

Detailed explanation of all the libraries used in code:

1. qrcode

- **Purpose:**
 - Used to generate QR codes based on user-provided data (e.g., text, URLs).
- **Key Components in the Code:**
 - `QRCode`: A class for configuring and generating QR codes.
 - **Parameters:**
 - `version`: Controls the size of the QR code.
 - `error_correction`: Error correction level (e.g., low, medium, high).
 - `box_size`: Size of each box in the QR code grid.
 - `border`: Thickness of the border.
 - `make_image()`: Creates a PIL image of the QR code.
- **Installation**: Use `pip install qrcode[pil]`.

2. tkinter

- **Purpose:**
 - The standard Python library for creating graphical user interfaces (GUIs).
- **Key Components in the Code:**

- **Widgets:**

- Tk: The main window of the application.
- Label: Displays text or images in the UI.
- Entry: A field for user input.
- Button: Interactive buttons for user actions.
- Canvas: A widget for drawing shapes or creating custom designs (used for the gradient background).
- Frame: A container to group widgets.

- **Dialog Components:**

- messagebox: Displays pop-up messages (e.g., errors, warnings, confirmations).
- filedialog: Opens a dialog for file saving.

3. Pillow (PIL)

- **Purpose:**

- A popular Python library for image processing.

- **Key Components in the Code:**

- Image: Handles images in various formats.
- ImageTk: A module to convert images into a format that tkinter can use (e.g., displaying QR codes in the GUI).

- **Installation:** Use pip install pillow.

4. ttk (Part of tkinter)

- **Purpose:**

- Provides themed widgets for a more modern look.

- **Key Components in the Code:**

- Progressbar: A widget that provides visual feedback about an ongoing process (e.g., generating a QR code).

5. time

- **Purpose:**

- Provides functions to handle time-related tasks (e.g., delays).

- **Key Components in the Code:**

- sleep: Introduces a delay in the program (used to simulate progress bar updates).

6. os (Implicitly Used by File Operations)

- Although not directly imported here, file operations (e.g., saving a QR code) internally rely on Python's os module to interact with the file system.

7. Optional Utilities

- clipboard **functionality via** tkinter:
 - Enables copying text from the app to the clipboard.