Assignment 6
Racing JavaCars
EE422c - The University of Texas at Austin

Points: 20 points; this is an individual assignment

File name: Turn in a file named JavaCars.java

Given: You can start with the in-class example of the CarDrawer applet. It contains the minimum import statements and plumbing needed for your new applet skeleton.

Purpose: This assignment will give you practice in creating applets and using graphical methods to draw simple shapes and objects. This will be done using some of the classes in the package java.awt (abstract windowing toolkit) library. Documentation for the java.awt classes can be found in the Java API. Specifically look at java.awt.geom., java.awt.color, and java.awt.font.

Instructions:

1. Starting with the JavaCar example provided, you can add all of your additional code to define, draw and animate your picture inside of the paint method in your applet.
2. A JavaCar **object** includes the following minimum elements, all of which must be discernable when viewed in the applet window.
    A. A rectangular car body
    B. A rectangular car roof
    C. Circular front tires
    D. Circular back tires
    E. The body and roof must be a non-standard color called burntOrange to be defined by you in RGB format.
    F. The tires should be the standard color black
    G. A car number (e.g. 1,2,3 …) in black font visible on the car body

    the JavaCar can be drawn using the methods of the Graphics and Graphics2D classes.
3. Create five JavaCar objects, each with a unique car number on the side, and place them in a row (starting line) on the left side of the applet window, facing to the right.
4. Write the code to move them across the applet window from left to right. Car movement specifics (e.g. how far each car moves for each step) are to be determined randomly. When one of the cars makes it to the right side of the screen (finish line), then draw a message on the bottom of the window, perfectly centered horizontally, congratulating the winning car number.
5. You may, if you wish, use more than the specified types of shapes, text, and colors to make your JavaCars fancier, but you are responsible for understanding the documentation and how to use other classes and methods.
6. It is recommended that you sketch your picture on a piece of graph paper so you can identify the pixel coordinates of the various objects that make up your moving picture. It would also be useful to create a grid layout in the window to help you visualize and measure the various points associated with your picture.
7. You are required to use StopWatch.java attached to output your performance time.
8. Bonus Points: Up to 5 bonus points will be awarded by the TA accordingly. Think about adding more useful functionality:
    A. Add undo/redo functionality
    B. Add colors, or creative, complex, or funniest shapes

Submission instructions

1) The top-level java file should be called A5Driver.java
2) Create an HTML file that invokes the applet. Please zip the HTML file, and the .java files. Submit this zipped file on Canvas.
3) Put all your files in assignment5 package, including a README file.

Here's an example of how to create an applet and embed the code in HTML.
http://www.astahost.com/info.php/Java-Applets_t6106.html

You'll find dozens more on the internet; this is just a sample.

For the purposes of testing your java applet without a browser, you can add a main () method to it (It will not affect the applet's behavior when invoked through a browser). A couple of example links are below.
http://mindprod.com/jgloss/applet.html#HYBRID
http://leepoint.net/notes-java/deployment/applications_and_applets/70applets.html

You still need to submit HTML that invokes your applet; the above method is just to make testing a little more convenient.