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Cat with Hats
Final Report

This report describes the design process for developing a cellular device application (app). The final design of the app is described, as well as the methods used to determine each step taken to develop the experiment. The results of the experiment were reported and analyzed. Using MIT App Inventor, the final design consisted of three different models of the design. The design consisted of three different cats dressed in three different attires within three different backgrounds. The attire is changed by simple buttons on the bottoms of the screen. Once the button is selected the hat chosen moves down the screen to be placed on the cat's head, and the background changes.

INTRODUCTION

Phone apps are used daily and are readily accessible as many people carry mobile devices. People suffer from extreme stress with heavy workload and day-to-day events. Reducing stress is important for improving mental health and personal productivity. One way to reduce stress is through watching videos or playing mobile games. Entertaining media has been proven to relieve stress [1]. Another way many people reduce stress is by watching cute animals. A study done by the University of Leeds shows watching images or videos of cute animals can reduce blood pressure, heart rate, and anxiety [2]. The app "Cats with Hats" takes cute animals and the enjoyable experience of dressing them up and combines the two into a video game to reduce stress.

METHODS

To create the initial design of the app, a blank document was used to outline the plan. This included a brief description of the type of app, what the app consisted of, and what the desired outcome of the app was. Once the outline was drafted, the initial design was illustrated. The initial design was then given the name "Cats with Hats". The name was chosen due to both being simple and providing any users scrolling past it on the app store to immediately understand the app's likely contents.

"Cats with Hats" was constructed using MIT app inventor and with the idea of allowing the user to interact with the attire that the cats will be dressed in. Ultimately changing the backgrounds as well through dressing the cats in one of the three available hats (see Figure 1). There are three

hats; the bowler hat, party hat, and cowboy hat. Each comes with its own unique background (see Figure 1).

Figure 1: Cats with Hats design and hat/background options. From left to right: bowler hat, starting screen (top), party hat (bottom), and cowboy hat.

MIT app inventor provided a basic coding function that gave the app the ability to run limited functions. "Cats with Hats" made use of block code, allowing for ease of programming the necessary functions within the app. The buttons on screen (see Figure 1) were used to alter the cat's attire. Once a button is pressed, the desired headwear was moved onto the cat's head. Once in place, the background changed to match the headwear. For the party hat, the background becomes a disco room, for the cowboy hat, a western town, and the bowler hat, early 20th century London. Each hat has a built-in text that was displayed when the hat was placed onto the cat. This text is unique to each background. For example, when the party hat was on the cat, "Time to Party!" was displayed on the screen. Finally, the left most button was used to close the app.

The code for the app allows for each button to reset the hat. For example, if the user pressed the cowboy hat, the hat is placed on the cat's head, and the background changed to the associated image. When the user pressed another hat, the cowboy hat disappeared, and the image reverted to the starting screen, and the new hat was placed on the cat's head. Once the new hat was placed on the cat's head, the screen changed to the new hat's associated background. For each button, the press function was used to allow the user to interact with them.

Following the completion of the final design, ten users were provided with a survey to answer a series of three questions. The questions that each user was asked were: "How many times a would you use the application in a week", "How much time did you spend on the application in one visit", and "How likely are you to use the application in the future (1- Never, 5-Very likely)". A table was then constructed to accurately compare the results of these questions (see Table 1). The mean and standard deviation were calculated from the results of the questionnaire.

RESULTS

The results of the survey were close to what was expected. The average user reported they would use the app three to four times a week for about two minutes each time (see Table 1). The app's purpose was to provide a game that users could play for a small timeframe to relieve stress. This would allow users to spend their time on their day-to-day tasks and use the app when they need a few minutes to relieve stress in-between tasks.

Table 1: Results from app questionnaire

People	Q1	Q2	Q3
1	6	2	5
2	5	2	5
3	5	1	4
4	3	2	3
5	3	2	4
6	2	3	3
7	4	2	5
8	2	1	3
9	2	1	1
10	3	1	2
Mean	3.72	1.72	3.63
SD	1.43	0.67	1.35

Question one read, "How likely are you to use the application in the future (1-Never, 5-Very likely)". The data received from the respondents displays that users are likely to use the app three to four times a week (see Table 1). The mean for question 1 was calculated as 3.72. Indicating that the average user would use the app approximately two to three times a week. Respondents that tended to spend less time on the app throughout the week were less likely to revisit the app

in the future. The score of the likelihood of each user returning to the app from question three responses was generally parallel with users that responded they would use the app a higher number of times per week. The participants in the survey also responded that they would use the app for a limited amount of time from question two which read "How much time did you use the application in one visit?". A standard deviation of 0.67 and mean of 1.72 further indicate that users of "Cats with Hats" will likely only use the app for a few minutes.

