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                                                    """PART A"""

"""Write a python program to read 2 numbers from Keyboard. Read the
choice (1-Add, 2-Subtract,
3-Multiply, 4-Divide) from the user and perform the operation."""

num = list(map(int, input("Enter 2 numbers : ").split()))
choice = int(input("Enter the choice : \n1-Add\n2-Subtract\n3-
Multiply\n4-Divide\n"))
if choice == 1:
  print("Sum = ",num[0]+num[1])
elif choice == 2:
  print("Difference = ",num[0]-num[1])
elif choice == 3:
  print("Product = ",num[0]*num[1])
elif choice == 4:
  print("Quotient = ",num[0]/num[1])
else :
  print("Invalid choice.")

"""Write a python program to display all the prime numbers between
ranges."""

rng=list(map(int,input("Enter the interval : ").split()))
for i in range(rng[0],rng[1]):
  if i>1 :
    for j in range(2,i):
      if i%j == 0 :
        break
    else :
      print(i,end=" ")

"""Write a python program to read an array of numbers and perform
linear search."""

import array as arr
numArray = arr.array('i')
print("Enter 5 elements of the array : ")
for i in range(5) :
  numArray.append(int(input()))
key = int(input("Enter the search element : "))
for i in numArray :
  if i==key :
    print("Element found at position:",(numArray.index(i)+1))
    break
else :
  print("Element not found.")

"""Write a python program to create a list and perform the following
methods
1) insert() 2) remove() 3) append() 4) len() 5) pop() 6) clear()"""
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```
grocery = ['tomato', 'pasta', 'juice', 'soda']
print("Grocery list is : ")
print(grocery[:])
grocery.insert(2,'Apples')
grocery.append('Bread')
print("Grocery list currently is : ")
print(grocery[:])
grocery.remove('pasta')
grocery.pop()
print("Grocery list currently is : ")
print(grocery[:])
print("Number of items in the list is ",len(grocery))
grocery.clear()
print("Grocery list currently is : ")
print(grocery[:])
```

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"""Write a python program to create a tuple and perform the following
methods
1) Add items 2) len() 3) check for item in tuple 4)Access items"""

myTuple = ("XXX","ABC","CSE")
myList = list(myTuple)
myList.insert(2,"Sem 4")
myTuple = tuple(myList)
print("Length = ",len(myTuple))
print("ABC" in myTuple)
print(myTuple[:])
```

```
"""Write a python program to create a Stack class. Provide the
necessary data members and
methods to push, pop and display the elements of stack. Display the
appropriate messages."""

class Stack:
    def __init__(self):
        self.items = []

    def is_empty(self):
        return self.items == []

    def display(self):
        print("Elements in stack are :")
        print(self.items)

    def push(self, data):
        self.items.append(data)

    def pop(self):
        return self.items.pop()
```

```
s = Stack()
while True:
    choice = int(input(("\nEnter the choice : \n1.Push\n2.Pop\
n3.Display\n4.Exit\n\n1")))
    if choice == 1:
      s.push(input("Enter element to be pushed :"))
    elif choice == 2:
      if s.is_empty():
            print('Stack is empty.')
      else:
            print('Popped value: ', s.pop())
    elif choice == 3:
      s.display()
    elif choice == 4:
      break
    else :
      print("Invalid Choice.")

"""Write a python program to demonstrate the following
a. Single Inheritance
b. Multilevel Inheritance
c. Multiple Inheritance
d. Hierarchical Inheritance"""

class Animal:
  def display(self):
    print("Animal class...")
class Cat:
  def display(self):
    print("Cat class..")
#Single level Inheritance
class Bird(Animal):
  def display(self):
    print("Some bird is flying...")
#Multilevel Inheritance
class Parrot(Bird):
  def display(self):
    print("Parrot is flying...")
#Multiple Inheritance
class Kitten(Animal,Cat):
  def display(self):
    print("Kitten class...")
#Hierarchical Inheritance
class Dog(Animal):
  def display(self):
    print("Dog is barking...")

a=Animal()
```

```
a.display()
a=Bird()
a.display()
a=Parrot()
a.display()
a=Kitten()
a.display()
a=Dog()
a.display()

"""Write a python program to count all the occurrences of vowels,
consonants and digits from the
given text using Regular expressions."""

import re
text = input("Enter the text : ")
vowels = re.findall('[aeiou]',text)
consonants = re.findall('[bcdfghjklmnpqrstvwxyz]',text)
digits = re.findall('[0-9]',text)
print(len(vowels))
print(len(consonants))
print(len(digits))

"""Write a python program to create a text file and ask the user to
enter their details like USN,
Name, Semester, Subjects and CGPA in different lines. Display the
details of the file."""

f=open("textFile.txt","w")
print("Enter USN, Name, Semester, Subjects and CGPA")
arr=[]
for i in range(5):
  arr.append(input())
  f.writelines(["\n",str(arr[i])])
f.close()
f=open("textFile.txt","r")
print(f.read())
f.close()

"""Write a python program to demonstrate handling of following
exceptions using try and except.
 NameError
 IndexError
 KeyError
 ZeroDivisionError"""

try :
  print(name)
except NameError :
  print("Name error has been handled.")
```

```
arr = [1,2,3,4,5]
try :
  print(arr[7])
except IndexError :
  print("Index error has been handled.")
grocery = {"Fruit" : "Apple", "Veggies" : "Carrot"}
try :
  print(grocery["Nuts"])
except KeyError :
  print("Key error ha been handled.")
try :
  num = 10/0
except ZeroDivisionError :
  print("ZeroDivisionError has been handled.")
```