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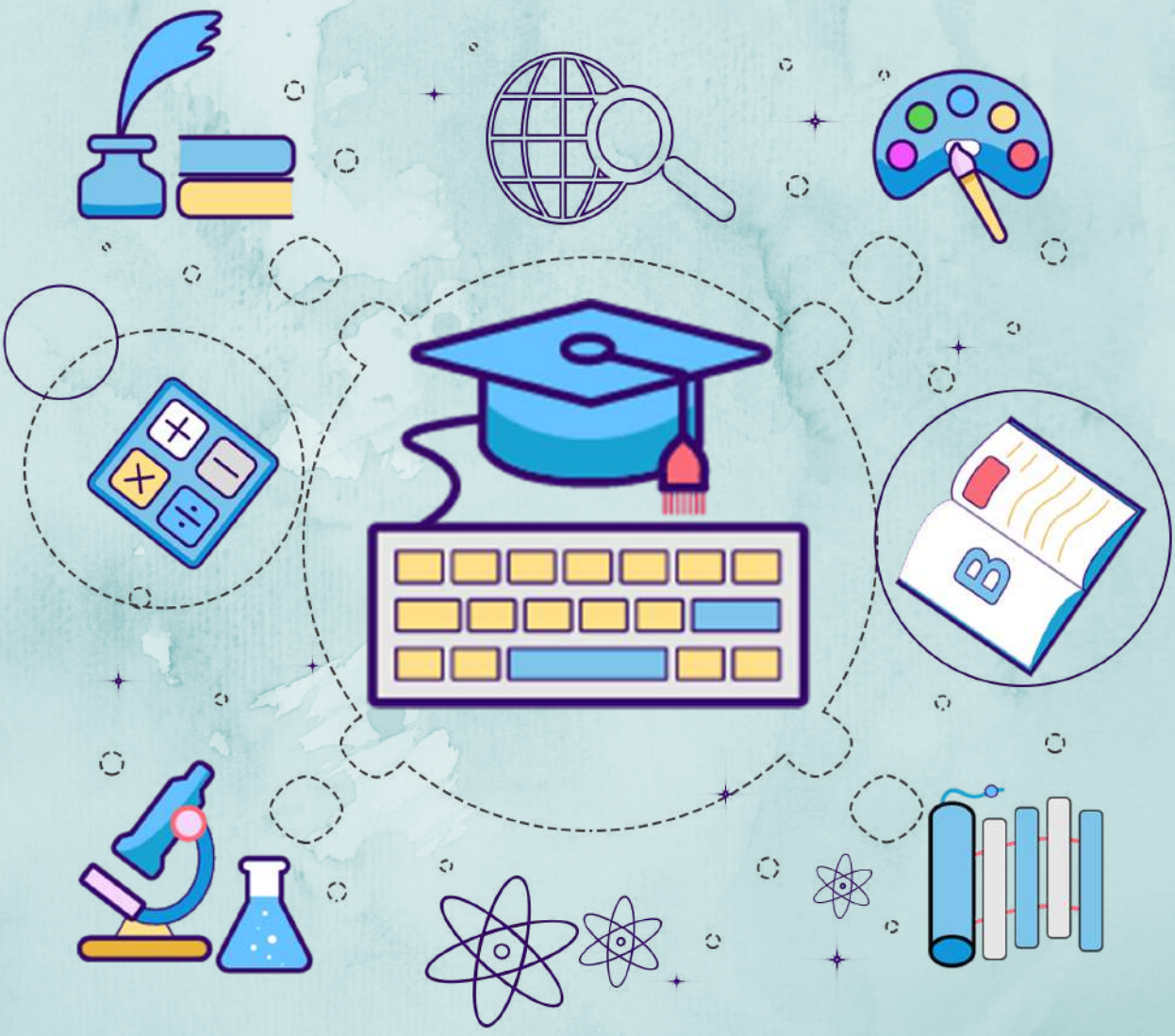

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TUTORIAL QUESTIONS

MODULE-II

1. Write a program to remove all vowel characters from a string.
2. Write a program to remove characters at odd index positions from a string.
3. Write a python script for palindrome checking without reversing the string.
4. Write a program to replace all the spaces in the input string with * or if no spaces found, put $ at the start and end of the string.
5. Write a program to slice the string into two separate strings; one with all the characters in the odd indices and one with all characters in even indices.
6. Write a program to remove all occurrence of a substring from a string.
7. Write a Program to converting all lowercase letters into uppercase.
8. Write a Program to replace all occurrence of a substring with a new substring.
9. Write a Program to reverse the first and second half of a string separately.
10. Write a Python program to check the validity of a password given by the user
    The Password should satisfy the following criteria:
    1. Contains at least one letter between a and z
    2. Contains at least one number between 0 and 9
    3. Contains at least one letter between A and Z
    4. Contains at least one special character from $, #, @

    Minimum length of password: 6
11. Write Python script for converting decimal number into Binary number.
12. Write Python script for converting Binary number into decimal number.
13. Write a python function to find the area of a circle.
14. Write a python program to compute nCr using a factorial function.

