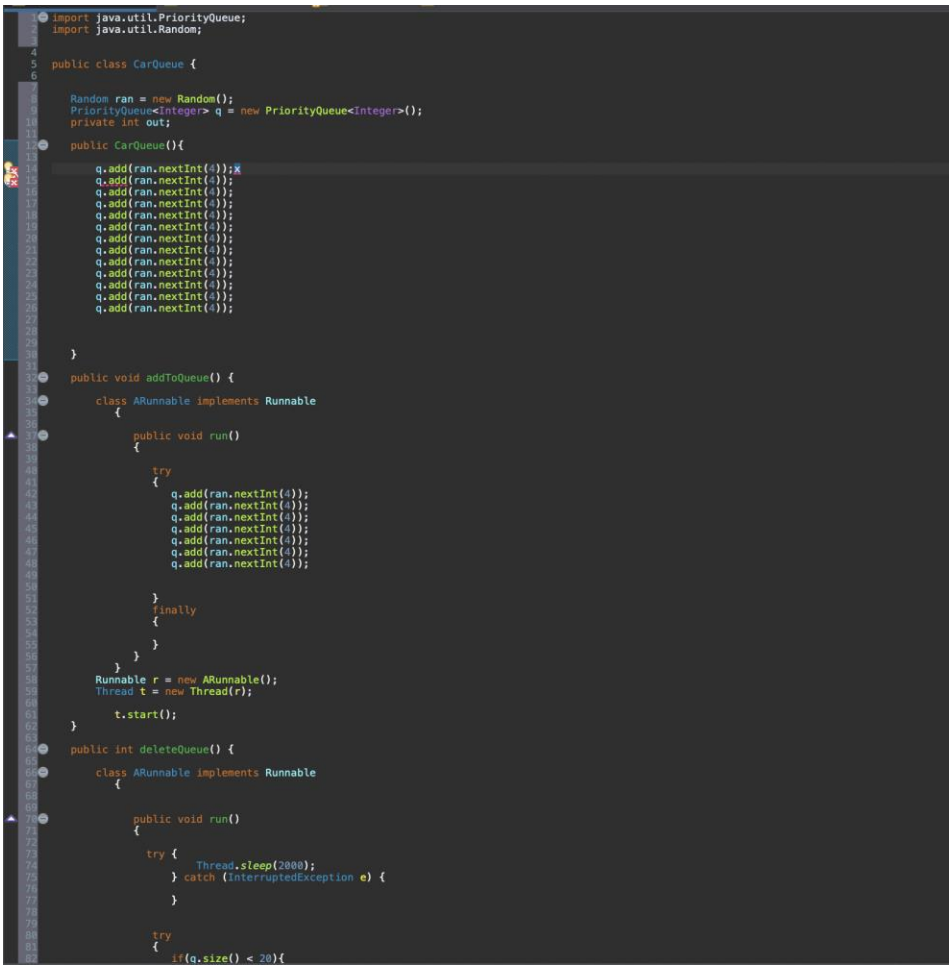
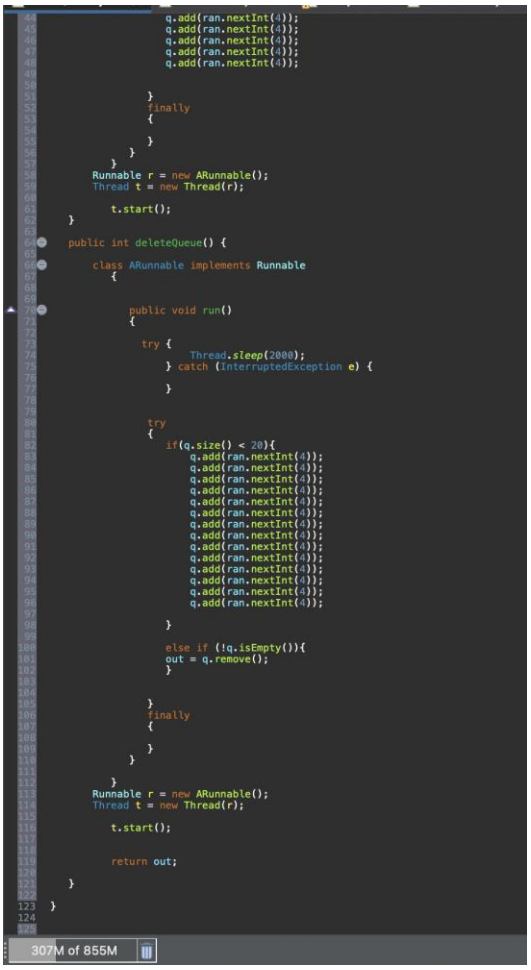
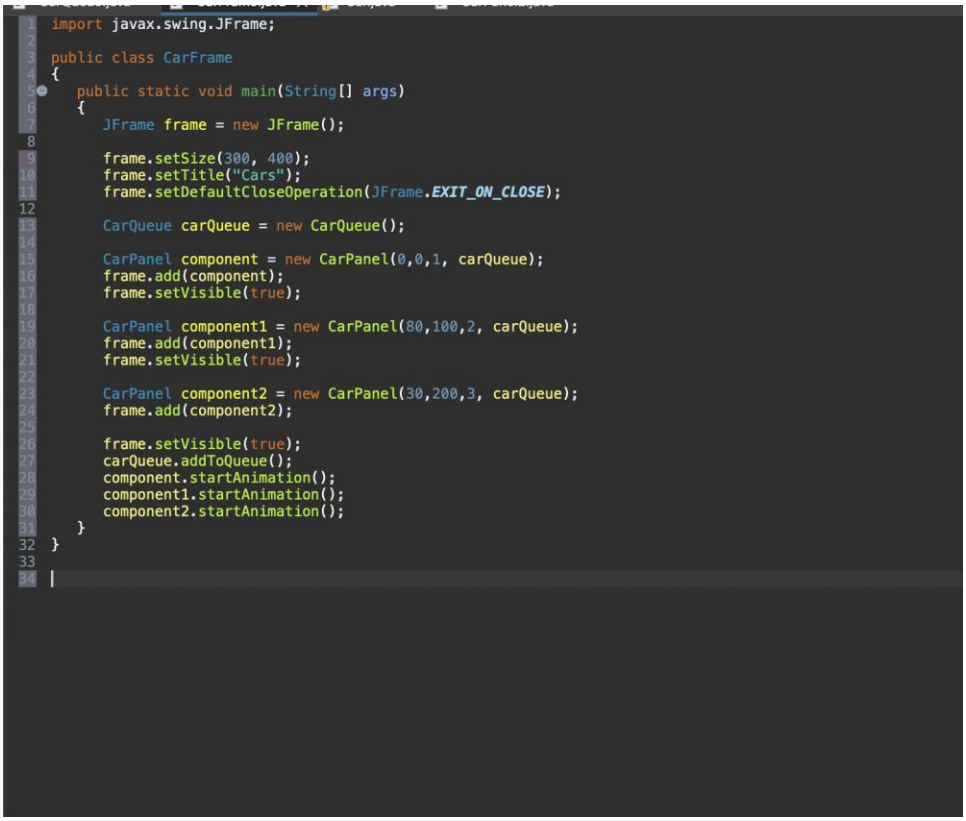


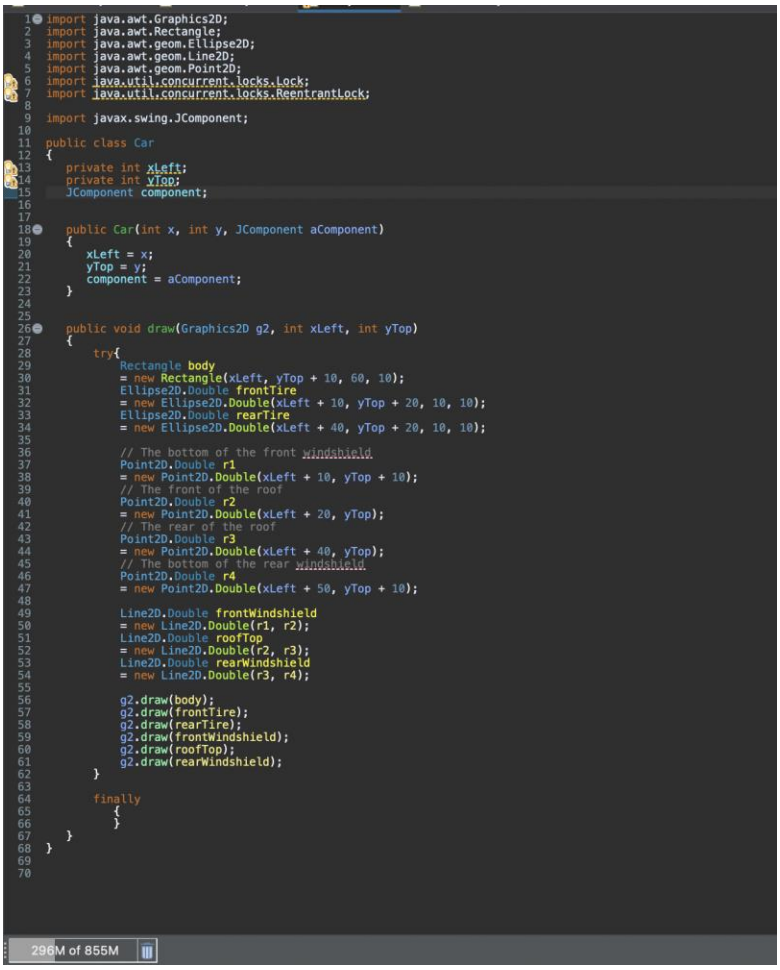
```java
import java.util.PriorityQueue;
import java.util.Random;


public class CarQueue {


    Random ran = new Random();
    PriorityQueue<Integer> q = new PriorityQueue<Integer>();
    private int out;

    public CarQueue(){

        q.add(ran.nextInt(4));x
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));
        q.add(ran.nextInt(4));


    }

    public void addToQueue() {

        class ARunnable implements Runnable
           {

            public void run()
            {

               try
               {
                   q.add(ran.nextInt(4));
                   q.add(ran.nextInt(4));
                   q.add(ran.nextInt(4));
                   q.add(ran.nextInt(4));
                   q.add(ran.nextInt(4));
                   q.add(ran.nextInt(4));
                   q.add(ran.nextInt(4));


               }
               finally
               {

               }
            }
        }
        Runnable r = new ARunnable();
        Thread t = new Thread(r);

        t.start();
    }

    public int deleteQueue() {

        class ARunnable implements Runnable
           {


            public void run()
            {

              try {
                    Thread.sleep(2000);
                } catch (InterruptedException e) {

                }


               try
               {
                   if(q.size() < 20){
```



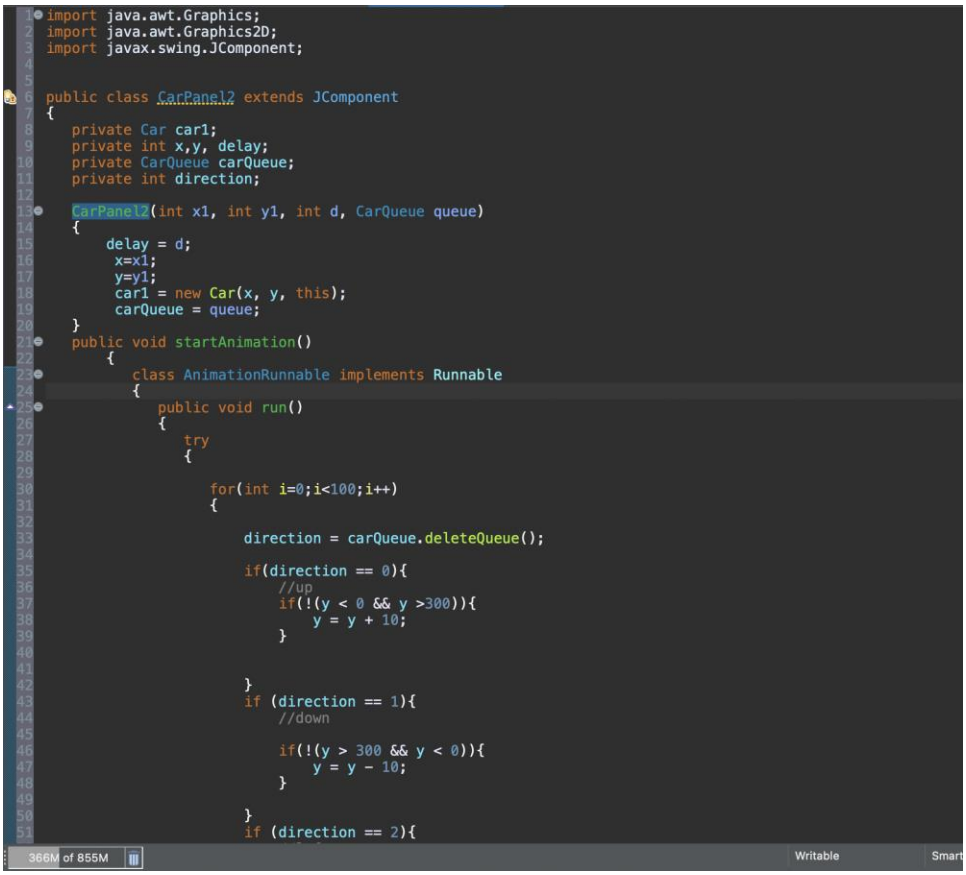
