

DogBark – Iterative Enhancement Plan

Do this entire project *live in-class* with your instructor.
(Or use the associated videos, although they are out of date.)

Test your program (by running it) after EACH of the following **bold** steps.

1. Make an “empty” project (that does nothing), as follows:

- Add your name as an author of the program.
- Add the necessary imports (just *pygame* and *sys* for this program).
- Define *global constants* that we will want for:

```
WHITE = pygame.Color("white")  # or (255, 255, 255)
IMAGE_SIZE = 470      TEXT_HEIGHT = 40
```

Note: Use ALL_CAPS for these names, as always for constants.
- Define a *main* function and call it at the bottom of the file.
- Define empty “sections” of *main* for:
 - Initialization
 - The game loop, that is: `while True:`
 - Inside the game loop: *Respond to events* and *Draw things*.

2. Display (only) a white screen (window), as follows:

- In the *Initialization* section of *main*, initialize *pygame*.
- Also make a screen, by using the ***pygame.display*** package to set the *mode* to size:

```
(IMAGE_SIZE, IMAGE_SIZE + TEXT_HEIGHT)
```
- Also make a *caption* for the game window:
"Text, Sound, and an Image".
- In the *Game Loop*, in the *Respond to Events* section, get and store the events by using the ***pygame.event*** package.
- In the *Game Loop*, in the *Drawing* section, fill the screen with WHITE by using the *screen's fill* method, and *update* the display by using the ***pygame.display*** package.

3. Respond to the *pygame.QUIT* event by *sys.exit()*

4. Display an image, by:

- In the Initialization, use the ***pygame.image*** package to load an image from the *2dogs.jpg* file:

```
dog_image = pygame.image.load("2dogs.jpg")
```
- In the Drawing section of the game loop, use the *screen's blit* method to display the image onto the screen at (0, 0):

```
screen.blit(dog_image, (0, 0))
```

5. Scale the image to be the size (IMAGE_SIZE, IMAGE_SIZE), by using the ***pygame.transform*** package like this, just after *loading* the image:

```
dog_image = pygame.transform.scale(
    dog_image, (IMAGE_SIZE, IMAGE_SIZE))
```

6. (Temporary step) Find the fonts that are on your computer.

Use the ***pygame.font*** package to *get* the fonts that are on your computer, then print the resulting list in a loop. Also *get* and print the default font for your computer.

7. Display the text "Two Dogs" on the image.

- In the Initialization section, use the ***sysFont*** method of the ***pygame.font*** package to create a Font object (called, say, *font1*) in a font of your own choosing, at size 40 or so.
- Then load the string “Two Dogs” into a caption, like this:

```
caption1 = font1.render("Two Dogs", True, (255, 0, 255))
```

Since this caption will not change during the program run, put the above statement into the Initialization section. The argument *True* means to *use antialiasing* (smoothing) and the last argument is the *color* to use (here, a neon pink).
- Draw the caption in the Drawing section by using the *screen's blit* method, just like you did for the image. Put it wherever you want on the screen.

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8. Display some other text (keep it “G” rated!) on the image, using a different font and font size, centered in the white space at the bottom of the screen. The screen and caption’s *get_width* and *get_height* methods are useful for centering.

9. Play the “bark.wav” file when the mouse is clicked.

- a. In the Initialization section, use the *pygame.mixer* package to make a ***Sound*** object from the *bark.wav* file.
- b. In the Respond to Events section, when an event whose type is `pygame.MOUSEBUTTONDOWN` occurs, *play* the Sound object.

10. Stream the “whip-110235.mp3” file when the program starts.

```
pygame.mixer.music.load("whip-110235.mp3")
pygame.mixer.music.play()
```

11. Bonus: Make the streaming stop when the mouse is clicked.