

Cookie Jump



Design Document by Joel
Draper



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Revisions

<i>Version</i>	<i>Author</i>	<i>Date</i>	<i>Comments</i>
0.1	Joel Draper	17 th April 2015	Initial Pitch
0.2	Joel Draper	20 th April 2015	Revision after Skype Conversation 19/04/15
0.3	Joel Draper	23 rd -25 th April 2015	Updates and improvement's to the design document
0.4	Joel Draper	26 th April 2015	Revision after Skype Conversation 26/04/15
0.41	Joel Draper	26 th April 2015	Improved some wording for the scoring system section
0.42	Joel Draper	28 th April 2015	Improved Schedule to include marketing plan as well and also includes updated information about the Google Play and Apple App Store(s).
0.5	Joel Draper	28 th April 2015	Revision after Skype Conversation 28/04/15
0.51	Joel Draper	4 th May 2015	Additional information added to make various things clearer
0.52	Joel Draper	10 th May 2015	Added additional media, improved wording and spelling in some areas.
0.53	Joel Draper	15 th May 2015	Improved wording and spelling in some areas. Added notes section, additional information and back sheet. Also updated dates regarding changing to schedule.



Type Conventions

All normal text is written in Size 11 Calibri

All section titles are **bold, underlined size 14 Comic Sans MS**

All sub section titles are **bold, underlined size 12 Comic Sans MS**

All sub subsection titles are **bold, underlined size 10 Comic San MS**

Size 11 Calibri in Italics represents important information – usually a new section in the development schedule.

Size 11 Calibri represents Important Information within a paragraph.

Size 14 Regular Calibri is used at the end of the document. It has no purpose other than to show corporate information.



Introduction

Cookie Jump is an indie casual game designed to be fun to play. Playing as the cookie, the game's replay ability comes from achieving a "high score" by getting a higher score and further down the hill than you did previously. You must avoid traps such as spikes and milk as well as enemies such as birds later on in the game, to add to its challenge, while collecting cookie dough to avoid further degradation.

The game is designed to be simplistic which will add to its "fun to play" aspect and replay ability. While the cartoony art style will also make it visually appealing to look at and appeal to children. Also the goal of getting a new high score and a better score than your friend and the fact the hill will be procedurally generated and become even more of a challenge as time goes on will also add to the replay ability of the game, as well as the fact that as you get further down the hill more birds appear which make it even more challenging as you get further down the hill.

The game is designed to be developed over a three month period - June to August 2015. It is also intended to be released in Q4 of the same year, however can be pushed back if there are any major issues, while the art style is designed to be visually appealing to look at and appeal to all genders and ages, but more specifically children.

Game Information

Working Title

Cookie Jump

Target Audience

Mobile, casual gamer. Any age. Any gender.

Genre

Casual, Mobile

Synopsis

You are a cookie rolling down a hill. As you fall down the hill, you degrade leaving a trail of crumbs behind you. You have to get as far as you can without completely crumbling, and have to avoid numerous traps among the way. You must collect cookie dough in order to stop yourself from degrading, and must avoid milk that causes you to degrade faster.

Assets

Assets required for the game are detailed below, as the game is designed to be developed over 3 months, the asset development schedule is included.

Audio

- Catchy background music, that can loop and yet not be annoying to listen to
- A "Jump" sound effect that is typical of platformers
- A land sound effect that sounds like a piece being broken off the cookie.
- A "soggy cookie" sound effect for after the player has picked up milk
- A "soggy cookie jump" sound effect for when the player has jumped after they've picked up milk



- A Mario or Habbo Hotel type “coin pickup” sound effect for when the player picks up a gold coin
- A Zelda type “chest opening” sound effect for when the user picks up cookie dough
- A coin spending “kerching” type sound effect for when money is spent in the in game store

Character

- A cartoony drawing of a chocolate chip cookie
- A chocolate biscuit cookie (similar to an Oreo)
- A gold coloured chocolate biscuit cookie (entirely gold but the same as the chocolate biscuit cookie in terms of design)
- Variation of “cookie” or “biscuit” to act as player upgrade
- A “milky” version of every player model which is lighter and more faded for when the player is “soggy.”

