

CatApps



Project report for COSC 400 Senior Design
Sections 4, 5, 6
November 12, 2012

Project team

Drew Burden, James Garner, Daniel Thomas, and Brandon Brethen

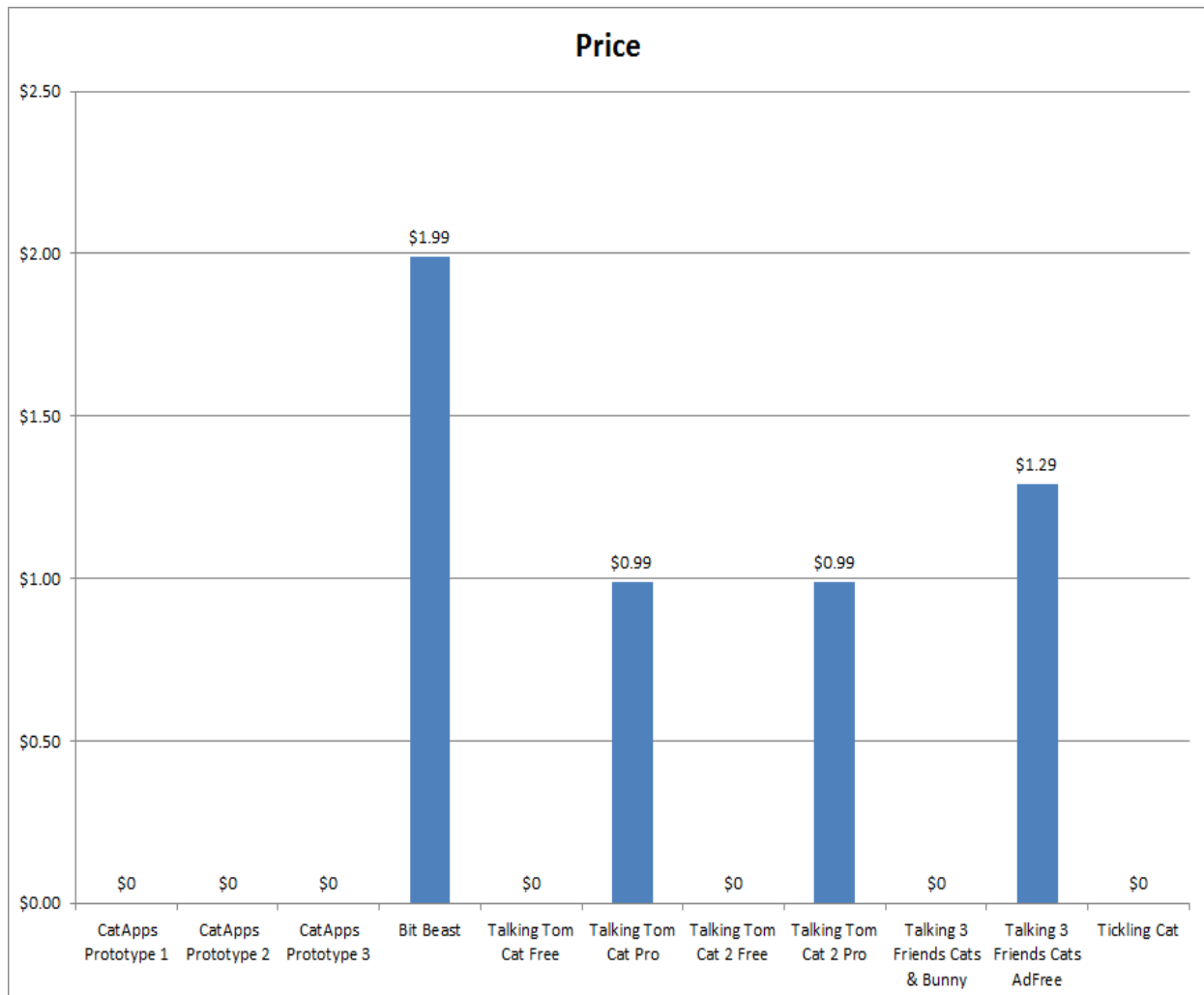
Project mentor

Michael Guidry

4. [982 words] [author: Daniel Thomas] Measurement of Prototypes and Final Product

Since our project is an app to be released on Google Play, our final measurements will be the number of installs our app has and the user ratings. However, since we cannot get these measurements until we publish the app, our current measurements are price, the size of the package (.apk), and the amount of space the app takes up on the device.

