Hackathon Project Document

Project Title: Base64 Encoder/Decoder (Encode and Decode Text Using Base64)

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Code

```
import base64

text_to_encode = "Hello Python!"

encoded_text = base64.b64encode(text_to_encode.encode('utf-8')).decode('utf-

print(f"Original: {text_to_encode}")
print(f"Encoded:  {encoded_text}")


text_to_decode = encoded_text
decoded_text = base64.b64decode(text_to_decode.encode('utf-8')).decode('utf-

print(f"Decoded:  {decoded_text}")
```

Problem Statement & Implementation

Problem Statement:

The project demonstrates encoding and decoding text using Base64. Base64 is commonly used to convert binary data into ASCII text, which is safe to transmit over protocols that only support text.

How You Did It (Implementation/Technologies Used):

Language Used: Python

Module Used: base64 (built-in Python library)

Steps in the Code:

1. A text string 'Hello Python!' is taken as input.

2. base64.b64encode() converts the string to Base64 encoded form.

3. The encoded string is printed.

4. base64.b64decode() converts the encoded string back to the original text.

5. The decoded string is printed to verify correctness.

Example Output:

Original: Hello Python!

Encoded: SGVsbG8gUHl0aG9uIQ==

Decoded: Hello Python!

Conclusion

The Base64 Encoder/Decoder project successfully demonstrates the process of encoding text into Base64 and decoding it back to its original form. It highlights how Base64 can safely represent binary data as ASCII text, making it suitable for data transmission over text-only protocols. The project also showcases the simplicity and power of Python's base64 module for handling encoding and decoding tasks efficiently.