Pygame – Working with Text

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In this article, we will see how to play with texts using the Pygame module. We will be dealing here with initializing the font, rendering the text, editing the text using the keyboard, and adding a blinking cursor note.

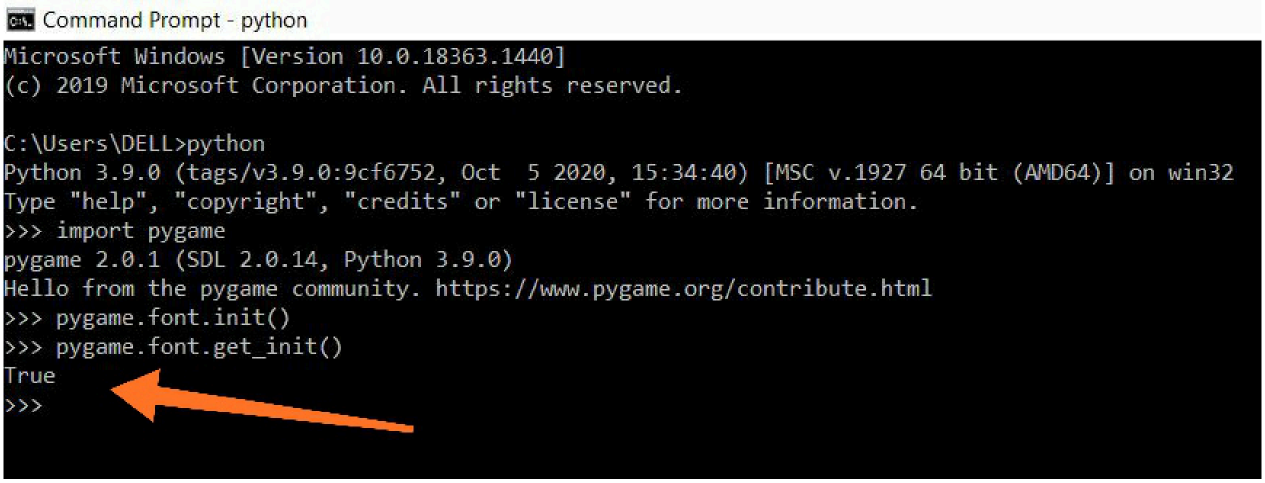
Installation

To install this module type the below command in the terminal.

```
pip install pygame
```

Font Initialization

Now we can proceed further with the font initialization part. The **pygame.font.init()** method is used to initialize the font and the **pygame.font.get_init()** method is used to check whether the font has been initialized or not. Both of the methods do not require any argument. If the font has been initialized successfully then **pygame.font.get_init()** method returns true.



Command Prompt - python

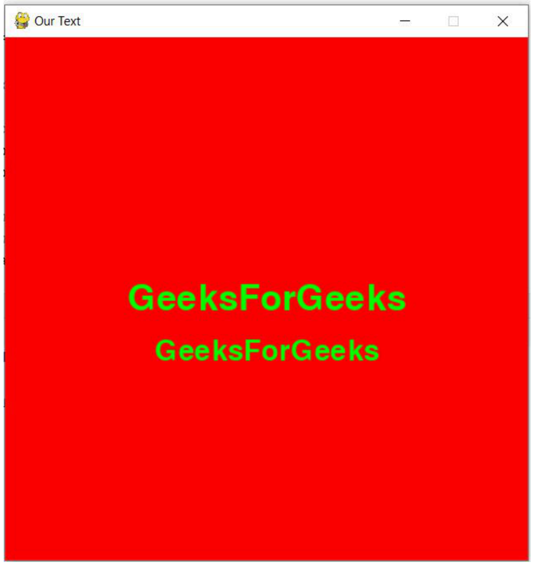
```
Microsoft Windows [Version 10.0.18363.1440]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\DELL>python
Python 3.9.0 (tags/v3.9.0:9cf6752, Oct  5 2020, 15:34:40) [MSC v.1927 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import pygame
pygame 2.0.1 (SDL 2.0.14, Python 3.9.0)
Hello from the pygame community. https://www.pygame.org/contribute.html
>>> pygame.font.init()
>>> pygame.font.get_init()
True
>>>
```

