Python Project: QR code

This project focuses on creating your QR codes of different shapes, sizes, and colours using Python. You can insert text or website address, and the program will generate a QR code image that different devices can scan.

Learning outcomes:

- **Understanding of QR Code**: Learners will understand the structure and components of different QR codes and their implementation
- **Working with Python libraries**: You can work with a popular Python library function, “qrcode”, for generating QR code.
- **Knowledge of Python data types**: Learners will get knowledge of how to convert different data types into a format that will be easy to encode in your QR code.
- **Saving and displaying images**: You will learn to save the generated QR code image as a file and display it on the screen.

STEP1:

Install Python

Ensure you have Python installed on your computer. You can download it for free from https://www.python.org/downloads/

STEP2:

Install QRcode library

Open your terminal or command prompt and type pip install qrcode. This installs the necessary library for your project. (*PeterSteiner.pip-installer)*

STEP3:

Write the Python Code

Use the qrcode library functions to:

- Take user input for the text or URL to be encoded.
- Create a QR code object with the desired data.
- Save the generated QR code as an image file(like PNG or JPG).

STEP4:

Run the script:

Execute your Python code, which will generate the QR code image based on your input.

Real-world application:

- **Creating interactive campaigns:** You can add a QR code with your marketing materials that creates a sense of mystery among your target consumers, encouraging them to scan the codes to see what is waiting for them.
- **Ensuring in-person processes are contactless:** For certain functions like touching a menu to learn about the price of products in a mall, people can scan these QR codes and get all the details available on their phones and other devices. This reduces the need for touching things and saves people from transmissible viruses.
- **Sharing your business address**: Businesses can direct customers, suppliers, or new employees to their location by sharing QR codes. By scanning these codes, anyone can locate the business address rather than search them manually on Google Maps.
- **Streamlining processes for business employees**: You can use a QR code on each of your products so that employees can access details of each product efficiently on their smartphones and devices.

Source Code:

```
import qrcode
from tkinter import *
from tkinter import messagebox

#Creating the window
wn = Tk()
wn.title('DataFlair QR Code Generator')
wn.geometry('700x700')
wn.config(bg='SteelBlue3')

#Function to generate the QR code and save it
def generateCode():
    #Creating a QRCode object of the size specified by the user
    qr = qrcode.QRCode(version = size.get(),
                       box_size = 10,
                       border = 5)
    qr.add_data(text.get()) #Adding the data to be encoded to the QRCode object
    qr.make(fit = True) #Making the entire QR Code space utilized
    img = qr.make_image() #Generating the QR Code
```

```
    fileDirec=loc.get()+'\\'+name.get() #Getting the directory where the file has to be save
    img.save(f'{fileDirec}.png') #Saving the QR Code
    #Showing the pop up message on saving the file
    messagebox.showinfo("DataFlair QR Code Generator","QR Code is saved successfully!")

#Label for the window
headingFrame = Frame(wn,bg="azure",bd=5)
headingFrame.place(relx=0.15,rely=0.05,relwidth=0.7,relheight=0.1)
headingLabel = Label(headingFrame, text="Generate QR Code with DataFlair", bg='azure',
font=('Times',20,'bold'))
headingLabel.place(relx=0,rely=0, relwidth=1, relheight=1)

#Taking the input of the text or URL to get QR code
Frame1 = Frame(wn,bg="SteelBlue3")
Frame1.place(relx=0.1,rely=0.15,relwidth=0.7,relheight=0.3)

lable1 = Label(Frame1,text="Enter the text/URL: ",bg="SteelBlue3",fg='azure',font=('Courier',13,'bold'))
lable1.place(relx=0.05,rely=0.2, relheight=0.08)

text = Entry(Frame1,font=('Century 12'))
text.place(relx=0.05,rely=0.4, relwidth=1, relheight=0.2)

#Getting input of the location to save QR Code
Frame2 = Frame(wn,bg="SteelBlue3")
Frame2.place(relx=0.1,rely=0.35,relwidth=0.7,relheight=0.3)

lable2 = Label(Frame2,text="Enter the location to save the QR Code:
",bg="SteelBlue3",fg='azure',font=('Courier',13,'bold'))
lable2.place(relx=0.05,rely=0.2, relheight=0.08)

loc = Entry(Frame2,font=('Century 12'))
loc.place(relx=0.05,rely=0.4, relwidth=1, relheight=0.2)
```

```
#Getting input of the QR Code image name
Frame3 = Frame(wn,bg="SteelBlue3")
Frame3.place(relx=0.1,rely=0.55,relwidth=0.7,relheight=0.3)

lable3 = Label(Frame3,text="Enter the name of the QR Code:
",bg="SteelBlue3",fg='azure',font=('Courier',13,'bold'))
lable3.place(relx=0.05,rely=0.2, relheight=0.08)

name = Entry(Frame3,font=('Century 12'))
name.place(relx=0.05,rely=0.4, relwidth=1, relheight=0.2)

#Getting the input of the size of the QR Code
Frame4 = Frame(wn,bg="SteelBlue3")
Frame4.place(relx=0.1,rely=0.75,relwidth=0.7,relheight=0.2)

lable4 = Label(Frame4,text="Enter the size from 1 to 40 with 1 being 21x21:
",bg="SteelBlue3",fg='azure',font=('Courier',13,'bold'))
lable4.place(relx=0.05,rely=0.2, relheight=0.08)

size = Entry(Frame4,font=('Century 12'))
size.place(relx=0.05,rely=0.4, relwidth=0.5, relheight=0.2)

#Button to generate and save the QR Code
button = Button(wn, text='Generate Code',font=('Courier',15,'normal'),command=generateCode)
button.place(relx=0.35,rely=0.9, relwidth=0.25, relheight=0.05)

#Runs the window till it is closed manually
wn.mainloop()
```