Price



The price for our app is zero dollars and zero cents. Since there is nothing that will ever be better than a free application, we can assume that we will at least tie with everyone else in this aspect. However, not all of our competition is free. For example, “Bit Beast” is priced at \$1.99, with no option to play for free. “Talking Tom Cat” and “Talking Tom Cat 2” are each \$0.99, but they have a free version that has ads. “Talking 3 Friends Cats & Bunny” is completely free, with a paid version of “Talking 3 Friends Cats” that doesn’t have ads. Lastly, “Tickling Cat” only has a free version, with no way to get rid of the ads.

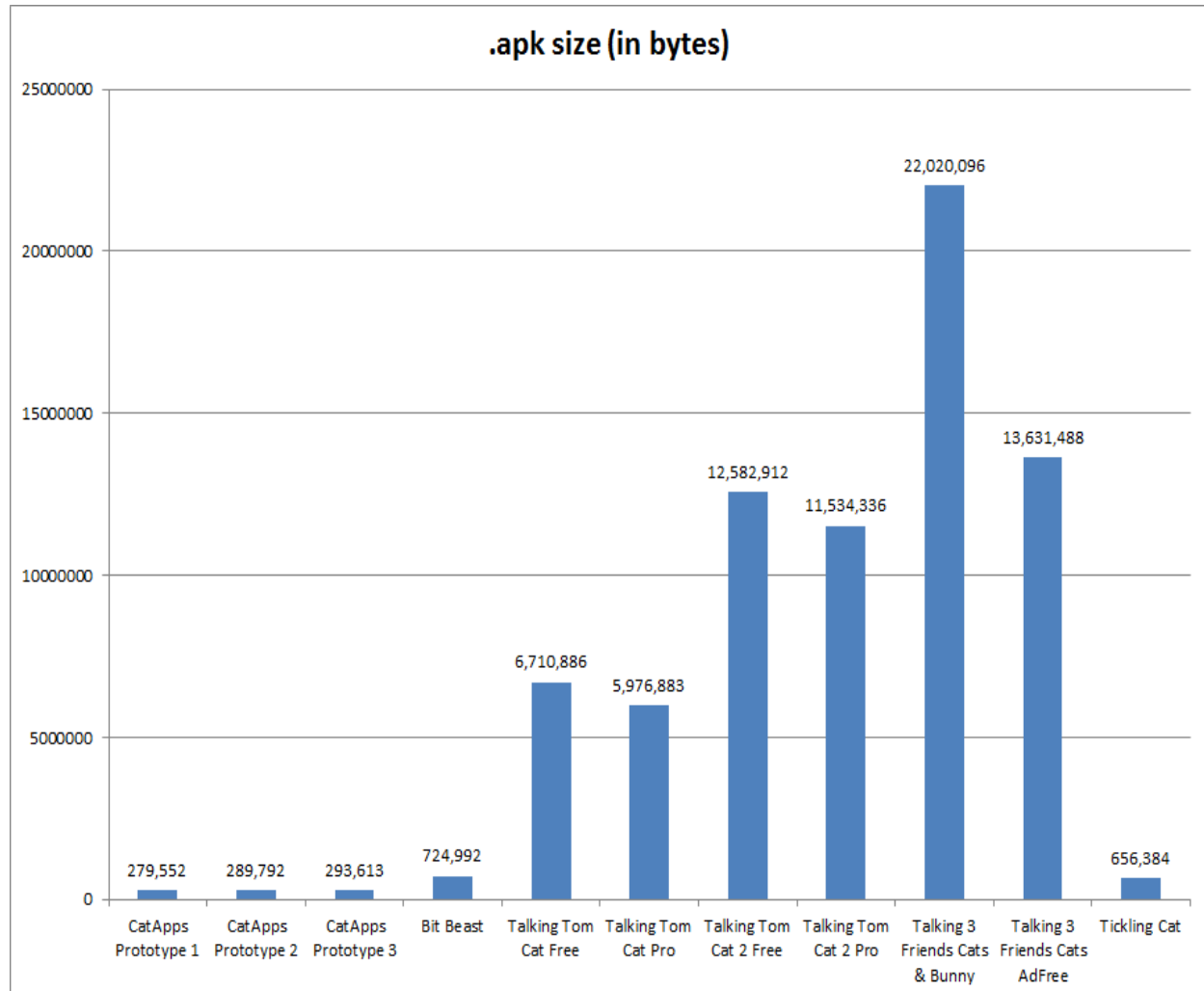
When we first release our app, it will be completely free, but it will include non-invasive ads. Both “Talking Tom Cat” and “Talking Tom Cat 2” have very invasive ads in their free

versions. By “invasive” I mean, the ads get in the way of playing the game. They are distracting and poorly placed. We believe that ads should never interfere with enjoying the app. Therefore, we will make sure our ads are non-invasive.