Printing Text on Window

Here we will see how to get customized font and text on the screen. We will set the position of the texts' to be displayed on the screen using x and y coordinates. First, we will create the font files and then render the texts. The **screen. blit()** function is used for copying the text surface objects to the display surface objects at the center coordinates.

```
# import pygame
import pygame

# initializing pygame
pygame.font.init()

# check whether font is initialized
# or not
pygame.font.get_init()

# create the display surface
display_surface = pygame.display.set_mode((500, 500))

# change the window screen title
pygame.display.set_caption('Our Text')

# Create a font file by passing font file
# and size of the font
font1 = pygame.font.SysFont('freesanbold.ttf', 50)
font2 = pygame.font.SysFont('chalkduster.ttf', 40)

# Render the texts that you want to display
text1 = font1.render('GeeksForGeeks', True, (0, 255, 0))
text2 = font2.render('GeeksForGeeks', True, (0, 255, 0))

# create a rectangular object for the
# text surface object
textRect1 = text1.get_rect()
textRect2 = text2.get_rect()

# setting center for the first text
textRect1.center = (250, 250)

# setting center for the second text
textRect2.center = (250, 300)

while True:
    # add background color using RGB values
    display_surface.fill((255, 0, 0))

    # copying the text surface objects
    # to the display surface objects
    # at the center coordinate.
    display_surface.blit(text1, textRect1)
    display_surface.blit(text2, textRect2)

    # iterate over the list of Event objects
    # that was returned by pygame.event.get()
    # method.
    for event in pygame.event.get():

        if event.type == pygame.QUIT:

            # deactivating the pygame library
            pygame.quit()

            # quitting the program.
            quit()

        # update the display
        pygame.display.update()
```

Output:



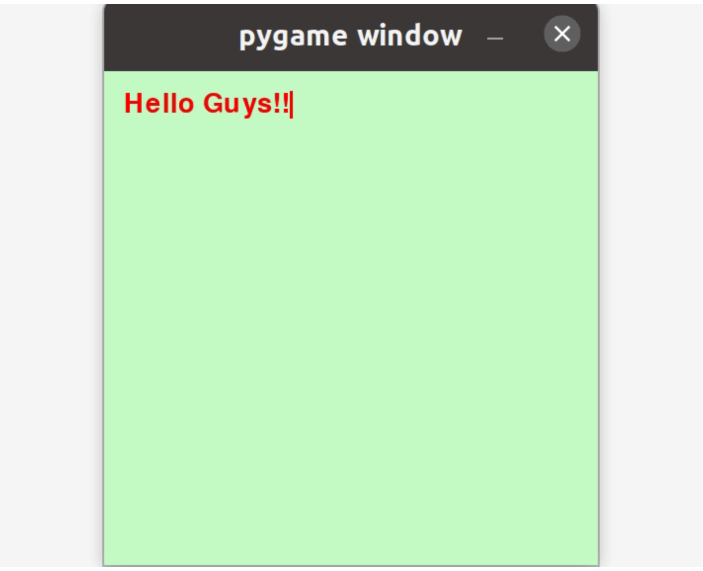
Cursor Input on Window

We are going to add Blinking Cursor Note here. Our cursor will continue blinking after every 0.5 sec. We can also edit our text.