15. Write a menu driven program to implement the following

    i)check even or odd

    ii)check number is positive negative or zero

    iii) generate factors of a number

16. Write a Python program to find the value for sin(x) up to n terms using the series

    sin(x)=1-x^3/3!+x^5/5!..... (sin(x) = ((-1)^n/(2n+1)!)x^(2n+1))

17. Write a Python program to print the factorial of a number using recursion.
18. Write a Python program to print n'th Fibonacci number using recursion.
19. Program to read list of names and sort the list in alphabetical order.(university question)
20. Program to find the sum of all even numbers in a group of n numbers entered by the user. (university question)
21. Program to read a string and remove the given words from the string.
22. Program to read list of numbers and find the median
23. Finding the mode of list of numbers(A number that appears most often is the mode.)
24. Program to remove all duplicate elements from a list
25. Consider a list consisting of integers, floating point numbers and strings. Separate them into different lists depending on the data(university question)
26. Write a Python program to read list of positive integers and separate the prime and composite numbers (university question).
27. Write a Python program to read a list of numbers and sort the list in a non-decreasing order without using any built in functions. Separate function should be written to sort the list wherein the name of the list is passed as the parameter.
28. Write a program to do basic set operations
29. Remove duplicate elements from a list.
30. Program to completely remove duplicate elements without keeping any copy.

31. Program to count the number of occurrence(frequency) of each letters in a given string(histogram)
32. Program to display the frequency of each word in a given string.(university qstn)
33. Write a Python program to create a dictionary of roll numbers and names of five students. Display the names in the dictionary in alphabetical order.(university question)
34. Program to read name and phn numbers of ‘n’ customers and print the list in sorted order of names.
35. Write a program that uses a dictionary to convert hexadecimal number into binary.
36. Finding the mode of list of numbers.
37. Write a Python code to create a function called list_of_frequency that takes a string and prints the letters in non-increasing order of the frequency of their occurrences. Use dictionaries.

TUTORIAL QUESTIONS

MODULE-II

1. Write a program to remove all vowel characters from a string.

Ans:

```
vowels="AEIOUaeiou"
s=input("Enter the string...")
ns=""
for char in s:
    if char not in vowels:
        ns=ns+char
print("new string after removing vowels=",ns)
```

2. Write a program to remove characters at odd index positions from a string.

Ans:

```
s=input("Enter the string..:")
i=0
ns=""
while i<len(s):
    if i%2==0:
        ns=ns+s[i]
```

```
    i=i+1
print("New string:",ns)
```

3. Write a python script for palindrome checking without reversing the string.

Ans:

```
s=input("Enter the string...")
if s==s[::-1]:
    print("palindrome..")
else:
    print("not palindrome...")
```

Palindrome checking using loop

```
s=input("Enter the string..")
beg=0
end=len(s)-1
while beg<end:
  if s[beg]!=s[end]:
        print("Not palindrome")
        break
  beg+=1
  end-=1
```

```
else:
 print("Palindrome")
```

4. Write a program to replace all the spaces in the input string with * or if no spaces found, put $ at the start and end of the string.

Ans:

```
s=input("Enter the string:")
s=s.replace(" ","*")
if "*" not in s:
  s="$"+s+"$"
  print(s)
else:
 print(s)
```

5. Write a program to slice the string into two separate strings; one with all the characters in the odd indices and one with all characters in even indices.

Ans:

```
s=input("enter the string:")
eps=s[0:len(s):2]
print("slice with even position characters:",eps)
ops=s[1:len(s):2]
print("slice with odd position chracters:",ops)
```

6. Write a program to remove all occurrence of a substring from a string.

Ans:

```
s=input("enter the string..")
ss=input("enter substring to remove..")
ls=len(s) # length of the string
lss=len(ss) # length of the substring
ns="" # new string
i=0
while i<ls:
 css=s[i:lss+i] #css is the substring to be compared extracted from main string
 if css==ss:
  i=i+lss
 else:
  ns=ns+s[i]
  i=i+1
print("new string",ns)
```

7. Write a Program to converting all lowercase letters into uppercase.

Ans:

```
import string
```

```
s=input('Enter the string...')
ns=""
for c in s:
 if c in string.ascii_lowercase:
    c=chr(ord(c)-32)
 ns=ns+c
print("new string=",ns)
```