Shortly after our app’s initial release, we’ll put a version on the market that does not have any ads, and it will probably be priced at about \$0.99 (like “Talking Tom Cat” and “Talking Tom Cat 2”). At this point, our app will be tied with “Talking Tom Cat” and “Talking Tom Cat 2” with regards to price. However, since our ads will be non-invasive, our free version will be better than theirs.

Having a free app on Google Play is important to the success of the app because users need to be able to test the app (with ads) so they know if they like it enough to pay \$0.99 for it. Also, having a paid version without ads is important because some users will not like to play an app that has ads and will be more than willing to pay a measly \$0.99 for it. All app prices can be found on Google Play.

APK Size and Lines of Code

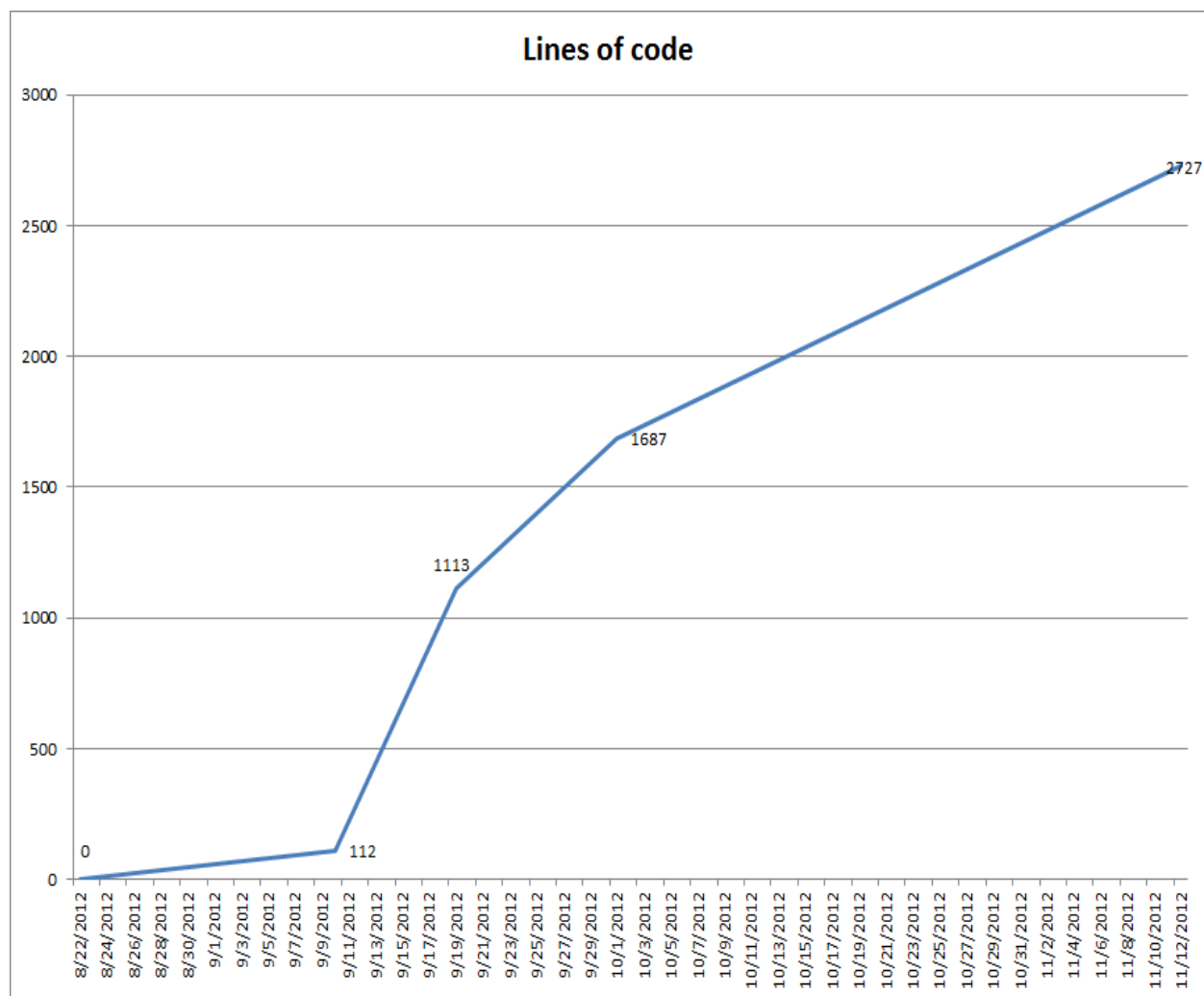


The size of an app’s .apk and the amount of space an app uses on a device are both decent ways to measure how much is in the app. For example, the more features an app has,

