Q1

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```
def isisomorphic(str1, str2):
    if len(str1) != len(str2):
        return False
    else:
        map1, map2 = {}, {}
        for i in range(len(str1)):
            ch1, ch2 = str1[i], str2[i]
            if ch1 not in map1:
                map1[ch1] = ch2
            if ch2 not in map2:
                map2[ch2] = ch1
            if map1[ch1] != ch2 or map2[ch2] != ch1:
                return False
    return True


str1 = "abacba"
str2 = "xpxcpx"
print(isisomorphic(str1, str2))
```

Q2

iu.py - C:/Users/yashm/AppData/Local/Programs/Python/Python311/iu.py (3.11.0)

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```
def sumsquare(l):
        odd = []
        even = []
        for items in l:
            if items % 2 == 0:
                even.append(items)
            else:
                odd.append(items)
        squre1 = []
        squre2 = []
        total1 = 0
        total2 = 0
        for item in odd:
            squre1.append(item ** 2)
        for item1 in even:
            squre2.append(item1 ** 2)
        for i in range(0, len(squre1)):
            total1 = total1 + squre1[i]
        for i in range(0, len(squre2)):
            total2= total2 + squre2[i]
        final_answer =[]
        for j in total1, total2:
            final_answer.append(j)
        print(final_answer)
li = sumsquare([1, 13, 5, 18, 10])
```

Q3

untitled

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```
def isHappyNumber(num):
    rem = sum = 0;

    while(num > 0):
        rem = num%10;
        sum = sum + (rem*rem);
        num = num//10;
    return sum;

num = 82;
result = num;

while(result != 1 and result != 4):
    result = isHappyNumber(result);

if(result == 1):
    print(str(num) + " is a happy number");
elif(result == 4):
    print(str(num) + " is not a happy number");
```

Q4

pa.py - C:/Users/yashm/AppData/Local/Programs/Python/Python311/pa.py (3.11.0)

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```
def isPalindrome(s):
        return s == s[::-1]
s= "malayalam"
ans = isPalindrome(s)

if ans:
        print("Yes")
else:
        print("No")
```

Q7

untitled

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```
def countstrings(n, start):


    if n == 0:
        return 1
    cnt = 0

    for i in range(start, 5):

        cnt += countstrings(n - 1, i)
    return cnt

def countVowelStrings(n):

    return countstrings(n, 0)

n = 2
print(countVowelStrings(n))
```

Q8

```
def isNumber(s) -> bool:
    # states
    start      = 0
    int_sign   = 1
    integer    = 2
    point      = 3
    frac       = 4
    exp        = 5
    exp_sign   = 6
    exp_int    = 7
    # inputs
    digit      = 1
    sign       = 2
    dot        = 3
    e          = 4
    def classify(c):
        if c in '0123456789':
            return digit
        if c == '.':
            return dot
        if c in '+-':
            return sign
        if c in 'eE':
            return e
        raise ValueError
    machine = {
        start   : {sign:int_sign, digit:integer, dot:point},
        int_sign: {digit:integer, dot:point},
        integer : {digit:integer, dot:frac, e:exp},
```

```
        point   : {digit:frac},
        frac    : {digit:frac, e:exp},
        exp     : {digit:exp_int, sign:exp_sign},
        exp_sign: {digit:exp_int},
        exp_int : {digit:exp_int},
    }
    state = start
    for c in s.strip():
        try:
            state = machine[state][classify(c)]
        except:
            return False
    return state in [integer, frac, exp_int]
n=input("enter string")
print(isNumber(n))
```

Q9

```
T = int(input("enter time"))
E=[]
L=[]
for i in range(T):
    e=int(input("number of guests entering"))
    E.append(e)
print(E)
for i in range(T):
    l=int(input("number of guests leaving"))
    L.append(l)
print(L)
Sum=0
Max=0
for i in range(T):
    Sum+=E[i]-L[i]
    Max=max(Sum,Max)
print("maximum number of guests", Max)
```

Q10

```
def add Frequency To Character(s):

    frequency = [0] * 26

    n = len(s)

    for i in range(n):
        frequency[ord(s[i]) - ord('a')] += 1



    for i in range(n):
        add = frequency[ord(s[i]) - ord('a')] % 26
        if (ord(s[i]) + add <= ord('z')):
            s[i] = chr(ord(s[i]) + add)
        else:
            add = (ord(s[i]) + add) - (ord('z'))
            s[i] = chr(ord('a') + add - 1)
    print("".join(s))
if __name__ == '__main__':

    str ="ghee"

    add Frequency To Character([i for i in str])
```

Q5

```
n=float(input("enter the number of fresh loaves purchased"))
m=float(input("enter the number of day old loaves purchased"))
a=n*185
c=m*(185*60/100)
b=(m*185)-c
total_price=a+b
print("regular price=185.00")
print("amount of new loaves",a)
print("amount of old day loaves",b)
print("total amount",total_price)
```

Q6

```
def maxArea(A, Len) :
    area = 0
    for i in range(Len) :
        for j in range(i + 1, Len):
            area = max(area, min(A[j], A[i]) * (j - i))
    return area
n=int(input("enter number of elements in array1"))
m=int(input("enter number of elements in array2"))
l1=[]
l2=[]
for i in range(0,n,1):
    ele=int(input("enter number"))
    l1.append(ele)
for j in range(0,m,1):
    el=int(input("enter number"))
    l2.append(el)
print(l1)
print(l2)

len1 = len(l1)
print(maxArea(l1, len1))

len2 = len(l2)
print(maxArea(l2, len2))
```

Q7

```
def countstrings(n, start):
    if n == 0:
        return 1
    cnt = 0
    for i in range(start, 5):
        cnt += countstrings(n - 1, i)
    return cnt

def countVowelStrings(n):
    return countstrings(n, 0)

n = int(input("enter n"))
print(countVowelStrings(n))
```