Title

My app name is Study Buddy. It is an app that reminds students to focus on their studies and not to use their phones. Light sensor and accelerometer are used to check whether the brightness of the environment is suitable for study or not and to check if the student is using their phones.

Motivation

Since the number of functions in a mobile phone keep on increasing, it is easy to get distracted from studies. Notifications that pop up on the locked screen and the eagerness to scroll through social media to know what others are doing cause lower concentration when studying. To help as a reminder to students to put down their phones, I created this app to give them a signal that tells them to keep their hands away from their phones.

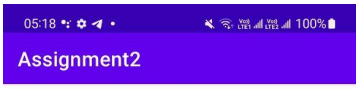
Both visual and hearing are included in Study Buddy. Playing audio as a form of reminder can refresh the student after being in a quiet place for a while. Graphic, text and sound provide different forms of reminder that can suit most of the potential users.

An additional function of the app is to detect the brightness of the environment. According to The Engineering ToolBox website, the suitable brightness for performing visual tasks occasionally is 100 to 150 lux. Using this as a standard, since studying is not an activity that will finish in a short period, if the brightness of the environment is higher than 150 lux, it is considered to be bright enough in my app. The student should move to a brighter place to study.

Screenshots and How-To-Use

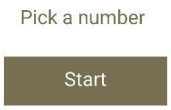
There are two states in Study Buddy. They are the smiley state and the sad state. The Smiley state is triggered when the brightness of the environment is above 150 lux and when the tilt of the phone vertically is less than 3. Otherwise, the sad state is triggered. Either one of the unmet conditions will trigger the sad state.

Smiley state:



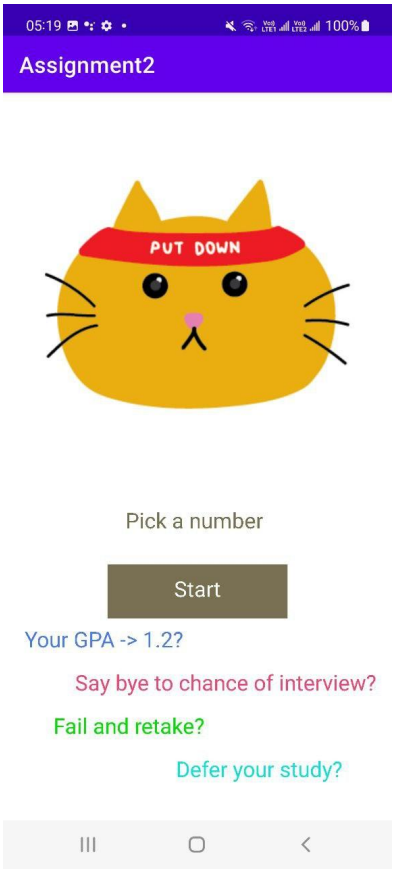
This is the initial cat that will show on the screen.

The rectangle with the word start is a button which will generate a cat based on the set of images I prepared for the app randomly.

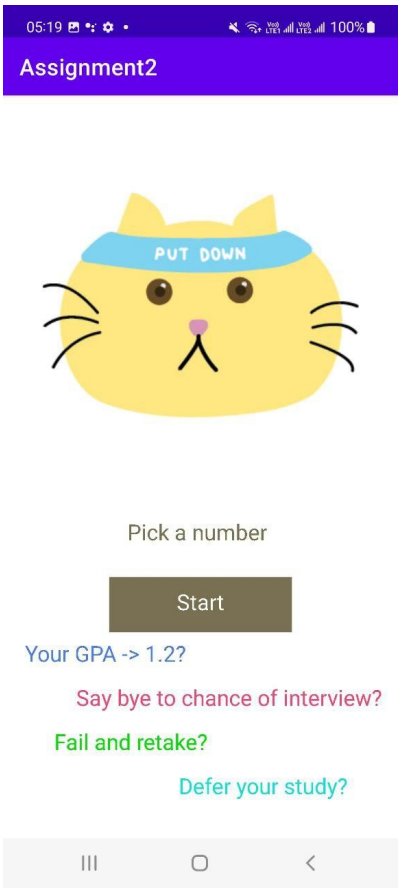


After the start button is clicked, the previous cat might turn to this cat. As a small feature to change the companion from time to time, 3 designs of cats are available. They will be introduced in the Graphics part.