the larger it will be. However, if an app's .apk is too big, it will take a long time to download or update; and if an app takes up too much space on a device, the user will not have enough space for the other apps they want to install. We hope to make our app rich with features without taking up too much space.

In prototype 1, our .apk was 273kB, but a lot of this was the skeleton of the program. Our first prototype also used 632kB of space when installed on a device. This may not seem like much, but it amounts to about 112 lines of code (including comments and spacing). We didn't see a big change in size with prototype 2: the .apk was 283kB, while it took up 696kB on the device. However, this small change in size was a result of 1001 additional lines of code. That brings our total lines of code to 1113.

Google Play lists the .apk size for every app it has. To find our .apk size, we just compiled the .apk with Eclipse, and looked at its size. To find the amount of space the app uses, we installed some of the apps on our personal devices. Of the apps we installed, ours took up the least amount of space on the device. To find the number of lines of code we have, we used GitHub (a source control website) to find the amount of lines each file has. Then, we just added those together.



Since we don't know how many lines of code our competitors have, we can't use these numbers to compare our app to theirs. What these numbers show is that we put a lot of lines of code (and thus, features) into our app without dramatically increasing the size of our .apk or the amount of space used on the device. This shows an improvement to our app: more features. Also, our app currently has a smaller .apk than all of our competitors, and it takes up less space on the device. The next smallest .apk is 641kB, taking up 0.98MB on the user's device.

Installs and User Ratings

Without a doubt, the two best ways to measure an Android application is through the number of downloads and the user ratings. When we release our app, Google Play will keep track of the number of downloads, while the people who download our app will have the opportunity to rate it on a scale of one to five. However, since we haven't published our app yet, we don't have these numbers.

Install and user ratings will be important to the success of our app because these are the two numbers that everyone will look at to decide how good our app is at first glance. If our user ratings are high, it means most people enjoy our app, so other people are more likely to buy it. If the number of downloads is high, it means other people liked the idea enough to download it, and that's likely to get more people interested.

5. [1038 words] [author: Brandon Brethen] Design Decisions

The Cat-Apps design has changed many times over the semester; however, between our first and second prototype we did come to some major decision changes. The act of many of these changes were due to time constraints, how many people we actually had working on the project, and what was most realistically going to please our customers. We do not believe that these changes have hindered our project in any way. In fact, we are certain that with these changes our project will give a better overall experience. In one of the earlier group meetings we had, the first aspect we decided to change was to go from 3 dimensional art to 2 dimensional art. We then decided whether we would make the initial application on the Android or the iPhone, and which versions of the platform we would officially support. The third change we made to our design was deciding which android phones would be able to use our application. All of these decisions have allowed us to put together a much better application that will please any customer that may come across it.

Originally we had decided that one way to make our design better was to have 3 dimensional graphics so our cats could actually have depth and an environment to explore. However, this idea came with numerous additional costs such as longer loading times, purchasing a 3D modeling program or hiring a 3D artist, and a longer wait time for the final release. Our group had a meeting; and, even though these graphics would have been better than any of our competitors, it would not have been very feasible from a business perspective. Most customers when playing an application on a phone want something that is fairly simple that does not take a long time to load. Also, the amount of time spent on graphics alone would have either taken the entire team or a considerable amount of money to hire a professional artist, even for the prototypes, and the project would not have been as far along as it currently is. Another foreseeable problem was that the computational power of older Android devices may not have been strong enough for 3D graphics, effectively cutting out a chunk of our potential market.

We then decided that the best way to fix the graphics issue was to create the application using 2 dimensional graphics. This led to us to decide that we wanted to give the application more of an old 90's retro look instead. We chose this because we could give the users more options in less amount of time if we did not need to have the latest and greatest graphics running. We can also still give the cat a substantial environment to be in using only 2 dimensions. By doing all of this, it allows us to give our customers a sense of nostalgia when remembering how older video games used to look.

