

NNM22IS139
SANJANA S
Playfair Cipher

```
def playfair_cipher(key,message):
    key="".join(dict.fromkeys(key.upper()+"ABCDEFGHIJKLMNOPQRSTUVWXYZ".replace('J',''))))
    table=[key[i:i+5] for i in range(0,25,5)]

    message=message.replace('J','I').upper()

    pairs=[]
    i=0
    while i<len(message):
        a=message[i]
        b=message[i+1] if i+1<len(message) else 'X'
        if a==b:
            pairs.append((a,'X'))
            i+=1
        else:
            pairs.append((a,b))
            i+=2

    def encrypt(pair):
        idx1,idx2=key.index(pair[0]),key.index(pair[1])
        row1,col1=divmod(idx1,5)
        row2,col2=divmod(idx2,5)
        if(row1==row2):
            return table[row1][(col1+1)%5]+table[row2][(col2+1)%5]
        elif col1==col2:
            return table[(row1+1)%5][col1]+table[(row2+1)%5][col2]
        else:
            return table[row1][col2]+table[row2][col1]

    encrypted_message="".join(encrypt(pair) for pair in pairs)
    return encrypted_message

key=input("enter the key")
message=input("enter the message")
print(playfair_cipher(key,message))
```

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS C:\Users\sanja\OneDrive\ドキュメント\todo> & C:/Python312/python.exe c:/Users/sanja/OneDrive/Desktop/playfair.py
● enter the key monarchy
  enter the message instruments
  ADAQ DMCGMXK
○ PS C:\Users\sanja\OneDrive\ドキュメント\todo> |
```