8. Write a Program to replace all occurrence of a substring with a new substring.

Ans:

```
s=input("enter string..")
ss=input("enter substring to remove..")
nss=input("enter the substring to replace....")
ls=len(s)
lss=len(ss)
ns=""
i=0
while i<ls:
  css=s[i:lss+i]
  if css==ss:
```

```
        ns=ns+nss
        i=i+lss
    else:
        ns=ns+s[i]
        i=i+1
print("new string",ns)
```

9. Write a Program to reverse the first and second half of a string separately.

Ans:

```
s=input("Enter the string..:")
l=len(s)
fs=s[0:l//2]
ss=s[l//2:]
fs=fs[::-1]
ss=ss[::-1]
s=fs+ss
print("New string after reversal:::",s)
```

10. Write a Python program to check the validity of a password given by the user

The Password should satisfy the following criteria:

1. Contains at least one letter between a and z
2. Contains at least one number between 0 and 9

3. Contains at least one letter between A and Z

4. Contains at least one special character from $, #, @

Minimum length of password: 6

Ans:

```
l, u, p, d = 0, 0, 0, 0
s = input("Create a password )"
if (len(s) >= 6):
    for i in s:
        # counting lowercase alphabets
        if (i.islower()):
            l+=1
        # counting uppercase alphabets
        if (i.isupper()):
            u+=1
        # counting digits
        if (i.isdigit()):
            d+=1
        # counting the mentioned special characters
        if(i=='@'or i=='$' or i=='_'):
```

```
            p+=1
if (l>=1 and u>=1 and p>=1 and d>=1 and l+p+u+d==len(s)):
    print("Valid Password")
else:
    print("Invalid Password")
```

11.Write Python script for converting decimal number into Binary number.

Ans:

```
decno=int(input("Enter the decimal number...."))
if decno==0:
    print("The binary equivalent is....0000")
else:
    binaryno=""
    while decno!=0:
        b=decno%2
        binaryno=str(b)+binaryno
        decno=decno//2
    print("The binary equivalent is....",binaryno)
```

12.Write Python script for converting Binary number into decimal number.

Ans:

```
bitstring=input("Enter a binary number...")
decno=0
```

```
    expnt=len(bitstring)-1
    for bit in bitstring:
        decno=decno+int(bit)* 2 ** expnt
        expnt=expnt-1
    print ("The decimal number is=", decno)
```

13.Write a python function to find the area of a circle.

Ans:

```
    def circlearea (radius):
        area=3.14*(radius**2)
        return area
    #function call
    r=int(input("Enter radius.."))
    area=circlearea(r)
    print("Area of the circle=",area)
```

14.Write a python program to compute nCr using a factorial function.

Ans:

```
    def fact(n):
        f=1
        for i in range(1,n+1):
```

```
        f=f*i
    return f
print("Program to compute nCr...")
n=int(input("Enter n.."))
r=int(input("Enter r..."))
ncr=fact(n)/(fact(n-r)*fact(r))
print("nCr...",ncr)
```

15.Write a menu driven program to implement the following

i)check even or odd

ii)check number is positive negative or zero

iii) generate factors of a number

Ans:

```
def evenodd(n):
    if n%2==0:
        print("even")
    else:
        print("odd")
def postvnegtv(n):
    if n>0:
        print("+ve")
```

```
    elif n<0:
        print("-ve")
    else:
        print("zero")
def  factors(n):
    print ("factors")
    for i in range(1,n+1):
        if n%i==0:
            print (i,end=' ')
while True:
    print("\n....Menu...\n1.even or odd\n2.postv or negtv \n3.factors\n4..exit\n")
    ch=int(input("Enter your choice---"))
    if ch==4:
        break
    n=int(input("Enter a number.."))
    if ch==1:
        evenodd(n)
    if ch==2:
        postvnegtv(n)
```

```
if ch==3:
    factors(n)
```

16.Write a Python program to find the value for sin(x) up to n terms using the series

sin(x)=1-x^3/3!+x^5/5!..... (sin(x) = ((-1)^n/(2n+1)!)x^(2n+1))

Ans:

```
import math
def sinseries(x,n):
    sine = 0
    for i in range(n):
        sign = (-1)**i
        x=x*(math.pi/180)
        sine = sine + ((x**(2.0*i+1))/math.factorial(2*i+1))*sign
    return sine
x=int(input("Enter the value of x in degrees:"))
n=int(input("Enter the number of terms:"))
print(round(sinseries(x,n),2))
```

output:

```
Enter the value of x in degrees:30
```

```
Enter the number of terms:10

0.5
```

17.Write a Python program to print the factorial of a number using recursion.