Our next decision was somewhat of an argument because we had to decide which phone we would release the application on. Sell on the iPhone or Android? Some of us wanted to program the application for the iPhone because the market is already established and quite large, however the rest of us wanted to program the application for Android devices because the market is just starting to grow, and some of the best successes are made by riding the upswing. There were also the conditions of the language we would have to program in for each phone. Android uses Java and Apple use objective C. Some of the team preferred the C language while others liked programming in Java. In the end we decided to go with building the application initially for the Android but still leaving the possibility open for releasing an iPhone port after the

Android version is released.

Android devices had a certain appeal that the iPhone did not. The percentage of people with smart phones is constantly growing along with the number of people who own Android phones in particular (which are generally cheaper than iPhones). Also, with the expansion of the Android market, it is more likely for customers to purchase an application they are not very familiar with, unlike iPhones where the majority of the consumers are all playing the same game. Programming with Java also gave several of us experience with a language we were not proficient in beforehand.

The final design change we made was deciding which versions of Android phones we were going to release this application for. Originally, we had decided that we would create the application to be released on every version of Android since version 2.3. However, we soon faced many problems with that. With API changes being so vast between versions 2.3 and 4.0, it was difficult to continue worrying about backporting every feature to the versions prior to 4.0 and still keep a swift workflow. Since almost all new phones being released today are being shipped with either 4.0 or 4.1 installed, we are predicting a shift in the distribution of Android versions in the favor of 4.0 and 4.1. Thus, we decided that if we only focused on the newest phones that are coming out now, we could create more in a shorter amount of time.

Our group decided that switching to only programming for people with an Android device running version 4.0 or higher was acceptable for many reasons. Most people either are just now getting smart phones or they are trading in their old phones for new ones. Also, most games that are coming out now are following the same procedure because the older phones just make it too difficult to accomplish the same things that you can easily do with the API changes made in version 4.0. This allows less time to be spent making sure that everything we create is compatible with a version that outdated and allows us to take advantage of the newest functionality provided to us. We are now able to reach for the newer, more ambitious goals we have set for ourselves without fear of not having enough of a market to make our product successful.

6. [2509 words] [author: James Garner, Drew Burden] User Manual

Warnings and Notices

By agreeing to the terms and conditions within this document, the user acknowledges that he or she has read and understood the following warnings, and recognize that Hogg Studios is not liable for any and all misfortune that may result from either the use or misuse of this product. Any use of the words “you,” “your,” or “user,” in these warnings is referring to any person that may be using the product at any given time. These warnings are applicable to any persons using this product.

- Any warnings that apply to the device and operating system on which the application is installed also apply to this product. Please review the warnings of the aforementioned products before continuing.
- Do not to use this product in the presence of food or beverage. This may cause unintentional harm to the device.
- Do not use this product while driving or attempting to operate a moving vehicle.
- Consult with a doctor before using this product if you have a tendency to experience seizures or if you have any other medical issues that could be affected by the use of this product. Epilepsy is a very serious medical condition and should be treated with care. Epilepsy may take many forms, including twitching of the face or limbs, light headedness, and seizures. Hogg Studios is not responsible for any injury caused or exacerbated by the use of this product.
- Take frequent breaks while using this product. It is important to rest your eyes and your fingers. For prolonged playtime, the user should take a 15 minute break every 60 minutes.
- To prevent damage to yourself and/or your device, only touch your device with the intended amount of pressure, as specified by your device manufacturer.
- Persons under the age of eighteen (18) should be under strict supervision by a responsible parent or guardian during the use this product.
- Take caution clicking on any advertisements displayed within this product. Hogg Studios is not responsible for the content displayed in any advertisements within this product, nor the content displayed after clicking an advertisement within this product.
- This product is not intended to diagnose, prevent, or cure any diseases and/or afflictions to persons or animals, and this product should not be used as such.
- Do not use this product in lieu of caring for your own animals or other beings you are responsible for. This would likely be a criminal offense, depending on the laws that apply to you.
- Keep all manuals and information included with this product for future reference.

Terms and Conditions

By using this product you, hereby referred to as the user, agree to the following terms and conditions. Should a person other than whoever had initially agreed to these terms and conditions use this product, the responsibility falls to both the new user and the person who initially agreed to these terms to make the new user aware of these terms and conditions that

binds him or her by using this product. Should either party fail to do this, the new user is still bound by these terms and conditions by using this product.

