«Display\_Name»

Computer Programming Using Kivy 1.8 for Python 3 **- Canvas 7 - Pictures & Sprites**

GOAL: Edit an example game to use your own background and character (navigate across 2D terrain)

To make the program work on any computer (if has kivy installed), first make a new folder so that your program and all of your program’s pictures are in the same place (this folder can be given to anyone):

* Start, Computer, your home drive (such as T:\*username*) Click “**New Folder**” (if can’t find that, [if in Windows 7 tap Alt key once] then click File, New Folder). Name it **bin**.

Now copy all of the files for the existing sample program to the folder:

* Go to Start, Computer, R:\Classes\ComputerProgramming\Examples & Copy the graphics to bin in your home drive (4 images):

“**area1.png**,”

“**Car, Rear - lincoln\_tc\_fournel (towncar, cholasimmons at turbosquid) - MrG's Render1.png**,”

“**Rock 1 by BesideTheVoid - edited from IMG\_3319 by victorblagovici on morguefile.png**,” and

“**Sprite\_Explosion\_of\_sorts\_by\_leileilol (BesideTheVoid plain opacity version) frame0012.png**”

all to **Your home drive bin** folder (such as T:\*username*\bin or H:\bin). Bin stands for binary, and that is where programmers usually put all files that will be given to the person who will use your program. If you don’t know how, follow these steps: Single-click on picture, then on left bar click Copy to Folder, then choose H:\pygame (if you have trouble with that, you can just drag the file to your bin folder). Repeat for each of these 4 image files.

Now let’s get the program running in the new location:

* Open Geany
* File, Open, R:\Classes\ComputerProgramming\Examples\kivyBlit.py
* File, Save As,your home drive bin(such as T:\*username*\bin) then name the file canvas7sprites.py
* Make sure the program runs and has all of the pictures instead of blank white rectangles.
* When it runs you can see that there is no useless black box around the car. When an image is converted to a *surface*—this means the image is placed in *video memory*, either with or without transparency (*alpha*).

Once you have the program working, change it to use your own graphics. First find a background, & a character or vehicle:

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| * Characters or vehicles must be from R:\Pictures\Sprites or <http://www.spriteland.com> (click Sprites)   *or if you want to use a picture that isn’t already a sprite, find a picture, Edit, Copy (or right-click & copy), go to Photoshop, New, Transparent background, paste, erase background, Save As, for format you must choose PNG, then save in your home drive bin (expand computer on left, then if necessary expand T: then find your name and expand it so you see your bin folder)*   * Background can be anything from R:\Pictures or from website links there ( public-domain-image.com usually has the most animals, morguefile.com usually has the most outdoor environments) * Save each image to your home drive bin (such as T:\*username*\bin) | |  | | --- | | TIP: IF you downloaded a GIF and it doesn't work:  Start, All Programs, Adobe Design Premium,  Adobe Photoshop.  Open the GIF file.  If background is a solid color, Select, All, Edit Copy, Edit Paste, click “Background” in layer list, then Delete key, then  Click File, Save As, & change  Format to PNG  & choose Computer, your home drive (H:) | |

Now that you’ve seen the program working, it will be easier to understand the code. Now try to look over the code and guess what each class is and what each method does. The code is more straightforward than a windowed program, since everything abstract is made visible by our own code instead of by windows. **To use your own character (player image source)**, look for the lines that set an image using the source parameter of each use of the Rectangle constructor. There are four: world, player1, enemy, and explosion.  
Now change your code to use your pictures, for at least character and **world** image sources:

* Find the filenames “area1.png” and “Car, Rear - lincoln\_tc\_fournel (towncar, cholasimmons at turbosquid) - MrG's Render1.png” and change them to the names of the images you found. To know where they are to change them, you can search for those file names in Ninja-IDE by clicking “Edit”, “Find.” Make sure you set the car to your character and background to your new background, not get them switched:
  + Make sure you have saved the picture and sprite you found to the bin folder you made in your home drive (such as T:\*username*\bin)
  + *To see the part of the name after the dot (required) you must open the image*! To do this click Start, Computer, your home drive (such as T:\*username*\bin), then double-clickto open the image in IrfanView, otherwise if it does not open in IrfanView, open IrfanView yourself then click File, Open and choose the image*.* Then look at the top of the window. It will end in *.jpg, .png,* or other extension.
  + Find the **Rectangle** constructor for the entity. Find source parameter and delete original file name, dot & extension that are in quotes, then put your **new filename, dot & extension** but keep the quotes of course.

(copy and paste: Start, Computer, your home drive bin (such as T:\*username*\bin), click once on file to highlight, wait 1 second to (avoid double-click), click once more on blue highlighted filename so it becomes highlighted in a darker color, press Ctrl C on keyboard to copy filename, go to kivy and paste inside the quotes you found & type the dot and extension [such as .png])

* + Repeat these steps for your background

Project Requirements:

Everything in bold is worth 10%. Program must run—each bug is 5% off.

**BONUS**: Make the program do something more (more than just: drawing a world relative to your location, drawing a sprite in the center of the screen, drawing one enemy, or code added in later lessons). You must add variable(s) & if statement(s) that affect how the program behaves, or add keys or other inputs that do something more (more than just: mouse setting the target of the player’s entity).