences to it are the mechanics of guiding the character and the falling instead of jumping. The latter one makes it to an endless falling arcade game.

2.4. Target Audience

The main target group is casual gamers. Casual gamers is here defined as players who play mostly while they are idling (on the subway or bus) or are bored (sneaking in a game break at work). Since Fall Season is easy to pick up but hard to master it can easily provide a 10-20 minute engaging game play while waiting for the next train to arrive.

Even though casual games are played by a lot of people independent of their age or their gender, the main target audience usually ranges from ages 18-35 (Schell, J. 2014). Young adults continue to play games but they usually do not have as much time as they had before to play games. Due to this casual games are popular among people of that age group.

2.5. Game Flow summary

Once the player chooses to press the play-button from the mainmenu he/she enters the actual game playing as the Japanese girl named Sakiya on her adventure falling down through a beautiful landscape. Sakiya will face different challenges as the journey is evolving such as trying to avoid being killed by the enemies, use the folding of the umbrella wisely in

order to pass thin gaps and to collect as many coins, or Yuan as they're called in Chinese¹, as possible. Sakiya starts off with three ranpus (lamps) which are corresponding to the amount of lives. Once the player misses to avoid an enemy, one ranpus will be lost and if the player loses all three lamps, the game is over. However, there will be ranpus placed out over the levels and picking up one will result in adding one life (the maximum amount of lives is 3). Once the player loses, he/she can use the Yuans collected in the store to buy cosmetic elements in the store that will enhance the entire game experience, or improve the effects of the game powerups. There will also be an option to look at the accomplished achievements or compare the result in the high scores with friends.

2.6. Look and Feel

The visual style and look of the game is inspired by an Asian theme and is created to be as stylistically pure as possible. It is important for us to keep the same feeling during the entire game and not adding discontinuously obstacles or enemies which do not fit in within the theme. The Asian inspired look of the game is unique of its kind and the carefully created characters give the player a nice general impression. Together with the music which is highly associated with Asian countries, the enchanting graphics transfer the player into another world. The colors and the drawing-style create associations with manga and dreamy fantasy worlds. Since it is still closely related to the real world and uses common physics like wind, it puts the user into the game immediately.

Moreover, we want to reach a large group of players. By creating a beautiful design and combining it with a fun gameplay, we can win all genders for our game.

2.7. Unique Selling Points (USP)

In order to make Fall Season into a convincing and punchy game on the market, we will present in this section list a couple of features that make our game unique and that would outrival any competitors within the same area.

The four basic elements of a game are mechanics, story, aesthetics and technology (Schell, J. 2014). Since we are creating a casual game for mobile devices, the story and the technology are very unlikely to be the unique selling points. A casual game does not leave a lot of space for a story long enough to be a unique selling point and since we want our game to work on every mobile device, we do not introduce a new technology. But the feeling of the game, created basically by physics and aesthetics, makes it unique.

2.7.1. Physically based wind control

The most fundamental feature in Fall Season, that also makes it unique of its kind, is the way we created the wind control that allows you to navigate the character down through the game by directing gusts of winds towards it. Using wind mechanics has been done before, but combining it with a *fall-down game* in a realistic way is new and unique.

¹ https://en.wikipedia.org/wiki/Chinese_yuan [Accessed 2015-12-03]

2.7.2. Master obstacles, foes and wind control at the same time

Having several different tasks and challenges popping up during the game, with an increased difficulty rate the further down you fall combined to the control of wind, Fall Season is a game where the user has to be completely focused. Since we force the user to perform multitasking, it will occasionally be slightly frustrating when failing, but hopefully tempting enough to start over and over again in order to fall as deep as possible and beat your own or your friends' score.

2.7.3. Beautiful design

Outstanding, dreamy, fantastic, simple but elegant - that is how we designed our game to look like. It should make the user curious to get to know the game and is ideal to get the game to the users. Indeed, recently awarded games convince with beautiful graphics like Monument Valley and Badland². So this is a good starting point and worth putting effort into.

² <http://www.imgawards.com/awards/winners-nominees/> [Accesed 2015-12-01]

3. Section II - Gameplay and Mechanics

3.1. Gameplay

3.1.1. Game Progression

Progress in the game is made by falling down through the levels of the game. The further down the character has fallen the more difficult the game becomes.

3.1.2. Objectives

The game contains a combination of different objectives. The main objective is to guide the character unharmed to the bottom of the world. This goal can be achieved if the player masters the wind mechanics to avoid the enemies the character encounters in her path.

Another objective is the global score. It takes into account the distance given in the main objective and some more parameters. The collectibles, which enable the character collect coins, refill her lives and gain some new skills, also increase the score. The speed of the character also modifies the score, since it is more difficult to control a character that goes fast.

An auxiliary objective is coin collecting, since it is converted to money that can be spent in the shop.

3.1.3. Achievements

Based on his/her performance and success throughout the game, the player will have a chance to receive several different achievements. The achievements feature is a good way to encourage the player to play more and challenge himself or his/her friends.

In iOS devices, the game will be connected to Game Center for leaderboards and achievements, thus giving points for each achievement.

For a detailed list of achievements, see [Appendix B](#).

3.2. Mechanics

3.2.1. Physical movements

The most important physics used in the game are the falling and the wind physics. Both are closely connected to each other and have to work well together.

3.2.1.1. Falling physics

The falling of the character is essential to the game. Gravity makes the character fall downwards but the character's umbrella slows down the falling. However since there is always a little wind blowing, the character should drift gently in the air.

Moreover, there is a second falling mechanism. This one is active: when the character folds her umbrella, she loses the air injection which makes her float. If that is the case, the character falls down faster and is no longer affected by any wind activity.

3.2.1.2. Wind blowing physics

The creation of blowing wind is the main possibility for the user to interact with the game. By creating wind, the character can be moved in the game world in order to avoid obstacles and to collect objects. This mechanism has to be as realistic as possible and easy to control. Otherwise the user might become frustrated very quickly if he/she feels like he/she can't control the character properly. Therefore the wind has to influence the character in a physically reliable and realistic manner.

