Police and Burglar Game Description and Learning

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For MAKE project, we designed a typing game that would help people who just start to learn typing, and also for non-native speakers who want to improve their English typing speed. There are 3 people in our team, and only one of us has a little programing experience, so we struggled a lot and learned a lot through the process.

This game involves two characters: police and burglar. Once the start button was hit by the user, burglar will start to move along a fixed pre-defined grid route. Given a short paragraph of words, users will need to type each word including punctuations correctly in order for the police to catch the burglar. At the beginning of the game, users will have two modes to choose from, easy and hard. Under the easy mode, burglar will move at a slower rate compare to the harder mode. When the police catches the burglar (they are in the same block), the player wins, and image of burglar being caught will show up. If the burglar reaches the car before the police catches him, the game will be over, and the image of a car driving away will show up. Player will get one of the three random paragraphs we included to type each time they play the game, and the map would also be randomly selected from 3 maps we designed. Each map has slightly different difficulty, some have a longer path and some have the burglar further away from the police.

We faced a lot of difficulties when we tried to execute our thought of designing this typing game, the major problems we encountered are listed below:

1. How can we make the police and the burglar running through the same route, but the police is always following the burglar without surpassing him. Also, how can we ensure that the two characters are following the route we designed.

2. What function we should create to determine when the police surpasses the burglar (winning).

3. How to determine if the player loses.

4. How to let the player chooses the speed of the burglar (different modes of the game).

5. The speed of the police moving in the grid should depend on the typing speed of the player. How to make that happen?

6. What function we should create to determine if the player types the exact

message as shown in the game interface.

7. How to draw the grid with java, and to put the pictures of police and burglar to where we want them to be at.

8. How to design the user interface in a way that is as user friendly as possible.

9. How to generate different texts and different maps each time the player runs the game.

And so many more…

When we are trying to solve these problems, we found some really useful packages – ACM Graphics and javax.Swing. These package provide a set of classes that support the creation of simple, object-oriented graphical displays. These classes include GImage, GCompound, etc. These classes allow us to design our user interface and to add buttons ( eg: easy mode, hard mode, start, etc).

Since others may not be able to run the program without installing all those different packages, we have recorded an explanation video on how to play the game. The link is below:

https://youtu.be/1ovu__ZgPBg

In conclusion, from this project, we learned how to use outside packages in Java to help us with setting up the GUI. We also learned to set up route and map using 2-D array. We learned how to set up direction of the movement with different case control statements. Overall, it trains our ability to cope with different logical operations in a complex situation.