This document and any documents associated with this product are property of Hogg Studios and may not be copied, sold, or redistributed in any way. The user is permitted to copy these documents for his or her own personal use, only if these terms and conditions are agreed upon by the user.

The user is forbidden from performing the following actions: (a) modifying the product in any way, (b) duplicating the product in any way, (c) redistributing the product, (d) reselling the product or trading it for goods and/or services, (e) attempting to attain a patent for any part of the product, (f) attempting to attain a copyright for any part of the product, (g) attempting to trademark any words or images for any part of the product. The user recognizes any content of this product as copyrighted property of Hogg Studios, and accepts that he or she may not attempt to perform any of the aforementioned forbidden actions in this paragraph without the explicit written consent of Hogg Studios.

By using this product, the user agrees not to reverse engineer, disassemble, or decompile this product, nor reproduce or create derivative works based on this product, in whole or in part.

Hogg Studios reserves the right to accept or decline refund requests on a case-by-case basis at the company's own discretion for refunds requested past the refund period set by Google at the time of the product purchase.

By using this product, the user acknowledges that these terms and conditions, along with any warnings and notices presented within this text, have been read and understood and that the user agrees to all of the terms and conditions stated within this agreement, as well as any pre-existing terms and conditions. The user understands that he or she is subject to persecution to the full extent of the law upon breaking these terms and conditions. In addition, the user forfeits his or her right to file or participate in any lawsuits, class action or otherwise, against Hogg Studios of which pertain to this product.

These terms and conditions apply only to the fifty (50) governmentally recognized United States of America. Use of this product is limited only to where these terms and conditions are applicable, and use of this product outside the scope of where these terms and conditions apply is strictly prohibited. Laws of any countries/states located outside the fifty (50) governmentally recognized United States of America do not apply to this product, as the use of this product in such countries/states is prohibited. Therefore, Hogg Studios cannot be liable for any laws violated in countries/states outside of where these terms and conditions apply.

Hogg Studios reserves the right to amend these terms and conditions at any time, with or without notice to the user; and, by agreeing to these terms and conditions, the user accepts this fact and assumes full responsibility for seeking out and reading the revised terms and conditions, should they be changed.

Set-Up

CatApps is an Android Application, and requires an Android device running the Android Operating System version 4.0 or above to run efficiently. To download CatApps, use your Android device to access the Google Play store. Searching the Google Play store for "CatApps,"

will return the page featuring CatApps, which contains a link to purchase and subsequently download the program.

To run the program, once the download has completed, navigate your Android device to the application list and select CatApps.

To install on multiple devices, make sure the devices are all synced with your Google account, and repeat the steps above. You will not be required to buy the application more than once.

Use and Continued Set-Up

CatApps is all about caring for your cat. Throughout your time playing with CatApps, you will find yourself not only caring for your cat but also petting your cat, playing with it, and even dressing it up. CatApps aims to provide users with an immersive experience centered around a common affinity towards felines. Users will need to make sure that they not only actively play with their cat, but also keep it healthy. The health of the cat is essential in keeping it happy. This user manual should help users find all the information they need to navigate the program and more.

When you take care of your cat in-game, it will yield positive results that will allow you to unlock items for your cat. When your cat is happy, its Heart Meter will increase. When the heart meter fills all the way up, you will obtain a predetermined number of “Hearts,” which are used as in-game currency. These Hearts can be used to buy different items that will allow you to care for and interact with your cat in new ways.

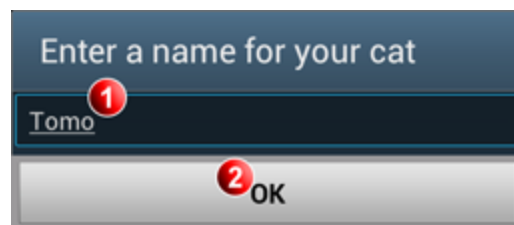


Figure 1

The first time you open CatApps, you will be prompted two times for some information to help create a unique cat for you. First, you will be asked to enter a name for you cat as seen in Figure 1. Initially, a default name, Tomo, will be placed in the text box(1), but you are encouraged to rename the cat to your liking! Once you have decided on a name, press “OK”(2) to continue.