The wind force is created via a swipe movement of the player. A small swipe generates a feeble wind, whereas a large swipe puts a strong wind force onto the character and affects her floating direction strongly.

Another factor could have been also included, to make the physics even more realistic, which is the closeness of the swipe from the character position. If the character is in the top half of the screen, swiping in the top half would have more effect than swiping in the top bottom, because the wind is closer to the character. However, considering the small size of the target platform screens, this feature would have too little an effect, so we decided not to include it.



Figure 4 - An illustration of the wind blowing

3.2.1.3 Movement mechanics

The game is an endless vertical level, which can lead to several layouts when combined with the falling and wind mechanics mentioned above. Those possibilities will be compared in technical terms as well as design integration to the game.

In the virtual world, the character should not be in a never ending fall - this would result in huge numbers to work with, and in the camera "falling" as well to follow the character. Thus the camera is fixed, and the character stays in the screen frustum. To give the sense of falling, it is actually the "endless" background that scrolls upwards. Therefore, there are several possibilities associated with this behavior. For explicative drawings, see [Appendix C](#).

3.2.1.3.1. First possibility: free movement

In the virtual world, the character is in the middle of the screen at all times, and stays at this fixed position during the whole game. The background is thus scrolling up, left and right, at different speeds, depending on the swipe movement of the player. The background vector movement is a constant up vector (which symbolizes the falling force) to which we add the

opposite vector of the swipe gesture (which symbolizes the wind force). The background is a large image with either a torus topology, for complete free movement left-right.

3.2.1.3.2. Second possibility: Mega Jump & Doodle Jump style

The character is placed at a constant height (vertically in the middle of the screen for Mega Jump, bottom of the screen for Doodle Jump) but can move left and right depending on the x coordinate of the swipe vector. The background scrolls up at a speed which depends on the y coordinate of the vector. The character can go through the sides (if it goes through the right side, it reappears on the left side), or is blocked by physical boundaries on each side.

3.2.1.3.3 Third possibility: Freefall style

The character can move around the whole screen and the background is scrolling up constantly. It is a loss if the character touches the top of the screen.

3.2.1.3.4. Fourth possibility: our style

The character can move freely around in a certain physical bounding box. In this box, the falling and wind physics are applied thoroughly, and the background is not still scrolling up so the player gets a real sense of the forces at stake controlling the character. The character cannot get out of this box, because it is blocked by the different boundaries (left, right, top, down).

With the falling force, there will always be a moment when the character reaches the down limit of this box. When the character collides with the down limit, which is a physical element of the virtual world (a floor of sorts), but invisible to the player's eye, it thus stops moving on the y axis but keeps moving on the x axis depending on its current speed and direction. That is when the background starts scrolling up, to continue giving the sense of falling; the speed of the background is calculated as the speed of the character if this could fall continuously. Thus we restrain the character from infinitely falling down in the virtual world, but still have a real sensation of realistic physics.

The box has the same width as the screen, and the area is $\frac{3}{4}$ of the screen area, starting from the top of the screen. The character thus never has access to the last bottom area.

We chose this last possibility because it gives the player a sensation of full control over the game. The way we create his gusts of wind controls both the character and the environment in some extent. Moreover, it will not be an obstacle to the gameplay because the objective of the game is to go as further down as possible. The player will thus be discouraged swiping up all the time to slow down the main character.

3.2.2. Collectibles

3.2.2.1. Coins

Bronze, silver and gold coins will be placed through the levels. In accordance with the Chinese currency, they will be respectively called "Fen", "Jiao" and "Yuan".

When collected, they increase the coin bank by 1, 2 and 5 coins respectively. The higher their value, the rarer and smaller they are, and will be thus placed carefully in the different levels.

The player should collect as many as possible, since the coins can be spent in the shop (read more in the [shop-section](#)) after each game.

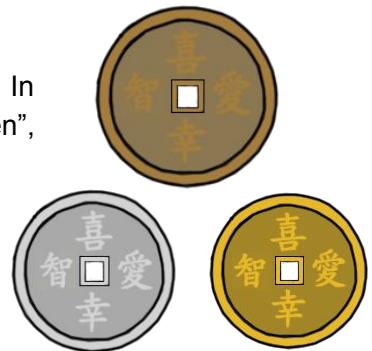


Figure 5 - Different coins that can be picked up in the game

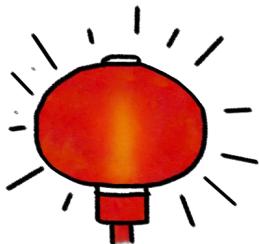


Figure 6 - The lamp that illustrates lives

3.2.2.2. Lamps (ranpus)

Ranpus lamps symbolize the health of the character. At the beginning of the game, the character has three of those lives, and it is the maximum she can have at any time. Each time the character gets hit by an enemy, she loses a lamp. When no lamps are left, the game is over!

Ranpus can appear in the game for the character to collect them. Once the player passes by a lamp, it will automatically restore a life to the character. However, the number of lamps cannot exceed three, so the lamps won't appear in the landscapes if the character has all three of her lives left. This collectible will be difficult to fetch for the player, in order for the game not to be too easy, so it will appear in carefully designed scenario.

3.2.2.3. Powerups

In Fall Season there are several different objects, which can be seen as powerups, appearing during the falling. The player will automatically pick up the specific object just by crossing it and there will be no specific action needed in order to grab it. Once the player crosses by the object, it will give the player the attached attribute for a certain time.

3.2.2.4. Coin magnet

Once the player passes through the power up called coin magnet, all the coins in the nearby surrounding will automatically be pulled towards the player.



Figure 7 - The coin magnet

3.2.2.5. Undying

If the player at any point of its falling crosses by the undying object, it will give the player an immortal attribute during a set of time. Once the player has the undying ability,

it will be immune from taking any damage by the monsters that will show up. However, the player still has to control the gusts of the wind in order to pass the gaps since the undying ability won't let the player pass the gaps without folding the umbrella. The undying power up is not yet implemented in the game and therefore no image to show.