Sad state:



If you tilt your phone with the cat shown initially, the cat will turn into the sad face. A few potential consequences listed below the start button act as a deterrent effect for continuing playing the phone.



Same as the smiley state, if the start button is clicked, a different cat might be shown on the screen.

However, once the button is clicked in the sad state, an audio will be played to tell the student to put down his or her phone, which is a direct order.

Logo/Icon

The icon of Study Buddy is the initial cat in the smiley state. This cat is a symbolic character of this app.

Graphics

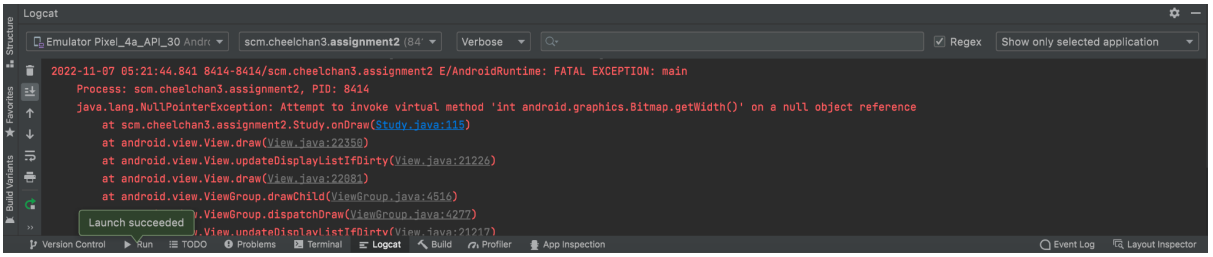
The cats in the smiley state wear a fight headband which is in red, yellow and light blue color. The color of their eyes and nose are different. They have a smile on their face.

The cats in the sad state wear a put down headband which also has the same color as in the smiley state. They look sad.

All graphics are drawn using Adobe Illustrator.

Caution

There is an unknown error during installation sometimes.



Trying to rerun the programme a few times without amending any code can solve the problem.

Functions

You can:

- Switch between smiley state and sad state by detection from sensors
- Change to another cat
- Play audio
- Read the possible consequences if you continue to use your phone when studying

Technical points

How to switch between states

Light sensor and accelerometer are used to test whether you are using the phone or not. It can also check the brightness of the environment, so it is better for studying. If you tilt your phone, put your hand near your phone or the environment is too dark, you will be in the sad state. Otherwise, if you are in an environment that is bright enough and your phone is lying flat on a surface, you will be in the smiley state.

How to change to another cat

By pressing the start button, a number will be generated and sent to the computer. The relevant cat with that number will be shown on the screen.

How to play audio

Audio is only available for the sad state. The content of audio asks you to put down your phone in a direct manner. In the sad state, when you press the start button, the audio will be played automatically. Media player creates and plays the corresponding audio file.

Where are the possible consequences located

It is located in the space below the start button.

How to use the sensors

Register the related sensors to the sensor manager.

How to check which state to go

Check the y-axis and the lux value.

How to access a pool of images

Images are referred as bitmaps. A bitmap array is created to store the bitmaps. Using the .get() function, you can get the corresponding bitmap. To add a bitmap to the bitmap array, use .add() function.

Rooms for improvement

Although the use is limited to students now, I think the app has the potential to broaden its market to adults too, especially for freelance workers. By letting the user to choose their identity, the text for consequences can change accordingly.

Reminder audio can be played once the student tries to hold the phone or already holding the phone. This can let them aware their action immediately.

Device

Device used for testing: Samsung Galaxy A53

References

https://www.engineeringtoolbox.com/light-level-rooms-d_708.html
https://stackoverflow.com/questions/6371930/is-it-possible-to-create-an-array-of-bitmap-in-android