Ans:

```
def fact(n):
    if n==0:
        return 1
    else:
        return n*fact(n-1)


n=int(input('Enter n..:'))
x=fact(n)
print("factorial of ..",n ," ..is.. ",x)
```

18.Write a Python program to print n'th Fibonacci number using recursion.

Ans:

```
def fib(n):
 if n <= 1:
    return n
 else:
   return fib(n-1) + fib(n-2)
```

```
n=int(input('Enter n…'))

x=fib(n)

print (n,"th Fibonacci number is...",x)
```

19. Program to read list of names and sort the list in alphabetical order.(university question)

Ans:

```
n=int(input("Enter the number of names...."))
names=[]
print("Enter {} names".format(n))
for i in range(n):
    nam=input()
    names.append(nam)
names.sort()
print("names in alphabetical order")
for nam in names:
    print(nam)
```

20. Program to find the sum of all even numbers in a group of n numbers entered by the user. (university question)

Ans:

```
n=int(input("Enter the number of elements..."))
print("Enter the {} elements".format(n))
l=[] # creating an empty list
for i in range(n):
```

```
    x=int(input())
    l.append(x)
sum=0
for i in range(n):
    if l[i]%2==0:
        sum=sum+l[i]
print("Sum of all even numbers",sum)
```

21.Program to read a string and remove the given words from the string.
Ans:

```
s=input("Enter the string....")
wr=input("Enter the word to remove....")
wrds=s.split(" ")
ns=""
for w in wrds:
    if w!=wr:
        ns=ns+" "+w
print("new string...",ns)
```

22.Program to read list of numbers and find the median
Ans:

```
#We can find median by sorting the list and then take the middle element. If the
list contains even number of elements take the average of the two middle
elements.

n=int(input("Enter how many numbers...."))
print("Enter {} numbers....".format(n))
```

```
lst=[]
for i in range(n):
  x=int(input())
  lst.append(x)
lst.sort()
print(lst)
mid=n//2
if n%2==1:
  print("Median",lst[mid])
else:
  print("Median",(lst[mid]+lst[mid-1])/2)
```

23.Finding the mode of list of numbers(A number that appears most often is the mode.)

Ans:

```
l=[]
n=int(input("Enter n.."))
print("Enter the numbers..")
for i in range(n):
   x=int(input())
   l.append(x)
c=[]
e=[]
for x in l:
   if x not in e:
      c.append(l.count(x))
```

```
        e.append(x)
    mc=max(c)
    ne=len(c)
    i=0
    print("mode..")
    while i<ne:
        if c[i]==mc:
            print(e[i])
        i+=1
```

24.Program to remove all duplicate elements from a list
Ans:

```
    lst=[]
    n=int(input("enter how many numbers.."))
    print("Enter elements...")
    for i in range(n):
        x=int(input())
        lst.append(x)

    nlst=[]
    for x in lst:
        if x not in nlst:
            nlst.append(x)
    print("new list after removing duplicates")
    print(nlst)
```

25.Consider a list consisting of integers, floating point numbers and strings. Write a program to separate them into different lists depending on the data(university question)

Ans:

```
il=[]
fl=[]
sl=[]
l=[12,23.5,'klf',34,4343,34.566,3+3j,'ddldl',35]
for i in l:
  if type(i)==int:
    il.append(i)
  if type(i)==str:
    sl.append(i)
  if type(i)==float:
    fl.append(i)
print("Integer list")
print(il)
print("Float list")
print(fl)
print("String List")
print(sl)
```

26.Write a Python program to read list of positive integers and separate the prime and composite numbers (university question).

Ans:

```
def prime(n):
        flag=1
```

```
        for i in range(2,n//2+1):
            if n%i==0:
                flag=0
                break
        return flag
    pl=[]
    cl=[]
    l=[]
    n=int(input("Enter n.."))
    print("Enter the numbers..")
    for i in range(n):
       x=int(input())
       l.append(x)
    for i in l:
     if prime(i):
            pl.append(i)
     else:
            cl.append(i)
    print("prime list")
    print(pl)
    print("composite list")
    print(cl)
```

27. Write a Python program to read a list of numbers and sort the list in a non-decreasing order without using any built in functions. Separate function should be written to sort the list wherein the name of the list is passed as the parameter.

Ans:

```
def sortlist(lst,n):
    for i in range(n-1):
        for j in range(i+1,n):
            if lst[i]>lst[j]:
                lst[i],lst[j]=lst[j],lst[i]
n=int(input("Enter how many numbers...."))
print("Enter {} numbers....".format(n))
lst=[]
for i in range(n):
    x=int(input())
    lst.append(x)
sortlist(lst,n)
print("sorted List is")
print(lst)
```

28.Write a program to do basic set operations.