3.3. Screen flow

3.3.1. Screen Flow chart



Figure 8 - Screen flow, from beginning to the end

3.3.2. Screen Description

Once the player opens the game, a short trailer scene will be played. Thereafter the main menu will be shown where there are options such as playing the game, watch the High Score or look at the accomplished achievements. While playing there will be an option to pause the game and once the player loses all of the lives, a game over window will pop up.

3.3.2.1. Trailer scene

The purpose of the introduction scene, the trailer, is to give the player a nice and welcoming first view of the game. Just by watching the trailer, the player will witness the beautiful graphics of the game and having the main character travelling around with an umbrella indicates that this is the main character of the game.

3.3.2.2. Main menu

The first menu the player faces is the one that appears when the game is loaded - the main menu. The purpose of the main menu is to give the player a first and proper impression of the game design and what's about to happen next. The main menu itself contains of several different buttons where the player easily can navigate around or just simply start the game.

The main menu consists of these buttons that will do the following:

- “Start” : Start the game.
- “Highscores” : Watch high scores.
- “Achievements” : Look at the achievements received.
- “Store” : Go to the shop.
- “Credits” : Credit page with names of those who created the game.

One distinct arrangement we did, that is common through most games, was to consciously highlight the play-button by making it bigger than the rest of the buttons.

3.3.2.3. Pause menu

While playing, the player has the opportunity to pause the game by clicking on the pause-button in the bottom right corner. Once clicked, a pause screen shows with different options for the player. The purpose of the pause screen is to let the player start over if feeling for it, go back to the main menu or simply resume the game.

The pause menu consists of these buttons:

- “Resume” : Resume the game from current position
- “Restart” : Restart the game
- “Menu” : Go back to main menu
- Sound icon : Toggle sound on and off

3.3.2.4. High Score menu

The High Score menu is the place where you will witness your great success from playing the game and compare your score against other players and friends. Even though this feature isn't in the first demo version, it's on high priority since we believe it's one of the most essential parts of a game and will be added shortly.

3.3.2.5. Achievement menu

The achievement menu will illustrate the different deeds accomplished from playing Fall Season. This menu isn't available in the first demo but [appendix B](#) shows a table of the upcoming achievements that will tempt any player to try out the game and achieve as many as possible of them.

3.3.2.6. Store menu

The Store, or shop as we also call it, has the main purpose to be a funding factor since the game is a freemium one. In the store, the player will have the opportunity to consume among

several different products that both will work as decoration, such as a new umbrella, or buy power up packages that will enhance the game experience itself. This feature isn't in the first version of the game but will be implemented in the nearby feature due to its importance for the financial of the developing.

3.4. Game Options

There will be no specific game option that will affect the mechanics of the game etc. For example, there is one and only way the umbrella can be folded/unfolded and the swiping is the same during the entire gameplay. However, one option we implemented is to let the player have the possibility to mute the background music while playing. This could be done by clicking the speaker-symbol in the pause-menu to mute/unmute the music. This is one of the most fundamental and important options for a mobile-phone game since enabling unmuting will let the players playing the game while commuting (on the subway or bus) etc. without disturbing the surrounding crowd.

4. Section III - Story, Setting and Character

4.1. Back story

Fall has always been Sakiya's favorite season. She loved to join the cherry blossoms' dance, to whirl around in the wind together with the delicate leaves. Joy and excitement used to color her cheeks in a shade of pink, just like her beloved cherry blossoms. Everyone who watched her felt a sudden peaceful happiness.

But this year, the fall came without his old companion. No wind was there to bring life to the blossoms, joy to the girl or happiness to the people.

The absence of the wind was more present than the wind itself ever had been. So all that people felt was a heavy sadness, not knowing the reason for this feeling.

Only the little girl remembered how it felt when the wind calmly messed up her hair, brushed gently over cheek and carried away all negative thoughts - until she felt light and airy and free. Like the blossoms.

But the wind had taken this feeling with him to the unknown place where he was hiding. Even though she could not feel the wind right now, she knew that he was still somewhere. She just had to find him and bring him back. When she searched through her memories, it was like she could nearly sense her windy friend again. So she closed her eyes, dived deep into them and went on her way to bring back the wind.

4.2. Setting

The game is set in an Asian environment. The theme is supported by the use of rice paper as a background, Asian architecture and by the Chinese mythology inspired characters.

4.3. Characters

4.3.1. Main character

The main character is an Asian looking girl called Sakiya. She is drawn in a manga-related simple style. Cuteness is one of her main features and it is supposed to motivate people to play the game.



Figure 9 - Main character called Sakiya

4.3.1.1. Animations

We animated the main character in a way that felt most natural regarding the movement, i.e. Sakiya is looking towards the direction which the players points the wind at. If the players swipes the wind in a way that make Sakiya start moving to the left, she will be facing towards the left border of the game as well and vice versa. Sakiya will also blink from time to time. The final animation that we implemented to the main character is the folding of the umbrella. This is a special ability that we will get into more in the heading, but the player can decide to fold or unfold the umbrella by tapping the screen and the umbrella animates thereafter in a suitable way.



Figure 10 - A sprite sheet used for the animation of Sakiya

The animations are created to fit the rest of the style. They are not as smooth as for example as animation movies. It is supposed to resemble a flip book more than such a movie. This style supports the perception of the game.

4.3.1.2. Special ability - folding

Sakiya has received one special ability only which is the folding ability. It's distributed into two states. Either Sakiya has the umbrella unfolded and moves around without any other effects than the original movement by swiping wind towards the umbrella. Once the player double taps the screen, the umbrella will fold and Sakiya starts to fall quicker downwards. This special ability is useful once Sakiya has to cross really thin gaps that without folding the umbrella will lose her one life, which will be added in the next version of the game. It's also useful if the player thinks the game progresses too slowly and wants to fall quicker.



Figure 11 - The folding animation

4.3.2. Enemies

In the first version of the game, i.e. the demo, there will be two enemies implemented into the game. One dragon called Midoryu and one ninja named Shinotora.