Python3

```
# import pygame module
import pygame

# import time module
import time

# initialize the pygame module
pygame.init()

# set the window screen size
display_screen = pygame.display.set_mode((500, 500))

# add some text
text = 'Hello Guys!!'

# add default font style with font
# size
font = pygame.font.SysFont(None, 40)

# render the text
img = font.render(text, True, (255, 0, 0))

rect = img.get_rect()
rect.topleft = (20, 20)
cursor = pygame.Rect(rect.topright, (3, rect.height))

running = True

while running:

    for event in pygame.event.get():
        if event.type == pygame.QUIT:
            running = False

        # detect if key is physically
        # pressed down
        if event.type == pygame.KEYDOWN:
            if event.key == pygame.K_BACKSPACE:
                if len(text) > 0:

                    # stores the text except last
                    # character
                    text = text[:-1]

            else:
                text += event.unicode
            img = font.render(text, True, (255, 0, 0))
            rect.size = img.get_size()
            cursor.topleft = rect.topright

    # Add background color to the window screen
    display_screen.fill((200, 255, 200))
    display_screen.blit(img, rect)

    # cursor is made to blink after every 0.5 sec
    if time.time() % 1 > 0.5:
        pygame.draw.rect(display_screen, (255, 0, 0), cursor)

    # update display
    pygame.display.update()

pygame.quit()
```

Output:



Hello Guys!!

Input Box on Window

Here we will see how to read the text using the keyboard in pygame. We are going to show our text inside a rectangle. When the mouse is taken over the rectangle the color of the rectangle gets changed. Comments have been added to the code for clear understanding.

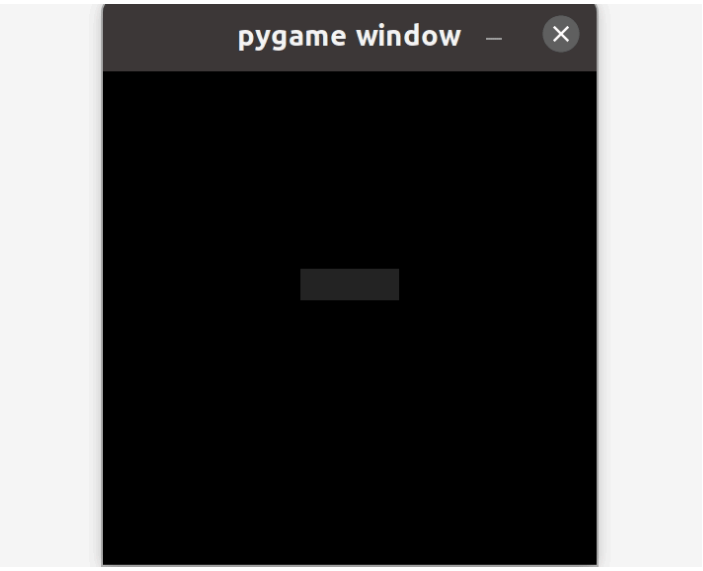
Python3

```
# import pygame module
import pygame
```

```
# import sys library
import sys

# initializing pygame
pygame.init()

clock = pygame.time.Clock()

# Set the window screen size
display_screen = pygame.display.set_mode((500, 500))

# add font style and size
base_font = pygame.font.Font(None, 40)


# stores text taken by keyboard
user_text = ''

# set left, top, width, height in
# Pygame.Rect()
input_rect = pygame.Rect(200, 200, 140, 32)
color_active = pygame.Color("lightskyblue")
color_passive = pygame.Color("gray15")
color = color_passive

active = False

while True:

    for event in pygame.event.get():
        if event.type == pygame.QUIT:
            pygame.quit()
            sys.exit()

        # when mouse collides with the rectangle
        # make active as true
        if event.type == pygame.MOUSEBUTTONDOWN:
            if input_rect.collidepoint(event.pos):
                active = True

        # if the key is physically pressed down
        if event.type == pygame.KEYDOWN:
            if event.key == pygame.K_BACKSPACE:

                # stores text except last letter
                user_text = user_text[0:-1]
            else:
                user_text += event.unicode
```

```
display_screen.fill((0, 0, 0))

if active:
    color = color_active
else:
    color = color_passive

pygame.draw.rect(display_screen, color, input_rect)

# render the text
text_surface = base_font.render(user_text, True, (255, 255, 255))
display_screen.blit(text_surface, (input_rect.x + 5, input_rect.y + 5))
input_rect.w = max(100, text_surface.get_width() + 10)
pygame.display.flip()
clock.tick(60)
```

Output:



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