```
                    q.add(ran.nextInt(4));
                    q.add(ran.nextInt(4));
                    q.add(ran.nextInt(4));
                    q.add(ran.nextInt(4));
                    q.add(ran.nextInt(4));


                }
                finally
                {

                }
            }
        }
        Runnable r = new ARunnable();
        Thread t = new Thread(r);

            t.start();
    }

    public int deleteQueue() {

        class ARunnable implements Runnable
            {


            public void run()
            {

              try {
                    Thread.sleep(2000);
                } catch (InterruptedException e) {

                }


                try
                {
                   if(q.size() < 20){
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));
                       q.add(ran.nextInt(4));

                   }

                   else if (!q.isEmpty()){
                   out = q.remove();
                   }


                }
                finally
                {

                }
            }
        }
        Runnable r = new ARunnable();
        Thread t = new Thread(r);

           t.start();


           return out;

    }
}
```



```
import javax.swing.JFrame;

public class CarFrame
{
   public static void main(String[] args)
   {
      JFrame frame = new JFrame();

      frame.setSize(300, 400);
      frame.setTitle("Cars");
      frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

      CarQueue carQueue = new CarQueue();

      CarPanel component = new CarPanel(0,0,1, carQueue);
      frame.add(component);
      frame.setVisible(true);

      CarPanel component1 = new CarPanel(80,100,2, carQueue);
      frame.add(component1);
      frame.setVisible(true);

      CarPanel component2 = new CarPanel(30,200,3, carQueue);
      frame.add(component2);

      frame.setVisible(true);
      carQueue.addToQueue();
      component.startAnimation();
      component1.startAnimation();
      component2.startAnimation();
   }
}

```



```java
import java.awt.Graphics2D;
import java.awt.Rectangle;
import java.awt.geom.Ellipse2D;
import java.awt.geom.Line2D;
import java.awt.geom.Point2D;
import java.util.concurrent.locks.Lock;
import java.util.concurrent.locks.ReentrantLock;

import javax.swing.JComponent;

public class Car
{
   private int xLeft;
   private int yTop;
   JComponent component;


   public Car(int x, int y, JComponent aComponent)
   {
      xLeft = x;
      yTop = y;
      component = aComponent;
   }


   public void draw(Graphics2D g2, int xLeft, int yTop)
   {
       try{
           Rectangle body
           = new Rectangle(xLeft, yTop + 10, 60, 10);
           Ellipse2D.Double frontTire
           = new Ellipse2D.Double(xLeft + 10, yTop + 20, 10, 10);
           Ellipse2D.Double rearTire
           = new Ellipse2D.Double(xLeft + 40, yTop + 20, 10, 10);

           // The bottom of the front windshield
           Point2D.Double r1
           = new Point2D.Double(xLeft + 10, yTop + 10);
           // The front of the roof
           Point2D.Double r2
