In [1]:
```
#1. Implement a program that reads a text file and counts the occurrences of each word,ignoring case sensitivity.

file1="C:/Users/femin/PycharmProjects/pythonProject/pythonProject/BeinexPython/PythonChallenge/newfile.txt"
textFile=open(file1,"r",encoding="utf8")
d=dict()
print("     WORDS AND COUNT\n","-"*25)
for line in textFile:
    line=line.strip()
    line=line.lower()
    words=line.split(" ")
    for word in words:
        if word in d:
            d[word]=d[word]+1
        else:
            d[word]=1
for key in list(d.keys()):
    print(key,":",d[key])
```

```
     WORDS AND COUNT
 -------------------------
python : 2
comes : 1
with : 1
a : 3
comprehensive : 1
standard : 1
library : 2
and : 2
has : 1
wide : 1
range : 1
of : 2
third-party : 1
support. : 1
as : 1
result, : 1
is : 1
the : 1
choice : 1
most : 1
developers : 1
for : 1
data : 1
science : 1
machine : 1
learning : 1
applications. : 1
```

In [2]:
```
#2. Write a Python function that takes a list of strings as input and returns a new list with
#the strings sorted in descending order of their lengths.

def ListSort(lst):
    lst.sort(key=len,reverse=True)
    return lst
n=int(input("Enter number of elements in list:"))
print("Enter {} string elements:".format(n))
stringList=[]
for i in range(n):
    s=input()
    stringList.append(s)
print("String list:",stringList)
print("Strings sorted in descending order of length:\n",ListSort(stringList))
```

```
Enter number of elements in list:5
Enter 5 string elements:
Femina
Ansar
Anu
Nisha
Arunima
String list: ['Femina', 'Ansar', 'Anu', 'Nisha', 'Arunima']
Strings sorted in descending order of length:
 ['Arunima', 'Femina', 'Ansar', 'Nisha', 'Anu']
```

In [3]:
```
#3. Write a function that takes a list of numbers as input and returns the second-largest number.

def secLargest(lst):
    lst.sort()
    print("Second Largest number:",lst[-2])

n=int(input("Enter number of elements in list:"))
print("Enter {} elements:".format(n))
numList=[]
for i in range(n):
    num=input()
    numList.append(num)
print("List of numbers:",numList,"\n")
secLargest(numList)
```

```
Enter number of elements in list:6
Enter 6 elements:
23
45
10
7
41
32
List of numbers: ['23', '45', '10', '7', '41', '32']

Second Largest number: 45
```

In [4]:
```
#4. Write a Python program that takes a list of integers as input and returns a new list with only the numbers that ar

def primeList(lst):
    prime=[]
    for i in lst:
        c=0
        for j in range(1,i):
            if i%j==0:
                c=c+1
        if c==1:
            prime.append(i)
    print("Prime List:",prime)


n=int(input("Enter number of elements in list:"))
print("Enter {} elements:".format(n))
numList=[]
for i in range(n):
    num=int(input())
    numList.append(num)
print("List of numbers:",numList,"\n")
primeList(numList)
```

```
Enter number of elements in list:10
Enter 10 elements:
9
23
12
5
55
3
11
17
20
87
List of numbers: [9, 23, 12, 5, 55, 3, 11, 17, 20, 87]

Prime List: [23, 5, 3, 11, 17]
```

In [5]:
```
#5. Write a Python function that takes a list of integers as input and returns a new listwith only the numbers
# that are perfect squares.

import math
def perfectSquare(lst):
    perfect=[x for x in lst if (math.sqrt(x) == math.floor(math.sqrt(x)))]
    print("Perfect Squares:",perfect)
n = int(input("Enter number of elements in list:"))
print("Enter {} elements:".format(n))
numList = []

for i in range(n):
    num = int(input())
    numList.append(num)
print("List of numbers:", numList, "\n")
perfectSquare(numList)
```

```
Enter number of elements in list:5
Enter 5 elements:
90
25
16
10
4
List of numbers: [90, 25, 16, 10, 4]

Perfect Squares: [25, 16, 4]
```