4.3.2.1 Enemy 1 - Midoryu

One enemy that will make Sakiyas' journey harder is the green dragon, Midoryu. The dragon is searching for his victims back and forth the screen and occasionally spit fire from his mouth. If Sakiya gets hit by Midoryu, she will lose one of her ranpuses.



Figure 12 - Midoryu

4.3.2.2 Enemy 2 - Shinotora

Next enemy that will be an obstacle for Sakiya is the teleporting ninja, Shinotora. Shinotora is appearing at different locations with his ability of teleportation and will always be a threat towards the player while falling. With a fan in the hand and the odd movement makes Shinotora an enemy you really want to avoid in order to not lose any ranpuses. If Sakiya gets hit by Shinotora, she will lose one of her ranpuses.



Figure 13 - Shinotora

5. Section IV - Levels

5.1. Main level

Fall season consists of one level only and the level is endless with a high variation of environment changes and a constant increase of difficulty. Since the game itself is built upon fairly basic and easy to learn mechanics, there will not be any training level where the player can practice before starting the game. However, once the player decides to start the game, he/she will step right into the action and try to reach as far down the level as possible. This is crucial since we are building a casual game and accessibility is most important (Schell, J. 2014).

In order to make sure the player never gets bored but still doesn't find the game too hard and therefore getting frustrated, we have used the technique of dynamic difficulty adjustment (DDA) and created a "flow channel" throughout the game - where the player doesn't find it far too challenging but still not way too easy (Hunicke R. et. al. 2005). We find the use of DDA necessary due to its simple effectiveness to keep the player in engaging interactive loops and have created/designed the final level with help from an abstract simulation

5.2 Abstract simulation

Before launching the game we are planning on creating well structured level tests in order to find the most suitable flow channel for our game. In order to do this, we are thinking of creating several different versions of the game with varied levels of difficulty and do users tests where the users will give us feedback on what version that he/she likes the most. We're thinking of having the same test persons for this during the entire process and let them do level tests once in awhile as the game is developing. Of course the developing group will test the difficultness of the game as well, but we think there is a risk they will get restricted of their own work and therefore it's good to let some independent people test it occasionally.

5.3. Level Design



Figure 14 - Shows the four level segments currently in the game, all in the special game style

The levels are designed to force the player navigate along a special path to proceed down further, which allows for smart enemy or collectables placement at key chokepoints. Many obstacles in the level is animated to give the impression of life, such as lamps glowing and swinging gently.

6. Section V - Interface

6.1. Visual system

6.1.1. HUD - What controls

Fall season has several different head-up displays (HUD) with necessary information that will help and inform the player throughout the game. One of the most essential HUD's that is statically visible at the top of the screen is the health system, which for us is showing a certain amount of lamps with the maximum of 3 that indicates the player's lives.

Another HUD we're using is to show the player what its current score is, by implementing a "score meter" that updates the score as a combination of distances fallen and amount of coins collected. We also added a pause button in the bottom right corner of the screen. Once this button is pressed, the game immediately stops and the player can catch its breath.

We have carefully placed the different HUD's and made sure they won't come in conflict with the gameplay itself and made sure the nice visuals will still be in focus.

6.1.2. Camera

In Fall Season, the camera is fixed and the character stays in the screen frustum. To give the sense of falling, it is actually the "endless" background that scrolls upwards.

6.2. Control system

During the game, the player controls the character by swiping on the touchscreen. The character will move in the direction defined by the swipe. Longer is the swipe, further the character will go. If the player double-taps on the screen, it will fold (resp. unfold) the umbrella if it is unfolded (resp. folded). Furthermore, the player can pause the game by touching the pause button. On the other screens, the player can select any option by tapping on it.

6.3. Music

The background music was added to the game with the purpose of enhancing the gaming experience and is only played once the player is actually playing the game (not in the main menu scene etc). The music is an Asian-inspired melody that suits well with the remaining style of the game and was collected from a website that produce free samples of music to download (see [appendix A](#))

6.4. Sound effects

In order to enhance the game experience even more some relevant sound effects was added. In the first version (the demo) of the game we have implemented sound effects for collecting coins and sound effects for colliding with an enemy. For credits to each sound effect, see [appendix A](#).

7. Section VI - Technical

7.1. Target Hardware

The game targets mobile devices like phones and tablets. We will make it our first goal to release the game for iOS 9 devices. An Android version will be introduced later on.

7.2. Development Hardware and Software

For fast-prototyping purposes, the project will be developed with Unity 5.2 (latest version in Nov 2015). The associated scripting language is C#. The development team works on their personal laptops, and the project is set up in a [Github repository](#).

The development team works with their personal iPhones, 4 to 6. For testing purposes, the application Unity Remote 4 is used. For standalone testing, the project is built under Unity and Xcode 7.1. Further testing will be made with other iOS platforms.

Since Fall Season is a 2D game we decided to do all design by drawing/sketching the specific background or characters etc. Programs used for this was Adobe Photoshop and GIMP.

7.3. Development Procedures and Standards

Each feature will be developed separately for better integration and maintenance. The project will follow an agile development: a minimalistic version will be produced in a first rush, and the other features will be integrated during new rushes.

7.4. Scripting Language

The programming language used to develop Fall Season is C#, an object-oriented programming language. It is the main language used in Unity, the game engine we use to make our game.

8. Section VII - Game Art

Like most of other popular mobile endless falling games we used 2D graphics. A technical advantage that is gained by this is the performance improvement towards a 3D game. Moreover, the player is not overwhelmed by unnecessary depth of the graphics.

2D graphics in a style similar to the competitor game “Mega Jump” can be found a lot in the AppStore. To set our game apart from these competitors we took an alternative path. We still wanted our graphics to look cute and appealing to the player but without using a design which reminds too much of a cartoon. We were aiming for the beauty of “Alto’s Adventure” by trying to achieve a combination of elegance and atmosphere without copying their style. That is why we found inspiration in another popular game called “Doodle Jump”. Its game art impresses with a simple style that resembles classic doodles.