Enemy

- A black, crow-like bird in a normal flying position
- A black, crow-like bird in a “diving” attacking formation

Environment

- A “cloud style” background that is continuously in the background and doesn’t move
- Regular “grass sprite” that is continually used at the bottom, and can be looped over and over again without appearing pixelated or sickening.
- “Tall grass” PNG image for acting as taller grass for environmental reasons, you must be able to see the player through them
- “Metal Spikes” that act as danger to the player
- “Milk puddles” that also are dangerous to the player
- An “Oak tree” for the background, to give a variety to the background
- Other environmental designs such as a factory background, metal or concrete ground, et cetera.

Particle Effects

- Crumbs breaking off of the cookie
- Milk splash effect for when the player is rolling through the milk
- A “crumble/break apart” effect for when the player dies

Pickups

- A bottle of milk that acts as a danger to the player (does damage)
- “Cookie dough” that acts as a positive power up (adds health)
- “Gold coin” that acts as a reward (Can be used to buy additional products)

Promotional

- A logo for the start of the game and for promotional material

User Interface

- A small animation showing a user tapping the phone OR the words “Tap to begin” in a box
- The MansionGaming logo
- A “store” interface with place to put the items

- Drawings of the various character models
- Drawings of “cookie packs” to act as respawn purchases.
- Buttons for the store with various text including “buy with gold” and “buy with...” with ...being the price of the item.
- A box that says “You died. You score ... points.” For when the player dies
- A button that says “respawn” in colour and another version in complete grayscale in case they can’t respawn
- A button that says “store”
- A button that says “Try again”

Characters

Name: “Cookie”

Objective: To get as high a score as possible, to get as far down the hill as possible, to avoid the birds, to get as many gold coins as possible

Difficulty: Player Unit/Protagonist (difficulty depends on player skill level)

The only character within this game is the “**cookie**” which the player plays as and it’s variants (gold cookie, rich tea biscuit, et cetera) with the character having a happy facial feature to make the game appeal to children. Similar to this:



Name: “Birds”

Objective: To kill “cookie”, Enemy

Difficulty: Depends on player skill level, player health and player size.

The only planned “enemy” character are **the birds** who are planned for a later update, these characters will “peck” at the player, causing damage and the player must avoid them so that they are not eaten. The birds who will be black with an appearance similar to Magpies or Crows, birds known for their association with death in folklore and mythology. I believe that their scary nature would mean that when they “charge” the player, they should have their wings spread out as they do in nature to give a more intimidating look to them.



Figure 1 - Crow (Black bird) attacking another bird

The birds are designed to be a late game enemy, appearing about 3 minutes in as the game is designed to be challenging and quick, and we feel if the player survives for too long it degrades the snappy feeling of the game, so we are adding birds in as an extra late game enemy.

The birds can be scared away by the user “jumping” close to them in order to frighten the birds away but will come back, so that the player still has to deal with this fret and scaring them away is a temporary solution. Also, as the game then goes further and further along – more birds appear, starting with only 1 three minutes in and then increasing in number every few seconds until the death of the player.

Data Storage

Development System

Cookie Jump will use the Unity 2D Engine developed by Unity Technologies.

It will be developed using the Unity compatible C# 5.0 with some smaller scripts being developed using the Unity compatible JavaScript 1.8.5. Both are Object Oriented Programming Languages.

All scripts will have appropriate names (“Player” for code relating to the player function, “Health Manager” for coding relating to health, “Player Size” for scripts regarding the player size and properties, etc.) and different functions will have their own script to avoid game breaking bugs that usually occur by having more than one function in a script.

Sprite Sheet

The sprites for this game will be developed on multiple 256x256 sprite sheets, made up of a pattern of 16x16 tiles. Sprites can span multiple tiles, but this must be stated in Unity. Sprites must also make up a square number of tiles (i.e. 4) instead of for example, 4.5 as this is what the sprite sheet is designed for. Ease of sprite design and implementation will be included on this sprite sheet, including character design and texture sprites.

Gameplay

Controls

The game will have one control, a click or tap will do the one action – jump, except for at the beginning where it will start the player rolling down the hill. The player does not have to move the



character, as gravity will bring them downwards, however they need to jump to avoid obstacles and get higher rewards.

Game modes

There is only a single game mode within this game in which the player controls a cookie rolling down a hill and has to survive for as long as they can.

