## Question 1

5 - int
5.0 - float
5 > 1 - bool
'5' - str
5 * 2 - int
'5' * 2 - str
'5' + '2' - str
5 / 2 - float
5 % 2 - int
{5, 2, 1} - dict
5 == 3 - bool
Pi (the number) - float

## Question 2

### a)

In [3]:
```
print('Length of Supercalifragilisticexpialidocious : ', len('Supercalifragilisticexpialidocious'))
```

```
Length of Supercalifragilisticexpialidocious :  34
```

### b)

In [8]:
```
print("Does 'Supercalifragilisticexpialidocious' contain 'ice' as a substring? :",'ice' in 'Supercalifragilisticexpialidocious')
```

```
Does 'Supercalifragilisticexpialidocious' contain 'ice' as a substring? : True
```

### c)

In [12]:
```
arr = ['Supercalifragilisticexpialidocious', 'Honorificabilitudinitatibus', 'Bababadalgharaghtakamminarronnkonn']
lendict = {}
for a in arr:
    lendict[a] = len(a)
lendict
# lendict.keyof(max(lendict.values()))
```

Out[12]:
```
{'Supercalifragilisticexpialidocious': 34,
 'Honorificabilitudinitatibus': 27,
 'Bababadalgharaghtakamminarronnkonn': 34}
```

### d)

In [88]:
```
words = ['Berlioz', 'Borodin', 'Brian','Bartok', 'Bellini', 'Buxtehude', 'Bernstein']
# sort() will sort the strings.
words.sort()
print('First word in the dictionary would be : ',words[0])
print('Last word in the dictionary would be : ',words[-1])
```

```
First word in the dictionary would be :  Bartok
Last word in the dictionary would be :  Buxtehude
```

## Question 3

In [13]:
```
import math

def triangleArea(a,b,c):
    s = (a+b+c)/2
    return math.sqrt(s*(s-a)*(s-b)*(s-c))

triangleArea(2,2,2)
```

Out[13]:
```
1.7320508075688772
```

## Question 4

In [18]:
```
length = int(input('Input the number of elements to be stored in the array :'))
print('Input '+ str(length) +' elements in the array :')
arr = []
for i in range(length):
    arr.append(int(input('element - '+str(i)+' : ')))
even = []
odd = []
for a in arr:
    if a%2==0:
        even.append(a)
    else:
        odd.append(a)
print('The Even elements are:')
for e in even:
    print(e, end=" ")
print()
print('The Odd elements are:')
for o in odd:
    print(o, end=" ")
```

```
Input the number of elements to be stored in the array :5
Input 5 elements in the array :
element - 0 : 11
element - 1 : 12
element - 2 : 13
element - 3 : 14
element - 4 : 15
The Even elements are:
12 14
The Odd elements are:
11 13 15
```

## Question 5

### a)

In [19]:
```
def inside(x,y,x1,y1,x2,y2):
    if x1<x<x2 and y1<y<y2:
        return True
    else:
        return False
inside(1,1,0,0,2,3)
```

Out[19]:
```
True
```

In [20]:
```
inside(-1,-1,0,0,2,3)
```

Out[20]:
```
False
```

### b)

In [21]:
```
inside(1,1,0.3,0.5,1.1,0.7) and inside(1,1,0.5,0.2,1.1,2)
```

Out[21]:
```
False
```

## Question 6

In [26]:
```
def pig(word):
    word = word.lower()
    vowels = ['a','e','i','o','u']
    if word[0] not in vowels:
        start = word[0]
        word = word[1:]+start+'ay'
    else:
        word += 'way'
    return word
```

In [30]:
```
pig('happy')
```

Out[30]:
```
'appyhay'
```

In [31]:
```
pig('pencil')
```

Out[31]:
```
'encilpay'
```

In [32]:
```
pig('other')
```

Out[32]:
```
'otherway'
```

In [33]:
```
pig('Enter')
```

Out[33]:
```
'enterway'
```

## Question 7

In [59]:
```
def bldcount(file):
    with open(file,'r') as givenfile:
        data = givenfile.read().split()
        datadict = {}
        for d in data:
            if d in datadict.keys():
                datadict[d] += 1
            else:
                datadict[d] = 1
        for key in ['A','B','AB','O','OO']:
            if key in datadict.keys():
                print('There are '+str(datadict[key])+' patients of blood type ' + key)
            else:
                print('There are NO patients of blood type ' + key)
```

In [60]:
```
bldcount('bloodtype.txt')
```

```
There are 15 patients of blood type A
There are 1 patients of blood type B
There are 13 patients of blood type AB
There are 15 patients of blood type O
There are NO patients of blood type OO
```

## Question 8

In [63]:
```
def curconv(currency, amount):
    rates = {'AUD' : 1.0345157,
             'CHF':1.0237414,
             'CNY':0.1550176,
             'DKK':0.1651442,
             'EUR':1.2296544,
             'GBP':1.5550989,
             'HKD':0.1270207,
             'INR':0.0177643,
             'JPY':0.01241401,
             'MXN':0.0751848,
             'MYR':0.3145411,
             'NOK':0.1677063,
             'NZD':0.8003591,
             'PHP':0.0233234,
             'SEK':0.148269,
             'SGD':0.788871,
             'THB':0.0313789}
    if currency in rates.keys():
        return rates[currency]*amount
    else:
        return false
```

In [66]:
```
curconv('EUR',100)
```

Out[66]:
```
122.96544
```

In [67]:
```
curconv('JPY',100)
```

Out[67]:
```
1.241401
```

## Question 9

Trying to add incompatible variables, as in adding 6 + 'a' : Unsupported type
Referring to the 12th item of a list that has only 10 items : Out of index
Using a value that is out of range for a function's input, such as calling math.sqrt(-1.0) : domain error
Using an undeclared variable, such as print(x) when x has not been defined : variable not defined
Trying to open a file that does not exist, such as mistyping the file name or looking in the wrong directory. : No such directory found

## Question 10

In [75]:
```
def frequencies(text):
    alphabets = ['a','b','c','d','e','f','g','h','i','j','k','l','m','n','o','p','q','r','s','t','u','v','w','x','y','z']
    output = []
    for a in alphabets:
        output.append(text.count(a))
    print(output)
```

In [76]:
```
frequencies('The quick red fox got bored and went home.')
```

```
[1, 1, 1, 3, 5, 1, 1, 2, 1, 0, 1, 0, 1, 2, 4, 0, 1, 2, 0, 2, 1, 0, 1, 1, 0, 0]
```

In [77]:
```
frequencies('apple')
```

```
[1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
```

In [ ]:
```

```