# Encode Caesar Cipher with Username and Password (Decode) Documentation

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## Purpose

This project is designed for the Advanced Python Class by Muzaffar Ali. The program decodes a message encoded with a Caesar cipher from a QR code image. It uses a PIN to shift the characters in reverse to decipher the message.

## Requirements

- pyzbar: Imports the decode function from the pyzbar.pyzbar module to decode QR codes.

- Pillow: Imports the Image class from the PIL (Pillow) library to handle image operations.

- string: Imports the string module to access predefined character sets.

## Environment Setup

1. Ensure Python is installed on your system.  
2. Install the required libraries using the following commands:  
```  
pip install pyzbar  
pip install Pillow  
```

## Execution

1. Save the provided code in a file named `caesar\_cipher\_qr\_decode.py`.  
2. Open a terminal or command prompt.  
3. Navigate to the directory where `caesar\_cipher\_qr\_decode.py` is saved.  
4. Run the program using the command:  
```  
python caesar\_cipher\_qr\_decode.py  
```

## How It Works

1. Function `get\_pin()`:  
 - Prompts the user to enter a PIN between 0 and 100.  
 - Validates the input and returns the PIN.  
  
2. Function `reverse\_caesar\_cipher(cipher\_message, shift)`:  
 - Deciphers the given message using a reverse Caesar cipher with the specified shift.  
 - Parameters: `cipher\_message` (str): The ciphered message to decipher. `shift` (int): The number of positions to shift each character in the reverse direction.  
 - Returns: The original, deciphered message.  
  
3. Function `decode\_qr\_code(Image\_path)`:  
 - Decodes the QR code in the specified image file.  
 - Parameters: `Image\_path` (str): The path to the image file containing the QR code.  
 - Returns: The decoded data from the QR code, or None if no QR code is found.  
  
4. Main Function `main()`:  
 - Decodes a QR code, gets a PIN from the user, and deciphers the message.  
 - Prompts the user to enter the path to the QR code image file.  
 - Uses the `decode\_qr\_code` function to get the ciphered message from the QR code.  
 - Prompts the user to enter a PIN using the `get\_pin` function.  
 - Uses the `reverse\_caesar\_cipher` function to decipher the message using the entered PIN.  
 - Prints the original, deciphered message.

## Output

The program decodes a QR code containing a message encoded with a Caesar cipher, then uses a PIN provided by the user to decipher and print the original message.