           = new Point2D.Double(xLeft + 20, yTop);
           // The rear of the roof
           Point2D.Double r3
           = new Point2D.Double(xLeft + 40, yTop);
           // The bottom of the rear windshield
           Point2D.Double r4
           = new Point2D.Double(xLeft + 50, yTop + 10);

           Line2D.Double frontWindshield
           = new Line2D.Double(r1, r2);
           Line2D.Double roofTop
           = new Line2D.Double(r2, r3);
           Line2D.Double rearWindshield
           = new Line2D.Double(r3, r4);

           g2.draw(body);
           g2.draw(frontTire);
           g2.draw(rearTire);
           g2.draw(frontWindshield);
           g2.draw(roofTop);
           g2.draw(rearWindshield);
       }

       finally
          {
          }
   }
}
```



```
import java.awt.Graphics;
import java.awt.Graphics2D;
import javax.swing.JComponent;


public class CarPanel2 extends JComponent
{
   private Car car1;
   private int x,y, delay;
   private CarQueue carQueue;
   private int direction;

   CarPanel2(int x1, int y1, int d, CarQueue queue)
   {
       delay = d;
        x=x1;
        y=y1;
        car1 = new Car(x, y, this);
        carQueue = queue;
   }
   public void startAnimation()
       {
          class AnimationRunnable implements Runnable
          {
             public void run()
             {
                try
                {

                   for(int i=0;i<100;i++)
                   {

                       direction = carQueue.deleteQueue();

                       if(direction == 0){
                           //up