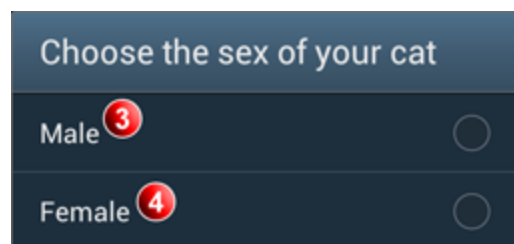


Figure 2

After a name has been chosen, you will be prompted to choose the sex of the cat, as seen in Figure 2. You may choose between male (3), or female (4).

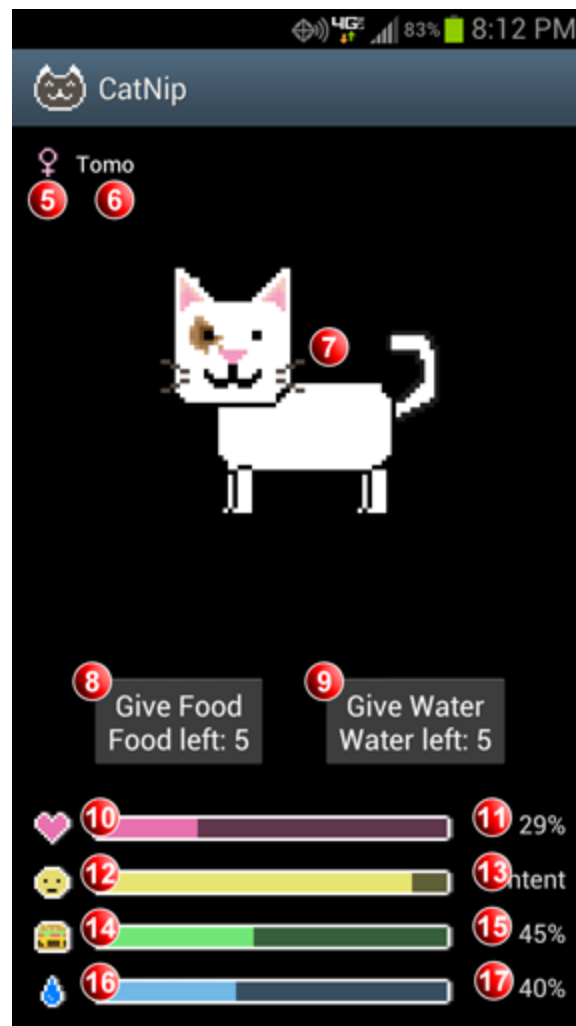


Figure 3

Once a name and sex have been selected, the game will start and you will be shown your cat and the game interface. There are multiple progress bars as seen in Figure 3.

(5) Sex - This is the sex of your cat you selected when you created the current cat as in Figure 2.

(6) Name - This is the name of your cat you entered when you created the current cat as in Figure 1.

(7) Cat - This is a graphical representation of your cat and the environment it is in. This is where you will see when your cat is sleeping, eating, or playing. This is also where you will interact physically with your cat, including petting and playing with the cat.

(8) Food button - Rudimentary food button that, when pressed, will feed your cat, increase it's hunger bar and hearts bar.

(8) Water button - Rudimentary water button that, when pressed, will provide your cat with water, increase it's thirst bar and hearts bar.

(10) Hearts Bar - Tracks progress to the next Hearts payout. When this bar is filled all the way, you are awarded a number of hearts, and the bar is reset. Various interactions with your cat can increment or decrement this bar.

(11) Hearts Percentage - A percentage view of the Hearts bar.

(12) Mood Bar - Shows the current mood and the progress to the next mood. When the bar is nearing empty, it will soon change to a different mood and mood bar. Moods include happy, content, sad, and mad.

(13) Mood Text - A Textual representation of your cat's current mood.

(14) Hunger Bar - This bar represents how hungry your cat is. If the bar is low, your cat is hungry. When the bar is full, your cat is well-fed.

(15) Hunger Percentage - Percentage of how full your cat is.

(16) Thirst Bar - This bar is a graphical view of how thirsty your cat is. When the bar is low, your cat is very thirsty. When the bar is full, your cat is hydrated.

