Solution,18jan,2022

1.Write a Python Function to find factorial of given number with recursion.?

Solution:

```
>>>  def factorial(n):
>>> if n==0:
>>>  result=1
>>>  else:
>>>    result=n*factorial(n-1)
>>>  return result
>>>  print("Factorial of 4 is :",factorial(4))
>>> print("Factorial of 5 is :",factorial(5))
```

2. Write a function to take number as input and print its square value?

Solution:

```
>>> def squareIt(number):
>>> print("The Square of",number,"is", number*number)
>>>  squareIt(4)
>>> squareIt(5)
```

3.Write a program to enter name and percentage marks in a dictionary and display information on the screen??

Solution:

```
>>> rec={}
>>> n=int(input("Enter number of students: "))
>>>  i=1
>>> while i <=n:
>>> name=input("Enter Student Name:")
>>> marks=input("Enter % of Marks of Student: ")
>>> rec[name]=marks
>>> i=i+1
>>> print("Name of Student","\t","% of marks")
>>>  for x in rec:
>>> print("\t",x,"\t\t",rec[x])
```

4. Write a program to print different vowels present in the given word?

Solution:

```
>>> w=input("Enter word to search for vowels: ")
>>>  s=set(w)
>>>  v={'a','e','i','o','u'}
>>>  d=s.intersection(v)
>>>  print("The different vowel present in",w,"are",d)
```

5. write a program using generator to print the numbers which can be divisible by 5 and 7 between 0 and n in comma separated form while n is input by console.

Solution:

```
>>> def NumGenerator(n):
>>>     for i in range(n+1):
>>>         if i%5==0 and i%7==0:
>>>             yield i

>>> n=int(raw_input())
>>> values = []
>>> for i in NumGenerator(n):
>>>     values.append(str(i))
>>> print( ",".join(values))
```

6.Write a program to solve a classic puzzle:
We count 35 heads and 94 legs among the chickens and rabbits in a farm. How many rabbits and how many chickens do we have?

Solution:

```
>>> def solve(numheads,numlegs):
>>>     ns='No solutions!'
>>>     for i in range(numheads+1):

>>>         j=numheads-i
>>>         if 2*i+4*j==numlegs:
>>>             return i,j
>>>     return ns,ns

>>> numheads=35
>>> numlegs=94
>>>solutions=solve(numheads,numlegs)
>>> print( solutions)
```

7.With two given lists [1,3,6,78,35,55] and [12,24,35,24,88,120,155], write a program to make a list whose elements are intersection of the above given list?

Solution:

```
>>> set1=set([1,3,6,78,35,55])
>>>set2=set([12,24,35,24,88,120,155])
>>> set1 &= set2
>>> li=list(set1)
>>> print( li)
```

8.write a binary search function which searches an item in a sorted list. The function should return the index of element to be searched in the list ?

Solution:

```
>>> import math
>>> def bin_search(li, element):
>>>     bottom = 0
>>>    top = len(li)-1
>>>    index = -1
>>>    while top>=bottom and index==-1:
>>>mid=int(math.floor((top+bottom)/2.0))
>>>       if li[mid]==element:
>>>           index = mid
>>>        elif li[mid]>element:
>>>            top = mid-1
>>>        else:
>>>            bottom = mid+1

>>>      return index

>>> li=[2,5,7,9,11,17,222]
>>> print (bin_search(li,11))
>>> print (bin_search(li,12))
```

9.Define a function which can generate a list where the values are square of numbers between 1 and 20 (both included). Then the function needs to print the last 5 elements in the list.

Solution

```
>>> def printList():
>>>      li=list()
>>>      for i in range(1,21):
```

```
>>>                 li.append(i**2)
>>>      print li[-5:]


>>> printList()
```

10.Write a program to generate and print another tuple whose values are even numbers in the given tuple (1,2,3,4,5,6,7,8,9,10).

Solution:

```
>>> tp=(1,2,3,4,5,6,7,8,9,10)
>>> li=list()
>>> for i in tp:
>>>      if tp[i]%2==0:
>>>                 li.append(tp[i])

>>> tp2=tuple(li)
>>> print (tp2)
```