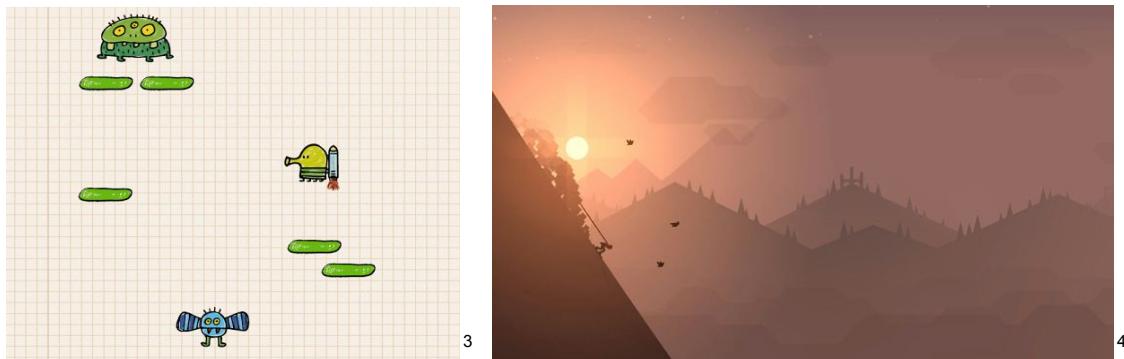


Figure 15 - Inspirational design for Fall Season. Doodle jump (to the left) and Alto's Adventure (to the right)

We tried to find a new style by aiming both for simplicity and elegance. The elegance is provided by the Asian theme which is labeled as exotic and delicate by most people. The main character reminds of the Japanese Chibi-style because of the head-body proportion.

³ https://lh5.ggpht.com/qGDuU_oXvYXHe9dHqEuxLc9BltKK-mfcWLqQeVtg36tJiG7sl4vAZuswD99cSH0LbYel=h900

⁴ <http://a2.mzstatic.com/us/r30/Purple5/v4/c0/06/86/c00686b1-73f5-3107-b77f-37ca59ecbb90/screen640x640.jpeg>



Figure 16 - First draft of Sakiya and background with objects

That makes the character look cute. And cuteness has a positive effect on selling a product. But instead of a comic or a cartoon, it looks more like a drawing which is kept simple by adding color only sparingly.

The individual style can help to get attention. It is not uncommon that games, even though they do not introduce a new game concept, become popular because of the unique game art. We wanted our product to stand out as well.

People want to be surprised (Schell, J. 2014) - but only by a certain amount. If every part of a game is surprising then it might not longer feel surprising but unfamiliar. Which is definitely not what we want our game to feel like. That is why we used a familiar concept (endless falling game) and combined it with a new wind mechanic and an outstanding style of the game art. And that is exactly where we want the user to be surprised. Since the focus lies on the creation of a casual game, we want the concept and the story to feel casual. But not the gameplay.

9. Section VIII - Management

9.1. Project Startup

At the start of the project a competence matrix was setup to show the experience of each individual group member, as depicted below.

Table 2 - Initial competence matrix

	Unity	Design	Programming	UX/UI	iOS	Mobile dev	Management
Mikael E	3,5	2	4	2,5	1	3	3,5
Mikael K	1,5	3	3	3	1	1	4
Lisa	1,5	3,5	4	3,5	2,5	2,5	3
Ormid	3,5	1,5	4	2,5	1	1	4
Emilie	3,5	2	3	3,5	1	1	4

The initial competence matrix, showing the different skills of the members on a scale from 1 to 5, where 1 is no prior knowledge and 5 is expert.

The decision was made that the role of the project leader would rotate weekly, and that tasks would be assigned using a Trello board. Lisa was elected to be the lead designer, tasked to keep the graphics and art streamlined and coherent. Emilie was elected to lead programmer, tasked to keep an eye on the development inside Unity and to be the rumored Git mistress.

9.1.1. Communication

Except from using Trello in order to divide tasks in the group, we felt that having good communication from the beginning to the end was one of the most fundamental things to have in order to finish the project in time. Once the group was assembled in the beginning of november, we created a Facebook group with a corresponding chat where we could discuss difficulties, questions or just give feedback on each other's work. Since all group members were familiar with this communication tool before no introduction was need and being able to instantly get feedback or answer someone's question has been appreciated by everyone, and we did avoid some misconceptions by doing this.

We used Google Drive as a tool for communicating files/pictures and has been a good tool where everything is collected at one specific place. The Google Drive was also a great place to gather documents such as this game design document and protocols from weekly project meetings. Doing like this gives everyone the opportunity to access and edit these documents whenever he/she wants.

9.2. Schedule

Week 45

The initial week of the project, a game concept and targeted platform was chosen. Communication and file storage was set up for the project group. We also set up some deadlines for the upcoming week, where the main focus was to come up with an initial game concept of the game.

Week 46

This week we created project tasks in Trello to make the communication go smoother while working and group roles were also assigned. We started to work on the first demo and created some initial graphics for the game. The deadline for the upcoming week was to create more tasks in Trello, correct some group administration and keep on working with the demo.

Week 47

This week we managed to do great breakthroughs towards creating a working demo. The scrolling background started to work, we implemented the wind mechanic and created the first characters. For the upcoming week, we decided to make sure we had a first working demo and finished the creation of our main characters.

Week 48

This week we merged all the separate features into a demo including the first UI, such as menus, some level design and collectables which are the coins. We also started off with creating the website for our project (<https://people.kth.se/~lschmitz/>).

The deadline for the next week was to implement wind particles and add some working enemies.

Week 49

With only one week left until the final deadline in the course we had still quite some job to do. We made the double-clicking to work in order to fold and unfold the umbrella, polished some graphics and created wind particles when moving the player. For the final week we made some last deadlines that were added to the Trello, and everyone in the group had some tasks that we supposed to be completed.

Week 50

This was the final week of the project and now everything was about to be finished until the final presentation on Friday. We had sessions where we met with the entire group in order to make sure we had everything ready. We polished some parts of the game and prepared ourselves to show the demo for the rest of the class.