                           if(!(y < 0 && y >300)){
                               y = y + 10;
                           }


                       }
                       if (direction == 1){
                           //down

                           if(!(y > 300 && y < 0)){
                               y = y - 10;
                           }

                       }
                       if (direction == 2){
```

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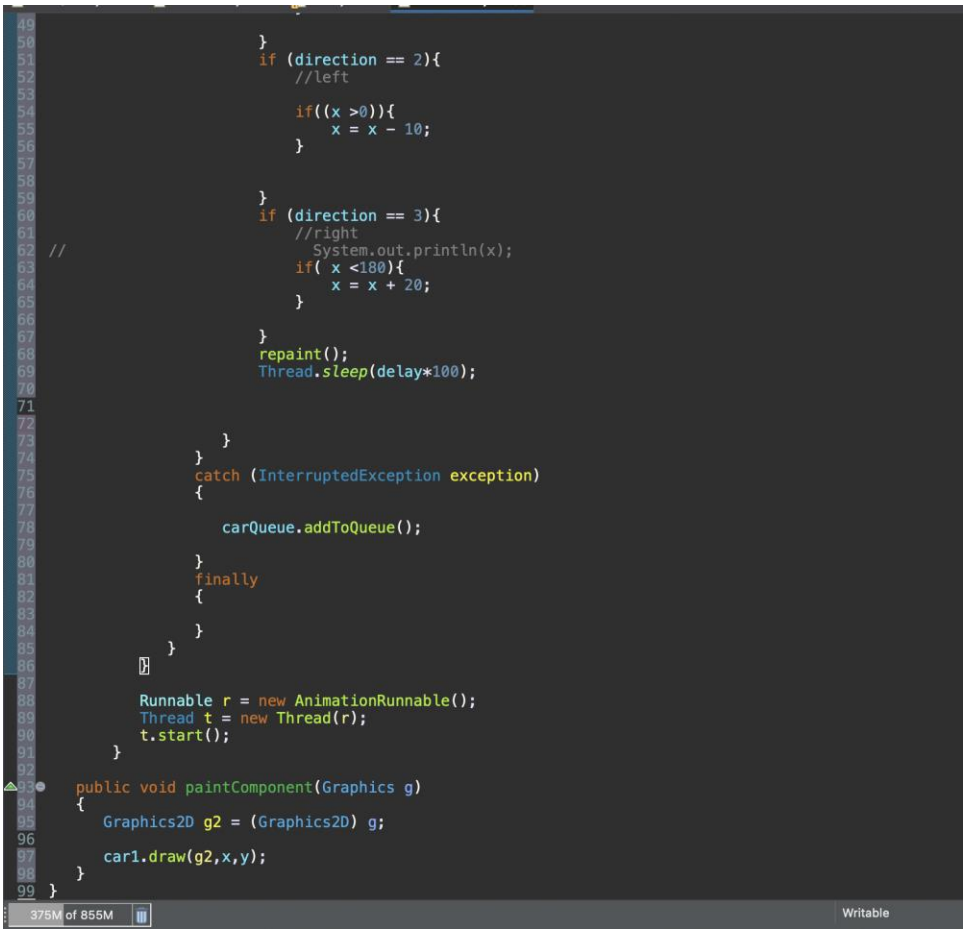

```
                    }
                    if (direction == 2){
                        //left

                        if((x >0)){
                            x = x - 10;
                        }


                    }
                    if (direction == 3){
                        //right
//                        System.out.println(x);
                        if( x <180){
                            x = x + 20;
                        }

                    }
                    repaint();
                    Thread.sleep(delay*100);



                }
            }
            catch (InterruptedException exception)
            {

                carQueue.addToQueue();

            }
            finally
            {

            }
        }
    }

    Runnable r = new AnimationRunnable();
    Thread t = new Thread(r);
    t.start();
  }

  public void paintComponent(Graphics g)
  {
     Graphics2D g2 = (Graphics2D) g;

     car1.draw(g2,x,y);
  }
}
```

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