

Exercise 12: Racket Graphics (10 pts.)

Due Date: Today at the end of class.

Note: If you get overly creative and you would like to finish the exercise at home, you need to turn your incomplete work by the end of class, and **turn in a completed version next week on the first class meeting.**

Teachpacks

DrRacket includes a number of **teachpacks** to supplement programs with additional tools (for example, a teachpack might extend the **Beginning Student** language with a procedure for playing sounds).

We will use the **draw.rkt** and **gui.rkt** teachpacks.

You need to be in “**Advanced Student**” (**Language**) **mode** to use a teachpack.

Racket 3A – Landscape - Teachpack: draw.rkt

The **draw.rkt** teachpack allows you to draw shapes.

On the top menu select **Language** → **Add Teachpack...** Select **draw.rkt** from the list of **Preinstalled Teachpacks** and click **OK**. You must click **Run** before you can use the teachpack.

The following is a list of statements that work with the **draw.rkt** teachpack:

- To **open a canvas**

```
> (start 600 600)
```
- To **draw a line**, you need 3 parameters
 - Coordinates of x and y where the line starts (this is defined by **make-posn**)
 - Coordinates of x and y where the line ends
 - Color: The main colors are **'white 'yellow 'red 'blue 'green 'black**
 - Color names are case **insensitive**

```
> (define p (make-posn 0 0))  
> (define q (make-posn 300 300))  
> (draw-solid-line p q 'red)
```
- To **draw a hollow circle**, you need 3 parameters
 - Coordinate of x and y, where the center is
 - Length of the radius
 - Color

```
> (draw-circle q 100 'red)
```
- To **draw a solid circle**, you need 3 parameters as if you were drawing a hollow circle

```
> (draw-solid-disk q 100 'blue)
```
- To **draw a rectangle**, you need 4 parameters
 - Coordinate of x and y for the upper-left corner
 - Width
 - Length
 - Color

```
> (draw-solid-rect (make-posn 450 450) 50 100 'green)
```

For this exercise, you will need to draw anything that is **recognizable** (this means, no abstract art) using the **draw.rkt** teachpack. Draw an image that contains at least 8 different shapes. **The background cannot be white.** The statements above should be sufficient to draw any shape, but you are welcome to browse the Web and find more options. **Your image cannot be abstract; you need to draw something that is recognizable (a landscape, a portrait, an object, etc.).**

Name the file as shown below and drop it in the **Q drive**:

- If **completed** → **a250_r3a_yourlastname_yourfirstname**
- If **not** incompleted → **temp_a250_r3a_yourlastname_yourfirstname**

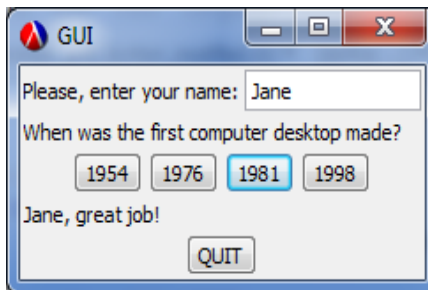
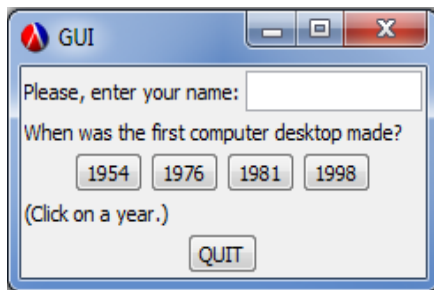
Racket 3B – Form - Teachpack: gui.rkt

The **gui.rkt** teachpack creates forms. We will use textboxes and buttons.

On the top menu select **Language → Add Teachpack...** Select **gui.rkt** from the list of **Preinstalled Teachpacks** and click **OK**. You must click **Run** before you can use the teachpack.

For this exercise, you will use the **racket_e3_form.rkt** file. Modify the form so that it displays a mini quiz that asks the user to enter his/her name and answer a question. When the user clicks a button, the window will display a **new message** addressing the user by name and confirming whether the answer is correct. Create **your OWN** quiz. It should have **at least two buttons** for the answer.

Example:



NOTE: Do **NOT** copy the quiz displayed above, but create your own quiz.

- If **completed** → **a250_e12_yourlastname_yourfirstname**
- If **not** incompleted → **temp_a250_e12_yourlastname_yourfirstname**