AI QR Code Generator using Python

Hands On Assignment - 2

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# Introduction

This assignment presents a basic QR code generator at Biox Systems in Python. The user uses the application to enter a URL and gets back a scannable image QR code for digital access to links or files. The application was built using the “qrcode” library in Python. This application is an example of how Python can be used in the real world to give something back to the user without their need to worry about a painstaking process of creating QR codes. This assignment enhances the understanding of various vital programming concepts, proving that even the smallest, lightest application can benefit an enterprise setting.

# Code

Below is the code used in the assignment:

# Import module for the qrcode package

import qrcode

def generate\_qr\_code(website\_url, output\_file="biox\_qrcode.png"):

    """

    This function will create a QR code from a given website URL

    and save it as an image file.

    website\_url: The URL to encode in the QR code.

    output\_file: The filename for the saved QR code image.

    """

    # Creates a QRCode object with specific parameters

    qr\_generator = qrcode.QRCode(

        version=2,  # Controls the size of the QR code (ranges from 1- 40)

        error\_correction=qrcode.constants.ERROR\_CORRECT\_L,  # Lowest error correction level

        box\_size=10,  # Size of each box in pixels

        border=4  # Thickness of the border (minimum is 4)

    )

    # Adds the URL data to the QR code

    qr\_generator.add\_data(website\_url)

    # Finalizes the QR code construction

    qr\_generator.make(fit=True)

    # Generates an image from the QR code using black for code and white for background

    qr\_image = qr\_generator.make\_image(fill\_color="black", back\_color="white")

    # Saves the image to a file

    qr\_image.save(output\_file)

    print(f"\n QR Code has been generated and saved as '{output\_file}'.")

# Main block

if \_\_name\_\_ == "\_\_main\_\_":

    print("=== QR Code Generator - Biox Systems ===")

    # Prompts the user for a URL

    url\_input = input("Enter the URL you want to generate a QR code of : ").strip()

    # Checks that the input is not empty

    if url\_input:

        generate\_qr\_code(url\_input)

    else:

        print("You must enter a valid URL.")

# Screenshot

Below is the output of the application created for the URL “Facebook.com”:

A white background with black text

AI-generated content may be incorrect.

Figure 1: Application Output

A qr code on a white background

AI-generated content may be incorrect.

Figure 2: QR code generated for URL "facebook.com"

# GitHub Link

From this link, you can access the code file, manifest, image generated and main document for the application. Link: <https://github.com/arungyaw/QRCodeGenerator>

# Conclusion

This assignment successfully demonstrates how Python can be used to create a simple yet effective QR code generator. Using the “qrcode” library, the application made URL sharing faster and more accessible while also reinforcing key programming concepts in a real-world context.

# References

Lin, H. (2023). qrcode 7.4 documentation. PyPI. Retrieved from <https://pypi.org/project/qrcode/>

Denso Wave. (2024). QR Code.com | The official site for QR Code by DENSO WAVE. Retrieved from <https://www.qrcode.com/en>?