In [6]:
```
#6. Write a Python function that takes a list of numbers as input and returns the sum of all the numbers divisible by
def divisible(lst):
    sum=0
    for num in lst:
        if num%3==0 or num%5==0:
            sum=sum+num
    print("Sum of numbers divisible by 3 or 5:",sum)

n = int(input("Enter number of elements in list:"))
print("Enter {} elements:".format(n))
numList = []
for i in range(n):
    num = int(input())
    numList.append(num)
print("List of numbers:", numList, "\n")
divisible(numList)
```

```
Enter number of elements in list:8
Enter 8 elements:
23
12
15
9
90
67
45
4
List of numbers: [23, 12, 15, 9, 90, 67, 45, 4]

Sum of numbers divisible by 3 or 5: 171
```

In [9]:
```
#7. Write a Python function called calculate_discounted_price that takes the original price of an item and a discount
# input. The function should return the discounted price after applying the discount. Ensure that the function handles
# where the discount percentage is negative and raises a custom exceptioncalled InvalidDiscountError with an appropria

class InvalidDiscountError(Exception):
    pass

def calculate_discounted_price(price,discountPercentage):

    if discountPercentage<0:
        raise InvalidDiscountError("Discount percentage cannot be negative")
    else:
        discount=price-((price*discountPercentage)/100)
        print("Discounted Price:",discount)
while True:
    try:
        itemPrice = float(input("Enter Item Price:"))
        discountPercentage = int(input("Enter discount percentage:"))
        discountPrice=calculate_discounted_price(itemPrice,discountPercentage)

    except InvalidDiscountError as var:
        print("InvalidDiscountError:",str(var))

    next = input("Do you want to continue? (yes/no) :")
    if next.lower() == "yes":
        continue
    elif next.lower() == "no":
        print("Thank you !")
        break
    else:
        print("Please enter a valid option!!! (yes/no)")
```

```
Enter Item Price:2500
Enter discount percentage:20
Discounted Price: 2000.0
Do you want to continue? (yes/no) :yes
Enter Item Price:1200
Enter discount percentage:-25
InvalidDiscountError: Discount percentage cannot be negative
Do you want to continue? (yes/no) :no
Thank you !
```

In [12]:
```python
#8. Write a function that takes a sentence as input and returns a new sentence with the words reversed, while keeping
# of the words in the sentence.

def revWordSentence(sentence):
    words=sentence.split(" ")
    revWords=[word[::-1] for word in words]
    revSentence=" ".join(revWords)
    return revSentence
s=input("Enter a string:")
print("Words reversed keeping the order:",revWordSentence(s))
```

```
Enter a string:Python is used to built websites
Words reversed keeping the order: nohtyP si desu ot tliub setisbew
```

In [13]:
```
#9. Implement a program that simulates a basic calculator, allowing users to perform arithmetic operations
# (addition, subtraction, multiplication, division) on two numbers.

print("-"*10,"CALCULATOR","-"*10)
print("Select Operation:\n1)    Addition\n2)    Substraction\n3)    Multiplication\n4)    Division\n","-"*30)

while True:

        op = input("Enter your choice (1,2,3,4) :")
        if op in ('1','2','3','4'):
            try:
                num1 = int(input("Enter first number:"))
                num2 = int(input("Enter second number:"))
            except ValueError:
                print("Invalid input!!! Please enter a number")
                continue
            if op=='1':
                print(num1, "+", num2, "=", num1 + num2)
            elif op =='2':
                print( num1, "-", num2, "=", num1 - num2)
            elif op == '3':
                print(num1, "*", num2, "=", num1 * num2)
            elif op == '4':
                if num2!=0:
                    print(num1, "/", num2, "=", num1 / num2)
                else:
                    print("Error!Division by zero not possible")
            next=input("Do you want to continue calculation? (yes/no)")
            if next.lower()=="yes":
                continue
            elif next.lower()=="no":
                print("Thank you !")
                break
            else:
                print("Please enter a valid option!!! (yes/no)")
        else:
            print("Invalid operation!")
            next = input("Do you want to continue calculation? (yes/no)")
            if next.lower()=="yes":
                continue
            elif next.lower()=="no":
```

```
                print("Thank you !")
                break
            else:
                print("Please enter a valid option!!! (yes/no)")
```

```
---------- CALCULATOR ----------
Select Operation:
1)    Addition
2)    Substraction
3)    Multiplication
4)    Division
 ----------------------------
Enter your choice (1,2,3,4) :1
Enter first number:23
Enter second number:34
23 + 34 = 57
Do you want to continue calculation? (yes/no)yes
Enter your choice (1,2,3,4) :2
Enter first number:12
Enter second number:8
12 - 8 = 4
Do you want to continue calculation? (yes/no)yes
Enter your choice (1,2,3,4) :3
Enter first number:8
Enter second number:5
8 * 5 = 40
Do you want to continue calculation? (yes/no)yes
Enter your choice (1,2,3,4) :4
Enter first number:120
Enter second number:12
120 / 12 = 10.0
Do you want to continue calculation? (yes/no)yes
Enter your choice (1,2,3,4) :80
Invalid operation!
Do you want to continue calculation? (yes/no)yes
Enter your choice (1,2,3,4) :4
Enter first number:78
Enter second number:0
Error!Division by zero not possible
Do you want to continue calculation? (yes/no)no
Thank you !
```