10. Section IX - Business Plan

In this section we will talk about the overall Business Plan for the project of Fall Season and why some of the decisions we make are the most suitable ones for a potential distribution in the upcoming future. Since we're creating a 2D scrolling game for the iOS platform it is necessary to look into other similar games within the same category in order to come up with the most cogent solution.

10.1. Budget

Due to the structure of the entire game development of Fall Season, which is a part of a project course at KTH, we don't have any specific budget to present. However, we will later on in this section demonstrate a potential finance plan of the game and what expenses there might be in order to go from just a demo to fulfill a distribution towards App Store.

10.2. Market/Risk Analysis

Distributing games for mobile devices has not always been as obvious as it is today. Up until 2008, when Apple's App Store was released, the majority of all games were distributed through mobile operators themselves which made the market very unilateral and unpredictable. However, due to the entry of App Store where the consumers could choose between a huge volume of downloadable games, it has changed the market for mobile-phone games as well. The risks of entering the mobile-game industry have changed its shape. It's no longer hard to get into the market, the problem however is to be seen and extend when you compete against a bunch of other actors.

One obvious risk we are facing while creating Fall Season is to make it too similar towards other games within the same category. There have been a high renewal of different 2D scrolling games during the past years, such as Mega Jump, Doodle Jump, etc, and the risk of similitude with other games will always exist. However, in order to face this risk, we've elaborated a bit with the concept and tried to come up with a theme that we have not seen yet when it comes to this category of games. We have also made sure to not look too much into other similar games since we think that it would make the creation process harder and the risk of grabbing some already made concepts higher.

Another difficulty when entering the game market for mobile devices is to keep the players playing the game, which is one of the most fundamental requirements in order to make the entire process go around. Creating a well made flow channel is essential to make the players feel that the game is manageable, but still not to easy, and therefore get the feeling of desire to play the game more and more. Since we're doing a freemium game, one big task is to encourage the players to enter the shop and buy things that will help us with the financing. The shop should be available for those who wants an addition to the game such as unlocking new umbrellas, change look of Sakiya or buy a package of powerups that can

be used while playing. There will also be an option to pay a small amount of money to remove the ads and the prices will be fairly low in order to encourage people paying for these stuff and help the funding of the game.

10.3. SWOT-Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> * Free to play * Easy to play anywhere * Not very timeconsuming 	<ul style="list-style-type: none"> * Lack of financial/marketing capacity * Developed in only five weeks * Made as a student project
Opportunities	Threats
<ul style="list-style-type: none"> * Unique game design * New and innovative game mechanics * Made for the popular mobile operating system iOS 	<ul style="list-style-type: none"> * Making it similar to other mobile-phone games * Competitors has superior Marketing opportunities * Players gets bored of the game

Figure 17 - The SWOT-analysis for Fall Season

10.4. Localization Plan

To reach as many players worldwide as possible and to make Fall Season into a successful game requires a carefully chosen localization process. Even though the game doesn't have endless conversations between characters or such, we still had to start determining what language the game should be in. It felt naturally to make it in English since that was the language we all communicate with within the developer group and it is one of the most well-spread language around the globe. Of course we have the opportunity to easily translate the game later on into other languages if we believe that would speed up the distribution.

Another aspect that's taken into account and well discussed is what platform that suits our game the best. We agreed in an early stage to make it on the mobile operating system iOS

and use App Store as distribution service. The reason why we chose this is due to the game concept of Fall Season where most of the players want the opportunity to play it in short sequences, for example both while commuting or at home, and therefore the smartphone is the best choice. Other platforms such as consoles or computers won't fit this type of game since it doesn't have this long storyline, rather it is an intense and easy addictive game that could be played wherever you are as long as you bring your smartphone.

10.5. Test Plan

In order to make the launch of Fall Season successful it is important to be as prepared as possible in advance of the release. There are a few factors we find fundamental when it comes to making sure the distribution of the game will go smoothly and creating a distinct test plan is one of them.

A simple test stage to start with is to gather friends to play the game and observe them playing. That usually provides the best first impression of how the game works. Together with the feedback of the players the observations can lead to a significant improvement of the game (Schell, J, 2014). This way of testing is suitable since most of the people in our age fit into the main target group. Moreover, it is risk-free because it will not cost any money. One benefit of having testers of the game is not only for reasons such as finding bugs that will improve the gameplay - they're also an effective tool for marketing and to make people noticeable of the game that's about to be released. Once the testers are given the game, there're several different platforms that can be used to spread information about the game and show the audience about what is going to be released in the nearby future. If furtural testers decides to post blog posts about our game, share the game on social medias such as Twitter or Facebook or just talk about the game with people who has large networks, that will do as a great service.

Hopefully, doing this carefully and having test people who are willing to share the game before it is released will make the entire launch much smoother and the further on marketing easier.

10.6. Finance plan

The first demo of the game is created in the scope of the Computer Game Design course at KTH by the project startup. Therefore, no finances were necessary for this part of the project.

For the second part of the project, we intend to test and improve our developed prototype, and transform it into a commercial product. We will thus need financial help for the following reasons :

- 1) Legal creation of the game startup.

In case of a limited company : 2200 SEK for registration.

In case of a limited partnership : 1200 SEK for registration, + 900 for secondary names, = 4800 SEK.

- 2) Fees for running the startup : insurances, taxes ; we will limit any administrative changes that have fees at the Swedish Companies Registration Office.
- 3) Salaries for the potential members working full-time on the project.
- 4) iOS developer licence for the startup (100 \$).
- 5) Advertisement.

We will ask for money from the sponsors in order to help the funding.

Our game is a freemium game, thus income will be from in-game purchases in the game shop. Since our currency in-game is coins, the in-app purchases will be based on coin bundles :

- 9 SEK for the most little bundle of 100 coins
- 29 SEK for 500 coins
- 99 SEK for 2000 coins
- 299 SEK for 10000 coins and a bonus powerup
- 999 SEK for the largest bundle, containing 50000 coins, no ads, and 3 bonus powerups

There will be different forms of advertisement.