Starting Out

The cookie starts floating about a maximum of 1cm off the ground, and behind it is the sign informing the user to tap the screen to begin. After the player has clicked tap to begin, the cookie then falls the distance and starts rolling down the hill. They are started off easy, with basic jumps and getting a small basic tutorial which teaches them about the spikes, milk and cookie dough, before being enter into a more challenging “zone” which are randomly generated.

Scoring System

For each second the player survives, they earn 1 point, then from 10 seconds onward 2 points a second, 3 points for a second from 20 seconds onward, the amount of points gained per a second increasing by 1 point per second every 10 seconds. The player also gains 3 points for each spike cleared or avoided, 50 points for each gold coin they collect, and 5 points for each piece of cookie dough they collect.

The player’s health degrades faster as they survive longer and if the player choses to respawn (if the player has any respawns left) they lose 30 points per a respawn. Note that no players have respawns left unless they buy them or own a special cookie.

Mechanics

The mechanics of the game revolve around you playing as the cookie. The only player controlled mechanic is jumping.

The other mechanics are all related to the challenge of the game. The main mechanic revolves around the player’s cookie degrading over time. For every second that passes, a health point is deducted. As the player loses more health, they shrink in size before crumbling into oblivion. However this can be regained by the collection of cookie dough which adds health, but these will be hard to find and require a slight challenge.

Cookie dough also increases the size of your player, however the bigger the cookie the slower they are and the lower they can jump. Spikes break your cookie even more then you would get by rolling down the hill but leave no other impact other than health damage, while milk makes it soggy, sluggish and break apart faster, but will dry out over time.

As the player rolls down the hill and crumbles into oblivion, they leave a trail of crumbs which gets bigger as they take more damage and will break off suddenly if it’s a sudden loss of health.

Players can collect coins in the level which will be super rare to avoid degrading the value of these items, with both cookie dough and coins being on platforms that the player has to jump to reach, while the spikes and milk will be on the ground. Milk is found in puddles on the ground as well as in bottle pickup form, while cookie dough will be available as a pickup.

Gold coins act as in game currency, allowing the player to buy upgrades from the store such as special cooks, or “packs” of cookies without using micro transactions as well as to increase their score.



The first area will be a simple tutorial area, but it will get harder as the player goes along which will eventually lead to the player's in-game death. After the first easy tutorial area, the map will be procedurally generated with later designs hoping to have enemies the player will have to avoid such as birds who want to peck at the cookie.

There will be different biscuits and cookies with their own benefits which can be purchased via gold earned within the game or micro transactions. These will have their own benefits and drawbacks, for example – a rich tea biscuit will be bigger but lighter so will roll faster but is harder to jump with and it breaks apart easier when in contact with milk. While there will also be a prestigious golden cookie that is small and is harder to degrade, and will have less damage from milk and other enemies, but gains no health from cookie dough.

The player can also purchase extra lives which they can use to respawn from a checkpoint near where they died but with a 30 point deduction, and respawns can be brought through "packs" of cookies that are available to buy, or with special rare player cookies that can be brought with gold coins or micro transactions. The reason for having the player respawn near where they died is because if a player dies on a spike or a milk puddle, then the player will start there again which will put them at a disadvantage.

The store will contain various items such as better cookies, packs of cookies, etc. which are all available to buy from the store using in game gold or real world money.

If the player dies and has the free version, then an ad will pop up. If the user has paid 69p for the paid for version, then no ads will pop up when they die.

When the player dies, they "crumble" into pieces, adding to the idea that the player is a cookie that "crumbles" when it dies.

End Goal

The game has no end goal other than to achieve a higher score. All games end the same way, with the player's cookie breaking apart and "dying" once their health has reached 0. The end goal is to get as high a score as possible, as the game will display the players score after they have died.

Graphics

Art Style

Due to the games target platform, the game will have a cartoony art style rather than realistic graphics. All drawings will be kid friendly and cartoony and be easily identifiable by all of the people who play the game. It will have a high quality aspect as it should not look pixelated while also being small enough in digital storage size to fit mobile and tablet devices, but all of the textures will have this cartoony art style.

Major Entities

Spikes

Spikes are the major obstacle the player has to avoid within the game. Spikes are easily recognisable as symbolising danger or death, appearing in many major games such as Sonic the hedgehog and Little Big Planet. They are a major and commonly occurring danger that first appear at the very beginning of the game, and take 5 points of health away from the player.



Figure 2 - Spikes from Sonic the Hedgehog.

