QR Code Generator

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Documentation for Project:

This demonstration is that of a QR Code Generator made in Python using Tkinter and pyqrcode. The program uses Tkinter to create a pop-up window that asks the user to enter the link to be made into a QR Code, using labels and buttons. As long as there is some input in the empty label box, we create a code using pyqrcode module and then convert it into an image using BitmapImage, which is a standard Python interface to the Tk GUI toolkit. Once generated, the window resizes accordingly and displays as well as downloads a png of the QR Code.

Script:

5 minute video

Outline -

1. What is a QR Code?
2. What is Python Tkinter and pyqrcode module?
3. How to create a window, button, labels and input label using tkinter
4. How does the module create the code? Difference between qrcode and pyqrcode
5. Demonstration of code and execution

Script -

Body

A QR code is a machine-readable code that stores URLs or other information that can be accessed by scanning it using a camera. Today, we will create the same on python

using libraries such as Tkinter and pyqrcode.

The easiest way to create a qrcode is by using the qrcode.make function as show here. The png version of the QR code is saved, and once scanned shows the text “Hello World”.

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There is another module in python used to create QR codes, that being the pyqrcode module. Alongside, we will use the Tkinter module to create the pop-up window to ask user for input to create the code.

We first initialize the Tk() object to a variable ‘window’, label it to be our generator and set the background. We have to create buttons and labels to place on our window, so we create them using the Tkinter functions Label(), Entry(), and Button(). Remember to use the .pack() function to keep the sizes relative and ensure they have a padded distance between the lines of code. Something essential is creating an image label for the QR Code to be displayed on, which would all come together in the final screen label.

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Now that our window, buttons, labels and input labels have been implemented, we need to work on our generateQR() function that we linked to our button that should be used to generate the QR code. Using defensive programming, we make sure we only create the code if there is an input, else print an error message. When an input is properly entered, we create the URL into a code using the pyqrcode.create() function which is then converted to an image using the BitmapImage() function to be displayed in the final output screen. We can also save the png file by using the .png(”filename.png”) function.

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Let us run the code we have made, first see what happens when we no not enter any input.

Now, if we actually enter a valid URL in our window. We can see that the window displays the QR code and also saved it in the folder.

Resources Used -

- https://www.tutorialspoint.com/how-to-use-bitmap-images-in-button-in-tkinter
- https://www.geeksforgeeks.org/generate-qr-code-using-qrcode-in-python/

- https://www.geeksforgeeks.org/python-generate-qr-code-using-pyqrcode-module
- https://pythonhosted.org/PyQRCode/
- https://www.javatpoint.com/python-tkinter-label
- https://www.pythontutorial.net/tkinter/tkinter-window/
- https://towardsdatascience.com/create-and-read-qr-code-using-python-9fc73376a8f9