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**Class:- TE Computer**

**ERP :-67**

**Subject :-LP2(IS) (AES)**

## **Code:-**

```
import hashlib
from base64 import b64decode, b64encode

from Crypto import Random
from Crypto.Cipher import AES

class AESCipher(object):
    def __init__(self, key):
        self.block_size = AES.block_size
        self.key = hashlib.sha256(key.encode()).digest()

    def encrypt(self, plain_text):
        plain_text = self.__pad(plain_text)
        iv = Random.new().read(self.block_size)
        cipher = AES.new(self.key, AES.MODE_CBC, iv)
        encrypted_text = cipher.encrypt(plain_text.encode())
        return b64encode(iv + encrypted_text).decode("utf-8")

    def decrypt(self, encrypted_text):
        encrypted_text = b64decode(encrypted_text)
        iv = encrypted_text[:self.block_size]
        cipher = AES.new(self.key, AES.MODE_CBC, iv)
        plain_text = cipher.decrypt(encrypted_text[self.block_size:]).decode("utf-8")
        return self.__unpad(plain_text)

    def __pad(self, plain_text):
        number_of_bytes_to_pad = self.block_size - len(plain_text) % self.block_size
        ascii_string = chr(number_of_bytes_to_pad)
        padding_str = number_of_bytes_to_pad * ascii_string
        padded_plain_text = plain_text + padding_str
        return padded_plain_text

    @staticmethod
    def __unpad(plain_text):
        last_character = plain_text[len(plain_text) - 1:]
        return plain_text[:-ord(last_character)]

key = input("Enter Key: ")
```

```

aes = AESCipher(key)

flag = 1
while flag == 1:
    print("/*****MENU*****/")
    print("1. Encryption")
    print("2. Decryption")
    print("3. Exit ")
    choice = int(input("Enter your choice : "))

    if choice == 1:
        message = input("Enter message to encrypt: ")
        encryptedMessage = aes.encrypt(message)
        print("Encrypted Message:", encryptedMessage)

    elif choice == 2:
        message = input("Enter message to decrypt: ")
        decryptedMessage = aes.decrypt(message)
        print("Decrypted Message:", decryptedMessage)
    elif choice == 3:
        print("Exit")
        flag = 0
    else:
        print("Wrong Choice,Please Choose Another Option.")

```

## Output:-

Enter Key: AISSMSIOIT

```

/*****MENU*****/

```

1. Encryption

2. Decryption

3. Exit

Enter your choice : 1

Enter message to encrypt: Its Lonewolf aka Harsh

Encrypted Message:

mqVOvzwWn33k5g5K/iht4GhatMGOMDPlgoSQWW4YerGuKMB3/zomXaq9HJvk4rVS

```

/*****MENU*****/

```

1. Encryption

2. Decryption

3. Exit

Enter your choice : 2

Enter message to decrypt:

mQVOvzwWn33k5g5K/iht4GhatMGOMDPlgoSQWW4YerGuKMB3/zomXaq9HJvk4rVS

Decrypted Message: Its Lonewolf aka Harsh

/\*\*\*\*\*MENU\*\*\*\*\*/

1. Encryption

2. Decryption

3. Exit

Enter your choice : 5

Wrong Choice, Please Choose Another Option.

/\*\*\*\*\*MENU\*\*\*\*\*/

1. Encryption

2. Decryption

3. Exit

Enter your choice : 3

Exit

Process finished with exit code 0