Milk Puddles

Milk Puddles are on the ground and some platforms which act as an area that the player must avoid otherwise they will get “soggy” and crumble faster. Milk puddles will come in the form of white puddles on the ground. To emphasise that these white coloured puddles on the ground are milk, we can include knocked over metal milk canisters to show the source of where the milk came from. The milk puddles can be of varying sizes and larger one will probably be more common later on, and smaller ones common earlier on.

Cookie Dough

Cookie Dough is a positive major entity, it will look like a ball of cookie dough with chocolate chips in or something similar but will be easily recognisable to kids. Picking the item up will give the player 25 health points to add to themselves. Cookie Dough will be more commonly earlier on and less common later on, but will be harder to reach than milk or spikes – requiring platform jumping to access them. If the player's health reaches 0 they die, and Cookie Dough acts as the traditional “health pack” of many popular video games.

Pricing

There will be two versions of the game available for purchase. There will be a free version in which there is an advert that pops up when the player dies, and there will be a paid for version which will cost 69p or the regional equivalent.

Respawn purchases will cost the same price as real world cookies.

Pricing Chart

<i>Name</i>	<i>Description</i>	<i>Price</i>
Cookie Jump – Free Version	The game but with ads	Free
Cookie Jump	The game with no ads	69p (or the regional equivalent)
A cookie	One respawn	50p (or the regional equivalent price of a cookie)
5 pack of cookies	Five respawns	£1.99 (or the regional equivalent price of cookies)

Target Platform

The game is being developed for mobile devices. This is due to the game being developed to be a casual game and the mobile platform is the most commonly used casual gaming platform. Also the “One tap” control scheme was designed for mobile platforms, as you would only need to tap on the screen to jump, and not to move the character. The game is also designed to be played on the go (On the commute to work or school, to kill time, a long journey, et cetera) hence the reason it is being developed for smartphones.



It will be compatible with the iOS and Android operating systems as these are the most popular and common smartphone operating systems currently on the market. More recent editions of these operating systems and compatible phones will be required due to its high quality art style.

The game will be made available on this target platform through the respective operating systems downloadable store.

Due to the cost of releasing a game on the Apple iOS store, we will release the game first on the Google Play store for Android and will then use the money made from sales on the Google Play Store to release the game on the App Store before distributing the profits evenly (not including the cost of Unity Pro if we made in excess of \$10,000 US [£6,541.33] per annum) between the two members of the team, and any appropriate individuals. The past and future cost of web and email hosting will also be taken out of this budget.

User Interface

The game will have no main menu, just the logo, and the words “Tap to play” inside a box and the main character not on the ground but just above it, waiting for the action to occur. This will allow the user to start it whenever they are ready.

The games user interface within the game itself will only have the score shown in the top left corner next to the words “Score: “ as well as the typical rendering of gameplay on the screen such as the character, the hill, pickups, et cetera.

When the players health reaches 0, a screen pop ups informing stating “You died. You scored ... points” with “...” displaying the score that the player achieved. Then there are three buttons, “respawn” (if available), “restart” and “store” where the player can make in app purchases with real world currency or in game gold. If the player has the free version of the game, then an ad pops up which the user must close, before they can view the “You died” screen.

The store will have 8 square “tabs” displaying items available and below each tap will be two buttons. One saying “buy using gold” and the other saying “buy using...” with ...being the currency of that particular country

Development

Team

Mansion Gaming

Name	Roles
Joel Draper	Project Lead, C# Programming, JavaScript programming, Level Design.
Vladislavs Parols	Project Lead, Art Design, Level Design, Programming elements.

External

Name	Roles
Numerous People	Testers

Editor

The game will be made with the Unity2D in built editor. This will allow us to decide what level the sprite would be drawn at, so that things that would be at back of the screen can be made so, and



things closer to the forefront of the screen can be adjusted as so, without physically moving the object using the Unity Editor.

Unity 2D is also a popular game engine for Independent Developer due to its ease of use to create easy-medium level projects and its ability to teach the developer Object Oriented Programming.