In the App Store the best advertisement would be to be part of the selection of new games of the week. This would give the game a head start to potentially be ranked in the top apps.

We will have some ads in non-competitor popular games who function as a freemium apps as well. The ads in our game will be from partner games who pay us for advertising for them, providing us one more source of income to continue the development of our game.

10.6.1. Selling strategy

Even though our main target group is people in an age between 18-35, we're aiming to reach as many casual gamers out there as possible and the selling strategy for this will be different depending on where and to who exactly we want to sell the game. Due to the freemium aspect of the game the problem isn't to make people download the game, rather it is to catch their interest by showing the beautiful graphic and give them an interesting story in order to make them wanna buy cosmetics etc. from the store.

Since the game probably will be played once in awhile for a shorter amount of time (5-15 minutes) one strategy is to make it popular among commuters. People who are commuting, example by taking the subway or bus to work, usually have this time free to be busy with things like games and making Fall Season into one of these games that's played a lot would help the marketing a lot. Watching a person play a game next to your seat on the subway will get your attention if it looks interesting with cool design, which we think Fall Season fulfills.

10.7. Marketing

10.7.1. Title

“Fall Season” has been considered to be a good title for the game since it shows a lot of important characteristics. For once, the name will apparently be connected with falling colorful leaves which are a typical phenomena during fall. But it additionally includes a hint to the main game mechanic of the movement of the character. Moreover, it is easy to remember.

10.7.2. Logo

A logo is an important part of the marketing of a game. It contributes to the user's first impression of the game. Therefore it has to be appealing and impersonate the feeling and atmosphere of the game. It has to be chosen carefully since the consumer will always associate the logo with the game.

The two free fonts *Kishore* and *ChristmasgocDani* have been combined and manipulated to create the logo.



Figure 18 - Logo of the game Fall Season

The font *Kishore* has been used to create most parts of the text body. Only the capital letter *F* is written in the font *ChristmasgocDani*. But the have *F* has been adjusted to fit well to the other font. It looks like a tree with only a few leaves left which emphasises the fall theme. The overall appearance reminds of the strokes which have been used to create the game

graphics. Besides, in order to make the logo compact and more interesting, the a and the S have been merged into one. It connects the two words of the title and forms it to an unit.

10.7.3. App icon

The app icon represents the game in the app store. It is the first image that users will see of the game so it has to promising. It should give a small glance of what the game is about without being too detailed. It turned out to work best by using a combination of the game title and the main character.



Figure 19 - App icon drafts

11. Appendices

11.1. Appendix A - Asset list

11.1.1. Credits for imported content

11.1.1.1. Music and sound effects

Background music:

<http://www.mp3cool.pw/index.php?q=secrets+of+zen+japanese+chill+out>

Coin sound: <http://www.freesfx.co.uk/sfx/coins?p=2>

hit by enemy sound: <https://www.freesound.org/people/unfa/sounds/193429/>

11.1.1.2. Fonts

Kishore sharp 2

ChristmasgocDani

11.1.2. Original game art

Characters : main, dragon, fox-like, chinese-man

Coins : gold, silver, bronze

Environment : cities, trees, etc.

Weather : leaves floating, particle effects, etc.

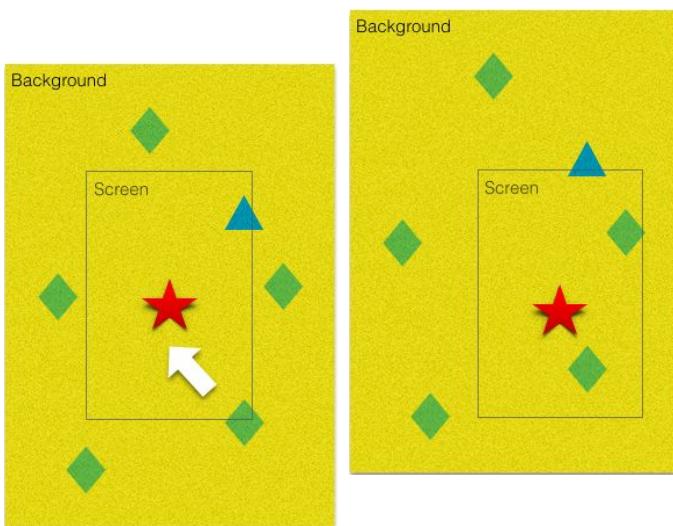
11.2. Appendix B - Achievements

N°	Cool name	Description	Points (for Game Center)
1	Work as a team	Invite 5 friends to play the game ! (or connect to facebook / twitter, etc.)	10
2	First steps	Reach 100 meters.	5
3	Getting there	Reach 500 meters.	10
4	Fall, fall, fall	Reach 1000 meters.	15
5	Long shooter	Reach 5000 meters.	20
6	Can't stop me now	Reach 10 000 meters.	30
7	Falling hero	Reach 100 000 meters.	50
8	Baby ninja	Fall for 100 meters without taking damage.	5
9	Kopai	Fall for 500 meters without taking damage.	10
10	Senpai	Fall for 1000 meters without taking damage.	15
11	Sennin	Fall for 5000 meters without taking damage.	20
12	Dai-Sensei	Fall for 10000 meters without taking damage.	30
13	Bronze token	Collect 1000 Fen.	10
14	Silver medal	Collect 1000 Jiao.	20
15	Gold digger	Collect 1000 Yuan.	30
16	Millionnaire	Collect 1000000 coins.	30
17	No cheating	Fall for 500 meters without taking any powerups.	10
18	Health package	Try the health package powerup.	5
19	Undying	Try the undying powerup.	5
20	Coin magnet	Try the coin magnet powerup.	5
...			
?	Good job !	Leave a rating and comment on the App Store / Android Store.	10

11.3. Appendix C - Scrolling background possibilities

The following schematics explain the different technical meanings of the background possibilities. As a reminder, for our game, the fourth one was selected. The background is yellow with green and blue shapes ; the character is the red star, placed in the screen rectangle, and the white arrows are the wind forces applied by the user. The two images process the background and character movement depending on the wind force applied.