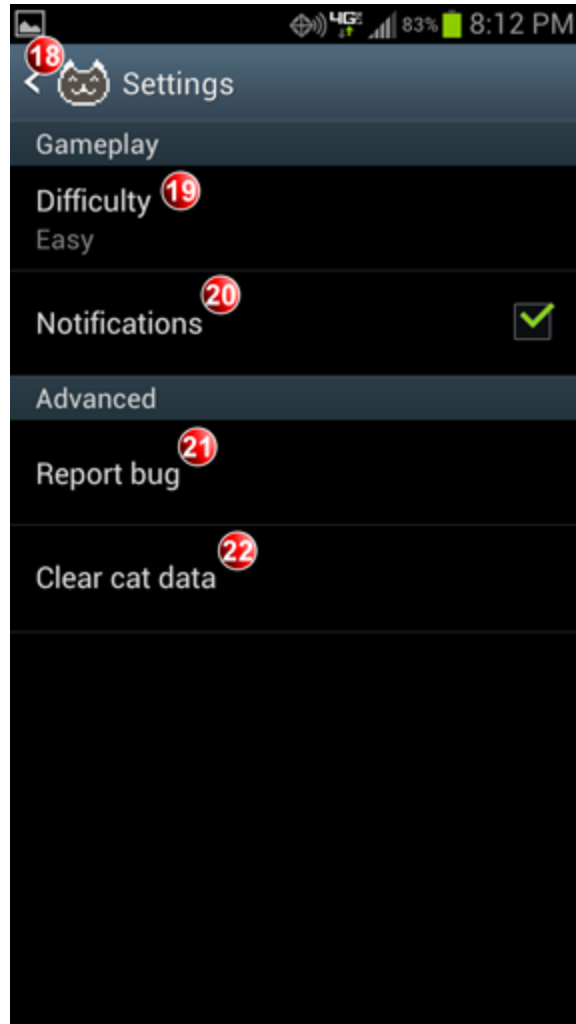
(17) Thirst Percentage - Percentage of how hydrated your cat is.

The goal of the game is to care for your cat as you would an actual cat. The cat will eat, sleep, and groom itself among other things, given the proper care. The cat's mood is a vital element of the cat, as the mood increases, the more Hearts the user will get, as reflected by the Hearts progress bar.

There are various ways of increasing your cat's mood and gaining hearts. First, the cat can be played with, by petting the cat. To pet your cat, simply touch the screen near or on the cat and drag your finger across the cat in a swiping motion. Petting your cat is not always a good thing, as it will sometimes prefer to be left alone. If your cat is asleep or grooming itself, it may not enjoy being touched. Otherwise, petting the cat is an enjoyable experience for both you, the user, and your cat. This will be reflected when your heart meter increases after a successful pet.

Feeding or providing water for your cat, when the cat is thirsty or hungry, is also a good way to increase your cat's mood and fill up your heart meter. Food and water items can be selected from the items menu, and given to your cat. The amount of Hearts progress you gain when you feed or provide water for your cat is dependent on how hungry or thirsty your cat is, respectively. For example, if your cat is very thirsty and you provide it with water, then you will receive more Hearts progress than if your cat was not in need of water. This works the same way with food and how hungry your cat is.

Once your Hearts progress bar has been filled up, you will receive a payout of Hearts. These can be used in the in-game store to buy various items that can be used to interact with your cat in various ways. There are toys which you can use to play with your cat, which will increase the cat's mood as well as help with your Hearts progression. There are also food and drink items which can help you keep your cat healthy and happy. Additionally, you may find that you would like to dress your cat up with one of our clothing items in the store. Finally, you may find yourself in need of some quick way to increase your cat's mood, which is why you are able to buy CatNip for your cat!



The settings menu of CatApps is very straightforward and easy to navigate. Within the settings menu you will also find information on easter eggs within the game. Easter eggs are unlocked in various ways, the most prominent being naming your cat. Naming your cat specific names may result in a different looking cat or other small, in-game elements changing in ways that do not interfere with the gameplay elements. Once you have unlocked easter eggs, they will appear in this menu. Any easter eggs that have not been unlocked will not appear here so as not to give any hints as to how to obtain them.

(18) Back button - Touching this button will return you to the game.

(19) Difficulty - This option will open a menu that will allow you to select various difficulties. The available difficulties are Easy, Normal, Hard, and Hardcore. Selecting different difficulties change a wide range of gameplay elements that make the game much more difficult or much easier depending on how you wish to play.

(20) Notifications - If you want the game to periodically show notifications about the status of your cat in your Android device's notification bar when the game isn't running, check this checkbox.

(21) Report a bug - If you experience a bug, select this option and it will bring you to an

email form in which you can describe the bug to the developers so that they can fix the bug in the next game update.

(22) Clear cat data - If you want to clear **all** data from your currently loaded cat, touch this button. This will bring up a confirmation so you don't accidentally delete your cat. Should you decide to clear your cat's data, note that this is an irreversible action.