Ans:

```
na=int(input('Enter number of elements of the set A ..'))
A=set()
print("Enter the elements of set A...")
for i in range(na):
    x=int(input())
    A.add(x)
nb=int(input('Enter number of elements of the set B ..'))
B=set()
print("Enter the elements of set B...")
for i in range(nb):
```

```
    x=int(input())
    B.add(x)
print("set operations..")
print("union")
print(A|B)
print("Intersection")
print(A&B)
print("Difference A-B and B-A")
print(A-B)
print(B-A)
print("symmetric Difference")
print(A^B)
```

29.Program to Remove duplicate elements from a list .

Ans:

```
lst=[]
n=int(input("enter how many numbers.."))
print("Enter elements...")
for i in range(n):
    x=int(input())
    lst.append(x)
nlst=list(set(lst))
print("new list after removing duplicates")
print(nlst)
```

30.Program to completely remove duplicate elements without keeping any copy.

Ans:

```
n=int(input('Enter number of elements of the list ..'))
lst=[]
print("Enter the elements...")
for i in range(n):
    x=int(input())
    lst.append(x)
nlst=list(set(lst)) # new list with only one copy
nlwd=[] # new list without duplicates
for i in nlst:
    if lst.count(i)==1: #non duplicate element
        nlwd.append(i)
print("New list after removing duplicates completely...")
print(nlwd)
```

31. Program to count the number of occurrence(frequency) of each letters in a given string(histogram)

Ans:

```
S=input("Enter the string…..")
d=dict()
for c in S:
    d[c]=d.get(c,0)+1
print("letter count")
print(d)
```

32. Program to display the frequency of each word in a given string.(university qstn)

Ans:

```
S=input("Enter the string…..")
S=S.split(" ") #splitting it into words
d=dict()
for w in S:
    d[w]=d.get(w,0)+1
print("word count")
print(d)
```

33.Write a Python program to create a dictionary of roll numbers and names of five students. Display the names in the dictionary in alphabetical order.(university question)

Ans:

```
d={}
for i in range(5):
    rn=int(input("Enter roll number.."))
    name=input("Enter name …")
    d[rn]=name

l=list(d.items())
l.sort(key=lambda v:v[1])
print("name and roll number in sorted order of name")
for i in l:
    print(i[1],":",i[0])
```

34.Program to read name and phn numbers of ‘n’ customers and print the list in sorted order of names.

Ans:

```
n=int(input("Enter number of customers.."))
d={}
for i in range(n):
    nm=input("Enter name..")
    phn=int(input("Enter phn number…"))
    d[nm]=phn

l=list(d.items()) # creating a list
l.sort() # sorting the list in the order of name..
        #l.sort(key=lambda v:v[1]) will sort in the order of phone number
print("name and phn number in sorted order")
for i in l:
    print(i[0],":",i[1])
```

35.Write a program that uses a dictionary to convert hexadecimal number into binary.

Ans:

```
hextobin={'0':'0000','1':'0001','2':'0010','3':'0011','4':'0100','5':'0101','6':'0110','7':'
0111','8':'1000','9':'1001','A':'1010','B':'1011','C':'1100','D':'1101','E':'1110','F':'11
11'}
n=input('Enter the hexadecimal number….')
bn=''
n=n.upper()
for d in n:
    h=hextobin.get(d)
```

```
        if h==None:
            print('Invalid Number')
            break
        bn=bn+hextobin[d]
    else:
        print('Binary equivalent is..',bn)
```

36.Finding the mode of list of numbers

Ans:

```
    n=int(input("Enter..how many numebrs.."))
    print("Enter {} numbers".format(n))
    numbers=[]
    for i in range(n):
        x=int(input())
        numbers.append(x)
    ncount={}
    for x in numbers:
        ncount[x]=ncount.get(x,0)+1
    maxcount=max(ncount.values())
    print('Mode..')
    for k in ncount:
        if ncount[k]==maxcount:
            print(k)
```

37. Write a Python code to create a function called list_of_frequency that takes a string and prints the letters in non-increasing order of the frequency of their occurrences. Use dictionaries.

Ans:

```
def list_of_frequency(s):
    d=dict()
    for c in s:
        d[c]=d.get(c,0)+1
    print("letter count in the decresing order")
    l=list(d.items())
    l.sort(key=lambda x:x[1],reverse=True)
    print(l)

s=input("Enter the string…..")
list_of_frequency(s)
```