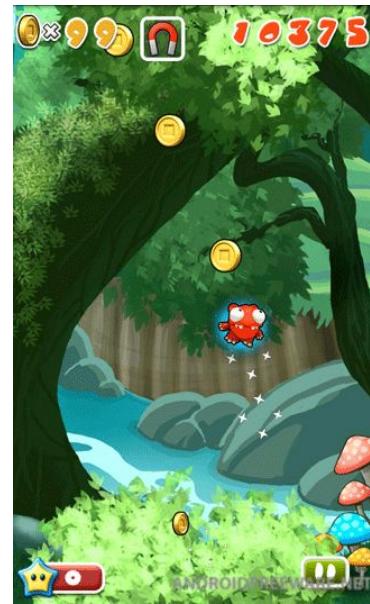
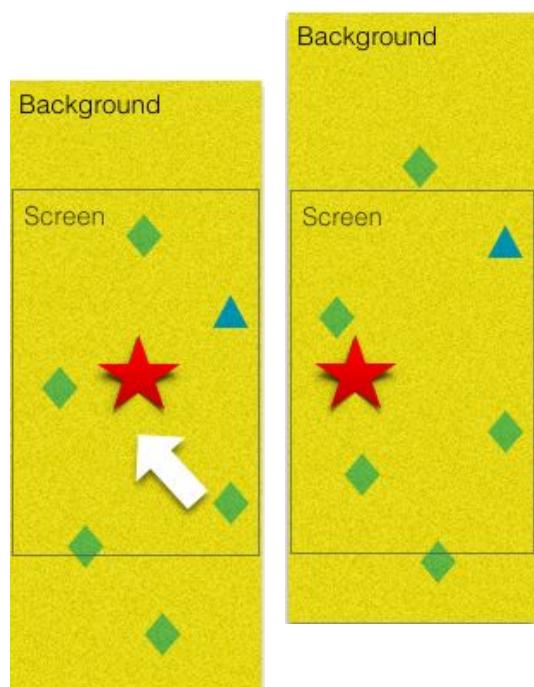
Possibility #1



Possibility #3 : Free Fall example

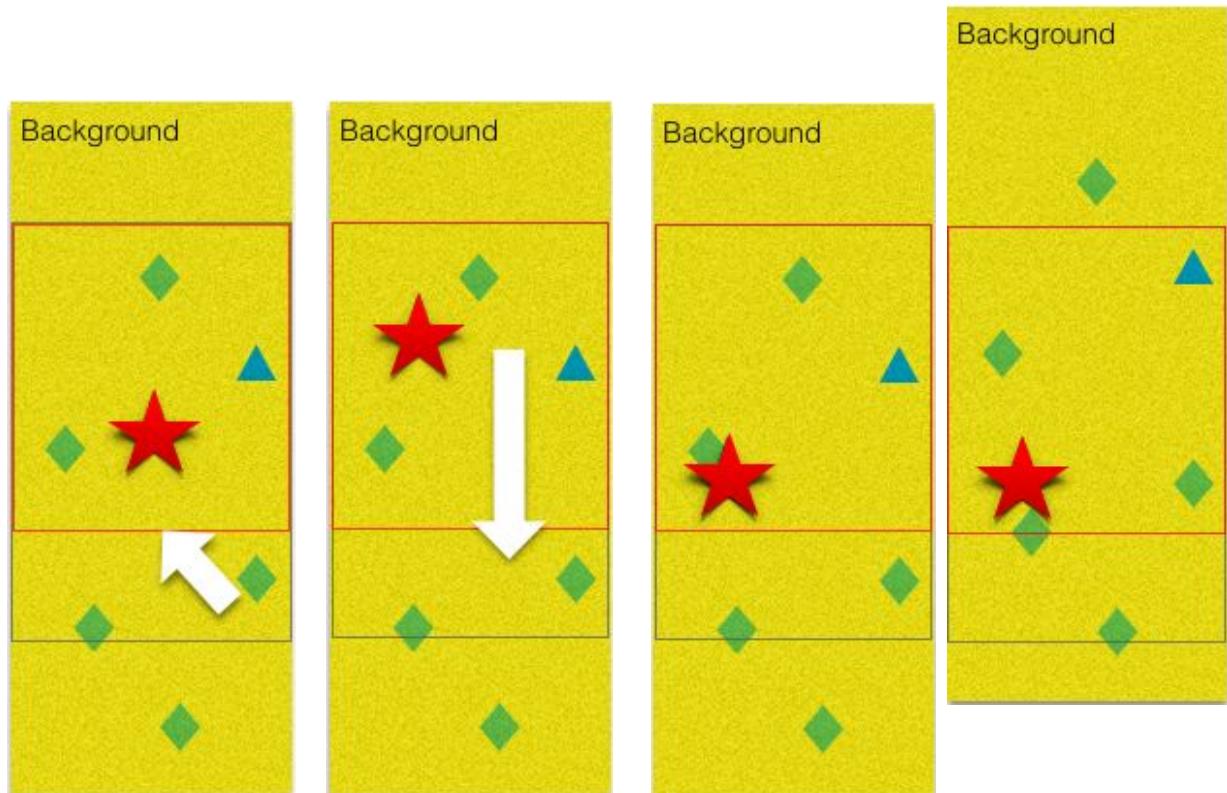


Possibility #2 : Mega Jump example



Possibility #4 : our method

The red rectangle represents the physical transparent bounding box, inside the screen black rectangle. The character can move freely within those boundaries, but when it reaches the bottom boundary, the background starts scrolling. The images represent the successive positions of the character and background following this mechanic.



12. References

Schell, J. 2014. The Art of Game Design: A book of lenses. CRC Press.

Hunicke, R. et al. 2005 . AI for Dynamic Difficulty Adjustment in Games
<http://www.cs.northwestern.edu/~hunicke/pubs/Hamlet.pdf> [Accessed 2015-11-24]