In [17]:
```
# 10. Create a class named Notes for handling text-based file operations.Class should contain methods "write", "read"
# or class methods. (Can contain any other methods if you wish).Use a single file for saving the notes. You can set th
# somewhere in the program (Or as a class variable).write method should create the if it doesn't exist, Then it should
# contents with the user input if the user plans to overwrite the file.read method should read the whole file contents
# then it should return "No notes found"append method should take the user input value and it must add the value to th
# of the file. It must not overwrite the file.Now create a program to utilize this class. The program should repeatedl
# user for these 4 choices :
# 1 - Write Note (Overwrite existing).
# 2 - Add more Notes (Append).
# 3 - Read Notes.
# 4 - Exit.

class Notes:

    FILE1="C:/Users/femin/PycharmProjects/pythonProject/pythonProject/BeinexPython/PythonChallenge/notesfile.txt"

    def writeNotes(self):
        content=input("Enter new contents:")
        with open(self.FILE1,"w",encoding="utf8") as file:
            file.write(content)
        print("\nContent added")
        file.close()

    def readNotes(self):
        with open(self.FILE1,"r",encoding="utf8") as file:
            print("File Contents:\n")
            content=file.read()
            if content.strip()==" ":
                print("\nNo Notes Found")
            print(content)
            file.close()

    def appendNotes(self):
        content = input("Enter content to append:")
        with open(self.FILE1,"a",encoding="utf8") as file:
            file.write(content)
        print("\nContent appended")

Notes1=Notes()
while True:
```

```
ch=input("1)Write Note (Overwrite existing)\n2)Add more Notes (Append)\n3)Read Notes\n4)Exit.\nEnter your choice:"
if ch in ('1','2','3','4'):
    try:
        if ch=='1':
            Notes1.writeNotes()
        elif ch=='2':
            Notes1.appendNotes()
        elif ch=='3':
            Notes1.readNotes()
        elif ch=='4':
            print("You are exiting.Thank you")
            break
    except ValueError:
        print("Invalid input!!!")
        continue
    next = input("Do you want to continue? (yes/no)")
    if next == "no":
        print("You are exiting.Thank you")
        break
```

```
1)Write Note (Overwrite existing)
2)Add more Notes (Append)
3)Read Notes
4)Exit.
Enter your choice:1
Enter new contents:Python programming is high level general purpose programming language.

Content added
Do you want to continue? (yes/no)yes
1)Write Note (Overwrite existing)
2)Add more Notes (Append)
3)Read Notes
4)Exit.
Enter your choice:3
File Contents:

Python programming is high level general purpose programming language.
Do you want to continue? (yes/no)yes
1)Write Note (Overwrite existing)
2)Add more Notes (Append)
3)Read Notes
4)Exit.
Enter your choice:2
Enter content to append:Its design philosophy emphasizes code readability.

Content appended
Do you want to continue? (yes/no)yes
1)Write Note (Overwrite existing)
2)Add more Notes (Append)
3)Read Notes
4)Exit.
Enter your choice:3
File Contents:

Python programming is high level general purpose programming language.Its design philosophy emphasizes code readabili
ty.
Do you want to continue? (yes/no)yes
1)Write Note (Overwrite existing)
2)Add more Notes (Append)
3)Read Notes
4)Exit.
```

```
Enter your choice:1
Enter new contents:Python is dynamically typed and garbage collected.

Content added
Do you want to continue? (yes/no)yes
1)Write Note (Overwrite existing)
2)Add more Notes (Append)
3)Read Notes
4)Exit.
Enter your choice:3
File Contents:

Python is dynamically typed and garbage collected.
Do you want to continue? (yes/no)no
You are exiting.Thank you
```

In [ ]:

In [ ]: