**CP2406 Programming III**

CP2406 Programming Documentation

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The car simulator was required to move the car in the road then make the car start and stop. Also, the car should behave according to the traffic lights. There were no roundabouts, but the menu bar is required at the beginning of the simulator. In the menu bar, there is an option for Run the simulator which by clicking it will run the simulator and there is an exit menu to quit the whole program.

         The 1st thing I created was the jpanel for the road, I created the horizontal road, vertical road and the road line with the “PaintComponent”. I made the road wide and also created the 4 ways in the middle. It took me a while to do the calculation of the position as I have to make the road even from all the sides.

         Vehicle class is to move the vehicle from one point of the road to another. Also, this class was required to start and stop the car. I created Timer for the car to move. For the car, I draw the rectangle and gave the code to increase position X with the timer delay of 5. I have created two cars one with int x and int y to move them in different directions. Basically, the rCar (Right Car) related to the car moving from left to right and lCar (Left Car) car moving from right to left. **Problem:** The Problem I faced during the running of the code was both the class road and the vehicle class were overlapping so at a time I was able to show only car running or the road. For this, I got help from Jason to make the Vehicle class opaque so that the road can be seen. I used setOpaque to solve the overlapping issue.

         After vehicle, only traffic lights were remaining so I created TrafficLight class in which the light would go Red and Green. I used the timer and the random code for the changing of the light. **Problem:** I got the same problem as before which was overlapping of the frame. I tried to write the same code as vehicle class, but it didn’t work. I tried to get help form Jason, but he said that its limitation and you have to do everything in vehicle class only. So, I created a new class named it VehicleTrafficLight as both the thing were mixed. I created integer for red and the green light and change it at random. So, when it comes 1 it will be green and if 0 the red and put the timer t of delay 1000 for the lights change speed.

         All the of the code to put together I used to position and the .stop() code for the working. Basically, I used IF statement for the car to stop or move at a traffic light, if the car is in position between 500 and 600 and the traffic light is Red (0) then the car would stop and wait for the green light and move on. Later I added the Rerun button which will restart the simulator then I added the stop button which would stop the car while moving and lastly, I added the exit button which would exit the program when clicked.

         Overall, my experience working on the simulator was great as I learned a lot form creating graphics to move the object in the graphic. The simulator is working and looking good but needs to add some functionality to it.