Schedule

Official Start Date: 19th April 2015

Complete Game Design: 20th June 2015

First Milestone - First Prototype: 29th June 2015

Second Milestone - First Playtest: 24th June 2015

Third Milestone -First Mobile Playtest: 16th August 2015

Fourth Milestone – Final Product: 31st August 2015

Official End Date: 31st August 2015 (unless contingency time is required)

Stage Number	Date Expected	Objective	Software Required	People Required	Completed
1	22/6/15-29/6/15	First Prototype	Unity 3D, Coding Software, Art Software, Demo.exe file, Computer, TigForums, Demo.mp4	Joel, Vlad	
1.1	22/6/15-24/6/15	Basic mechanics (ball rolls down the hill, spikes equal damage, damage as you roll down the hill, basic pickups mechanic)	Unity 3D, Coding Software, Art software, Computer	Joel, Vlad	
1.2	25/6/15-28/6/15	Additional mechanics (size grows as you get more health, slower if you are bigger, milk makes you sluggish and break apart faster)	Unity 3D, Coding Software, Art software, Computer	Joel, Vlad	
1.3	29/6/15	Playable Proof of Concept Demo (game can demonstrate the basic ideas of the game)	Demo.exe file, Computer	Joel, Vlad	

1.3	29/6/15	TigForums development blog started. Proof of Concept Demo footage posted for feedback on blog.	Demo.exe file, Computer, TigForums, Demo.mp4, YouTube	Joel	
2.0	30/6/15-23/7/15	<i>Art and polishing</i>	<i>Art Software, Unity 3D, Computer</i>	<i>Artists, Joel, Vlad</i>	
2.1	30/6/15-23/7/15	Polishing (fixing bugs and issues from the original prototype)	Unity 3D, Computer	Joel, Vlad	
2.1	30/6/15-23/7/15	Art (developing the cartoony art style wanted for the game)	Art Software, Computer	Artists, Joel, Vlad	
3.0	24/7/15	<i>First Build (first playable version of the game with the core mechanics and cartoony art style)</i>	<i>FirstBuild.exe file, Computer</i>	<i>Joel, Vlad</i>	
4.0	24/7/15-31/7/15	<i>First build playtest (people play the first build for feedback)</i>	<i>Firstbuild.exe file, Computer</i>	<i>Joel, Vlad, Testers</i>	
5.0	1/8/15-15/8/15	<i>Additions, Polishing and Porting</i>	<i>Unity 3D, Coding software, Computer</i>	<i>Joel, Vlad</i>	
5.1	1/8/15-15/8/15	Additions (adding the procedurally generated mechanics, any additional features wanted later based off ideas and feedback)	Unity 3D, Coding Software, Computer	Joel, Vlad	
5.1	1/8/15-15/8/15	Polishing (fixing bugs that were discovered in the first build)	Unity 3D, Coding Software, Computer	Joel, Vlad	
5.1	1/8/15-15/8/14	Porting (adding the mechanics to make it playable with mobile devices)	Unity 3D, Coding Software, Computer	Joel, Vlad	
6.0	16/8/15-23/8/15	<i>Second Build</i>	<i>Mobile Phones, Playable file</i>	<i>Joel, Vlad, Testers</i>	
6.1	16/8/15-23/8/15	Second Build Playtest (first mobile playtest in order to get feedback)	Mobile Phones, Playable file	Joel, Vlad, Testers	
7.0	24/8/15-30/8/15	<i>Bug Fixing</i>	<i>Unity 3D, Coding Software, Computer</i>	<i>Joel, Vlad</i>	
7.1	24/8/15-30/8/15	Bug Fixing (repairing all the bugs and issues found during the first mobile playtest)	Unity 3D, Coding Software, Computer	Joel, Vlad	



8.0	31/8/15	<i>Final product</i>	<i>Mobile phones, executable file</i>	<i>Joel, Vlad, Players</i>	
8.1	31/8/15	Final product (the game should now work, any post development changes can now be made)	Mobile phones, executable file	Joel, Vlad, Players	
9.0	1/9/15 onwards	Contingency time [If Required] (Any problems are worked on and fixed)	Unity 3D, Coding Software, Computer	Joel, Vlad	

Notes

This section is designed for any additional notes the user would like to include regarding the development process of the game.

This image shows a full page of blank, lined paper. It features approximately 28 horizontal blue or grey lines spaced evenly apart, typical of notebook paper. The lines extend across the entire width of the page, leaving small margins at the top and bottom. There are no vertical lines, text, or other markings on the page.

This page has deliberately been left blank for the user's notes.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



MANSTON GAMING

MansionGaming

London, E16

www.mansiongaming.net