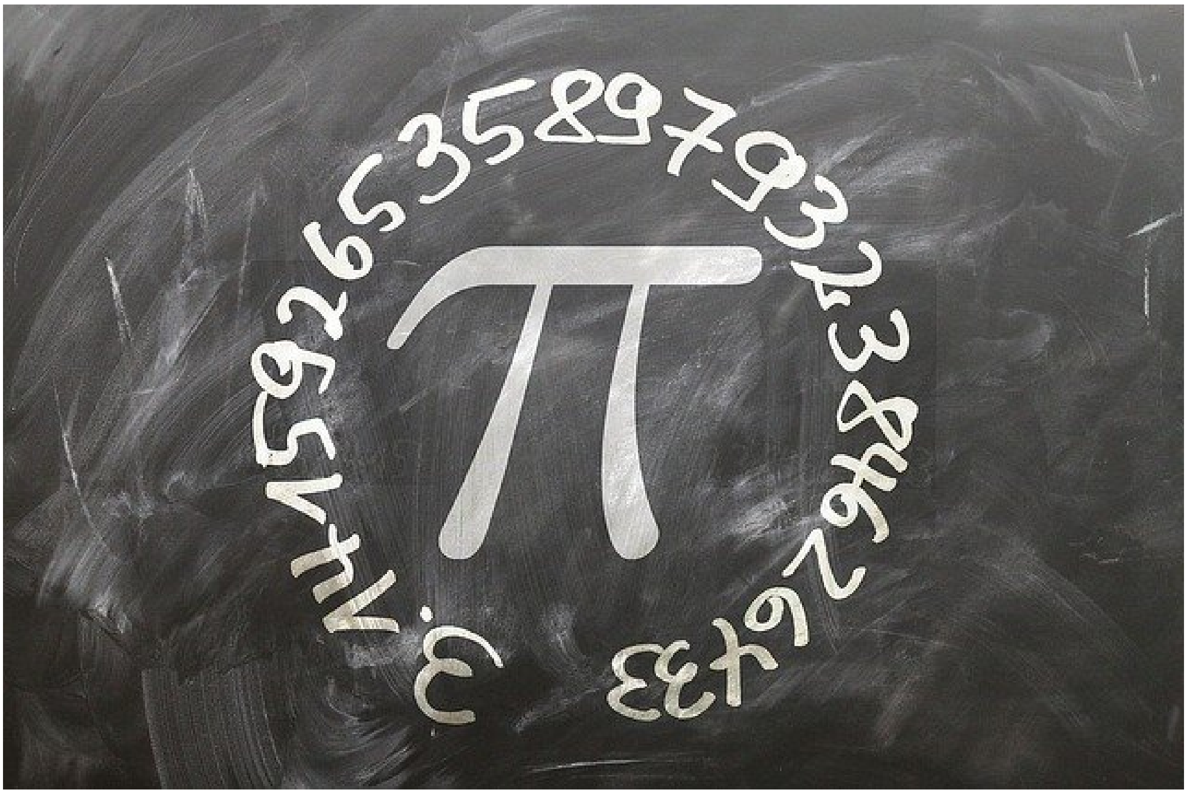
TheDataLytics



In [7]:

```
import math
```

In [16]:

```
# Write a Python program to convert a binary number to decimal number.


b_num = list(input("Input a binary number: "))
value = 0

for i in range(len(b_num)):
 digit = b_num.pop()
 if digit == '1':
  value = value + pow(2, i)
print("The decimal value of the number is", value)
```

```
Input a binary number: 110011001100
The decimal value of the number is 3276
```

In [9]:

```
# Write a Python program to flip a coin 1000 times and count heads and tails.

import random
import itertools
```

```
results = {
    'heads': 0,
    'tails': 0,
}

sides = list(results.keys())

for i in range(10000):
    results[random.choice(sides)] += 1

print('Heads:', results['heads'])
print('Tails:', results['tails'])
```

```
Heads: 5074
Tails: 4926
```

In [10]:

```
#  Write a Python program to generate a series of unique random numbers

import random

choices = list(range(100))
random.shuffle(choices)
print(choices.pop())
while choices:
    print(choices.pop())
```

```
70
88
39
40
26
19
13
35
37
34
30
43
59
94
96
24
9
25
15
89
57
28
97
6
64
69
52
14
44
17
95
20
8
50
68
16
81
80
29
1
99
38
49
```

```
75
60
87
84
77
79
98
62
0
7
5
66
67
85
74
10
11
73
41
31
42
83
45
2
71
12
3
55
82
23
54
72
51
32
76
53
21
18
92
48
91
47
61
33
36
22
93
90
63
78
27
46
65
58
4
56
86
```

In [11]:

```python
# Write a Python function to round up a number to specified digits.

import math

def roundup(a, digits=0):
    n = 10**-digits
    return round(math.ceil(a / n) * n, digits)

x = 123.01247
print("Original  Number: ",x)
print(roundup(x, 0))
print(roundup(x, 1))
print(roundup(x, 2))
print(roundup(x, 3))
```

```
Original  Number:  123.01247
124
123.1
123.02
123.013
```

In [12]:

```
# Write a Python program to calculate the standard deviation of the following data.
# Input
# Sample Data:  [4, 2, 5, 8, 6]

# Output
# Standard Deviation :  2.23606797749979

import math
import sys

def sd_calc(data):
    n = len(data)

    if n <= 1:
        return 0.0

    mean, sd = avg_calc(data), 0.0

    # calculate stan. dev.
    for el in data:
        sd += (float(el) - mean)**2
    sd = math.sqrt(sd / float(n-1))

    return sd


def avg_calc(ls):
    n, mean = len(ls), 0.0

    if n <= 1:
        return ls[0]

    # calculate average
    for el in ls:
        mean = mean + float(el)
    mean = mean / float(n)

    return mean

data = [4, 2, 5, 8, 6]
print("Sample Data: ",data)
print("Standard Deviation : ",sd_calc(data))
```

```
Sample Data:  [4, 2, 5, 8, 6]
Standard Deviation :  2.23606797749979
```