Object Oriented Programming

Report for Hw5

資工二 B00902064 宋昊恩

1. Implementation:

I used my former code of `Hw1` and reserved the majority of them.

The first step of my implementation was trying to apply multi-thread concept to my simulation program. However, I did not find a very proper place to use the concept of multi-thread initially. With the hint from `Hw5` spec, I enforced every single car to add its distance with its own thread individually.

After the implementation of multi-thread, I began to build up my `Graphical User Interface.` This was my first time to build up `GUI`, so I spent a lot of time on reading documents and finding solutions of corresponding problems. Though I have said that I would be careful while reading spec this time, I still misunderstood the spec requirement that I only used `JFrame` as my main demo window and not an applet on certain `html`.

I spent more than ten hours on building up elements on `JFrame`. I referred the teacher's demo code as the basis of my `GUI`. After that, I used a technique called `FocusListener` in one `JTextField` to restore text field with default input while focus lost if the text field is empty. Then, I added a "`Play/Stop`" button which will change its button text based on the situation. While it is "`Play`" mode now, the car information and graph on the highway will display automatically every 0.5 second. I used a central `ActionListener` called `Dealer` to control the interactions between all the elements on this `Jframe`.

There were some details over the implementation of this `JFrame`. I set the `Layout` to `null` and controlled all the position of elements by myself. I used `StyledDocument` to set color of the text in `JTextPeane` with `JScrollPane` segmented. I overloaded method `paintComponent()` in JButton to create gradient colored button. I also encountered an unsolved problem that I cannot stop the text in `JTextPane` from wrapping line, though I have asked a lot of my classmates and search solutions on-line for more than two hours.

After the completion of my first demo program, I began to work on `Java JApplet`. I soon found that it had highly similarity as `JFrame.` I added three `JCheckBoxes` which were all in the same `ButtonGroup.` I created an ActionListener Selector for the communication between these three `JCheckBox`es and three `JTextFields.` It will clean the text in `JTextField`s or block one of the `JTextField`s based on different situation. At the end, I created an `ActionListener` in `CreateBtn.` Once the `CreateBtn` was pressed, it would new a `JFramed` which just what I have implemented before.

I spent about one hour on setting the corresponding path of `JAR` and `package`, and learned a lot from it.

2. Advantage or Disadvantage of my design:

My GUI can be designed separated completely. So there is no problem with co-development. Once the interface of the elements were determined, the work can be distributed to co-workers. And, only merged all the elements on the base JFrame or JApplet if all the elements were implemented.

3. Bonus part (Interesting and uninteresting part)

I spent lots of time on tuning and changing the settings of elements. I also added some feature performance which I have stated in the implementation part, such as FocusListener, Gradient Button, AutoDisplay Button, many Bounded Window Error Handler for various boundary situations, Two-step Demo Program, and also a quite detailed javadoc.

4. Some of my thought:

This is my first time to build up GUI, so I am not familiar with the related classes and members, methods in them. Since this is the final homework in OOP class, I try to build up a better GUI program as I can. I tuned the position and properties of every element, one by one, manually. Wish this will be a fine demo program!

Thanks all the TAs and Teacher for your effort throughtout the whole semester!

5. Reference:

The whole program was implemented by my own self. I read lots of documents and solution codes found on websites. Thanks one of my classmates B00902017 helping debug and give me some useful advices.