Responses to question three, "How likley would you use the application in the future? (1- Never, 5- Very often)", indicate that the first version of "Cats with Hats" has been relatively successful. The average for question three (3.63) indicates that users are moderately likely to continue to use "Cats with Hats" in the future. However, due to the simple design of "Cats with Hats", the app will almost certainly require updates and additional functions to continue to retain and increase its use among customers.
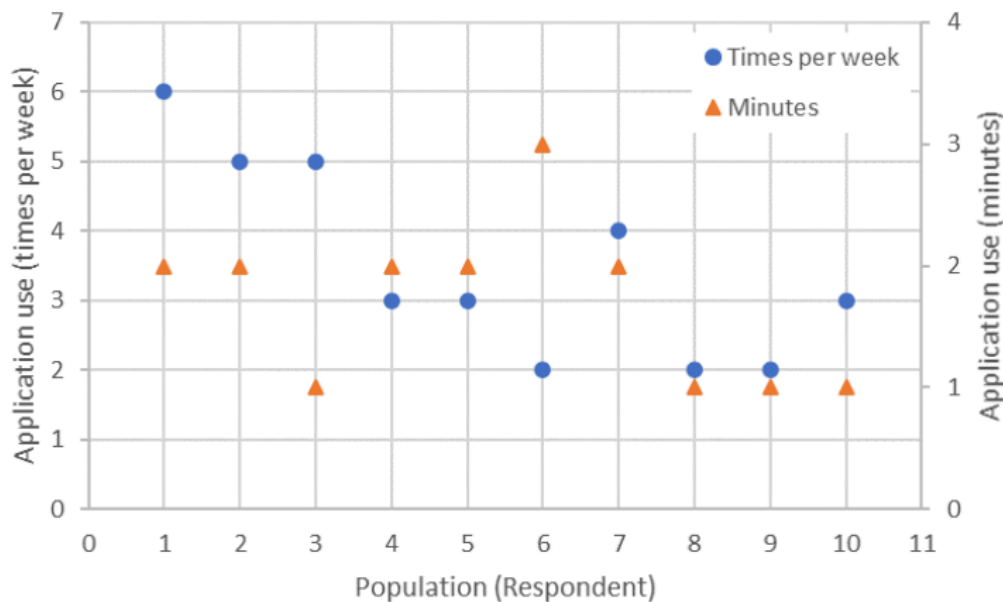
Figure 1: Graph of question 1 and question 2 comparing the time use per week and in minutes per respondent.

When graphed (see Figure 1), there is certain correlation between how many times a respondent uses the app per week, and how long they use the app during each visit. The respondents' answers are generally parallel between the two questions. The standard deviation of 1.43 for question one displays a high degree of variability within the respondents' answers. While the standard deviation of 0.67 for question two displays little to no variation in the time spent on the app between users. This likely indicates that the number of times the user opens the app per week has a limited effect on how long the user is on the app. The average for question one is 3.72, indicating that most users are likely to use the app approximately three to four times a week.

Additionally, question two has an average response of 1.72. This indicates that each respondent is likely on the app for approximately one to two minutes per use. The data collected suggests that the app "Cats with Hats" is moderately enjoyed by users and is used for only a few minutes. This indicates that users are likely to use the app in between tasks which was the intended use for the app.

CONCLUSION

As mental health is integral to the common person's life, it is important to ensure that there are ample ways to decrease stress gained from everyday events, work lives, and evolving world issues. This is why it is important to create apps such as "Cats with Hats" as these games assist in decreasing stress and allowing people to relax. This is done through providing the masses with an app that allows the combination of cute animals and the ability to change their attire at the press of a button. The final design of "Cats with Hats" is intended to provide the user with an enjoyable experience that can be used in short timeframes to reduce stress through dressing cute animals with a variety of hats and coinciding backgrounds. The simplistic design will almost certainly allow users to quickly familiarize themselves with the app for faster use and therefore increase the rate of stress reduction. However, with heavy variation in the collected data, it is likely that the design will need to receive upgrades to continue to warrant "Cats with Hats'" use over other leading stress reducing applications.

REFERENCES

[1]   L. Reinecke, J. Klatt, and N. C. Krämer, "Entertaining Media Use and the Satisfaction of Recovery Needs" Media Psychology, Taylor & Francis Online, 2011, vol. 14, no. 2, pp. 192–215

[2]   A. Utley and University of Leeds, What are the health benefits of watching cute animals?. Available: https://biologicalsciences.leeds.ac.uk (24/09/2023)