Python Update and Pygame Installation Guide for Raspberry Pi

0. Get the Game Center from GitHub

Start by downloading the Game Center from GitHub. Link

1. Update System Packages

First, ensure your Raspberry Pi's system packages are up to date:

```
sudo apt update
sudo apt upgrade -y
```

These commands update the package list and upgrade all installed packages to their latest versions.

2. Update Python

Check Current Version

```
python3 --version
```

This shows your current Python version.

Update Python 3

```
sudo apt install python3 -y
```

This installs / updates Python 3 to the latest version available in the Raspberry Pi OS repositories.

3. Install/Update pip

Install pip if not present
```
sudo apt install python3-pip -y
```

Update pip to latest version
```
sudo python3 -m pip install --upgrade pip
```

4. Install Pygame Dependencies

Pygame requires several dependencies to work properly on Raspberry Pi:

```
sudo apt install python3-dev libsdl2-dev libsdl2-image-dev
libsdl2-mixer-dev
libsdl2-ttf-dev libfreetype6-dev libportmidi-dev libjpeg-dev -y
```

This installs all necessary libraries for Pygame to function correctly.

5. Install Pygame

Method 1: Standard Installation (Recommended)
```
sudo pip3 install pygame
```

Method 2: Using apt (Alternative) (If Recommended Failed)
sudo apt install python3-pygame

Method 3: Using --break-system-packages (If Both Failed)
sudo pip3 install pygame --break-system-packages

WARNING: Only use this method if the standard installation fails.

6. Install CustomTkinter

Install Tkinter Dependency

sudo apt install python3-tk -y

Install CustomTkinter via pip

sudo pip3 install customtkinter

If encountering permission issues, use:
sudo pip3 install customtkinter --break-system-packages

7. Verify Installation (Optional)

CustomTkinter Test Script

Create a file named test_customtkinter.py:

```
import customtkinter
print("Customtkinter version:", customtkinter.__version__)
```

Run the test:
python3 test_customtkinter.py

8. Install GPIO Library and Fix Issue with PIL

Install GPIO and other library :

- **sudo apt install python3-rpi.gpio**
- **sudo apt install xdotool -y**

1. **RPI.GPIO library help us to read GPIO pins from Raspberry Pi and perform actions**
2. **Xdotool help us to make the Game Center on Foucs mode after launch from Startup**

Facing Issue with PIL and ImageTk ?:

- sudo apt install --reinstall python3-pil python3-tk
- pip install --break-system-packages --upgrade --force-reinstall pillow

MayBe you face a Error <ImageTk Not Found> while running Game Center so you can use the above commands to reinstall PIL into your Raspberry Pi

9. Quick Installation

Single Line Command To Install All:

**sudo apt update && sudo apt upgrade -y && **

```
sudo apt install python3 -y && sudo python3 -m pip install --upgrade pip && \

sudo apt install python3-dev libsdl2-dev libsdl2-image-dev libsdl2-mixer-dev libsdl2-ttf-dev \

libfreetype6-dev libportmidi-dev libjpeg-dev -y && \

sudo pip3 install pygame --break-system-packages && \

sudo apt install python3-tk -y && sudo pip3 install customtkinter --break-system-packages && \

sudo apt install python3-rpi.gpio -y && sudo apt install xdotool -y && \

sudo apt install --reinstall python3-pil python3-tk -y && \

pip install --break-system-packages --upgrade --force-reinstall pillow
```

- **Final Verification:**

```
python3 -c "import pygame, customtkinter, RPi.GPIO; print('All libraries installed successfully!')"
```

This Command will Check All the required dependencies installed Successfully

Troubleshooting (If facing Issue with any)

If Installation Fails

Try cleaning pip cache and reinstalling:

```
sudo pip3 cache purge
sudo pip3 install pygame --force-reinstall
sudo pip3 install customtkinter --force-reinstall
```

If Dependencies are Missing

Ensure all dependencies are installed:

```
sudo apt install libsdl2-dev libsdl2-image-dev libsdl2-mixer-dev
libsdl2-ttf-dev
libfreetype6-dev libportmidi-dev libjpeg-dev python3-setuptools
python3-dev python3-tk -y
```