Python Basic Programs

Agenda

- Factorial of an Integer
- Fibonacci series
- Swapping of two numbers
- Reversal of a string
- Prime number
- Armstrong number
- Call by Value and Reference
- Second largest number in a List
- Palindrome
- Pattern Programming
- Pascal triangle
- Matrix multiplication

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Factorial

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Factorial using Loop

Iterative Approach Logic:

```
for i in range(1,x+1):
    f = f * i
    print(f)
```

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Factorial using Recursion

- Function calling itself is known as Recursion.

Recursive Approach Logic:

```
def factorial(n):
  if(n==1):
    return 1
  else:
    return n * factorial(n-1)
```

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Fibonacci series

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Fibonacci series

```
next=first+second
first=second
second=first
```

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Swapping of two numbers

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Swapping of two numbers

```
c=a
a=b
b=c
```

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Reversal of a String

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Reversal of a String

```
b=string.split()
print(b)
b=b[-1::-1]
print(words)
outputstring=" ".join(b)
print(outputstring)
```

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Prime number

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Prime number

```
if  x%i==0:
        print (“ It is not a prime number ” )
        break
else:
    print (“ It is a prime number “)
```

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Call by Value and Reference

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Call by Value

```
def tech(string):
        string = "Greatlearning"
        print("Inside", string)
string = "GL"
tech(string)
print("Outside", string)
```

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Call by Reference

```
def tech(set):
        set.add(56)
        print("Inside",set)
set1 = {43,57,88}
tech(set1)
print("Outside", set1)
```

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Armstrong number

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Armstrong number

```
digit = number % 10
sum += digit ** order
number = number // 10
```

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Second largest number in a list

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Second largest number in a list

```
Lists=[  ]
lists.sort()
lists([-2])
```

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Palindrome

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Palindrome

```
digit=number%10
reverse=reverse*10+digit
number=number//10
```

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Pattern programming

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Pattern Programming

```
no_of_rows = 5
for i in range(no_of_rows):
    for j in range(i):
        print(i, end=' ')
    print('')
```

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Pascal triangle

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Pascal triangle

```
for i in range(x):
  print(' '*(x-i), end='')
  print(' '.join(map(str, str(11**i))))
```

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Matrix Multiplication

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Matrix Multiplication

```
import numpy as np
a = ([1, 4, 5],[6 ,5, 4],[7, 6, 5])
b = ([9, 2, 8],[3, 2, 1],[1,13, 7])
c = np.dot(a,b)
print(c)
```

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Summary

Thank You