



Newton School
Coding Club
Bhagwan Parshuram Institute
of Technology

25 HARD

DAY 1

Introduction To Python and Installation

Link -: [Python Tutorial for Beginners with VS Code](#) 

Day 2

Introduction To Python Basics

Link -: [Python Basics for Beginners | Python tutorial](#)

Day 3

Operator and type of Operators in Python

Link -: [Python Operators for Beginners | Python tutorial](#)

Assignment -:

1. Input a year and find whether it is a leap year or not.
2. Take two numbers and print the sum of both.
3. Take a number as input and print the multiplication table for it.

Day 4

Data Types in Python

Link -: [Python Data Types for Beginners | Python tutorial](#)

Assignment -:

1. Try guessing the type of the variable and verify using the type keyword
2. Write a program to concatenate two strings of first and last name

FOLLOW FOR MORE





Day 5

Input Control and Conditional Flow

Link -: [Python User Input & Control Flow | Python tutorial](#)

Assignment -:

1. Write a program to accept two numbers from the user and calculate multiplication
2. Display three string "Name", "Is", "James" as "Name**Is**James"

Day 6

If Else Condition

Link:-[#19 Python Tutorial for Beginners | If Elif Else Statement in Python](#)

Assignment -:

1. Write a program to print whether a number is even or odd, also take input from the user.
2. Take name as input and print a greeting message for that particular name.
3. Take in two numbers and an operator (+, -, *, /) and calculate the value. (Use if conditions)
4. Take 2 numbers as input and print the largest number.
5. To find out whether the given String is Palindrome or not.

Day 7

While and For Loops

Link -: [Python While Loops & For Loops | Python tutorial for Beginners](#)

Assignment -:

1. Area Of Circle Java Program
2. Area Of Triangle
3. Area Of Rectangle Program
4. Area Of Isosceles Triangle
5. Volume Of Cylinder





Day 8

Print these patterns using loops:

```
1.  *****
    *****
    *****
    *****
    *****
```

```
4.  1
    1 2
    1 2 3
    1 2 3 4
    1 2 3 4 5
```

```
6.  *
    **
    ***
    ****
    *****
```

```
2.  *
    **
    ***
    ****
    *****
    3.  *****
        *****
        ****
        ***
        **
        *
```

```
5.  *
    **
    ***
    ****
    *****
    *****
    ****
    ***
    **
    *
```

```
7.  *****
    *****
    *****
    ****
    ***
    **
    *
```





Day 9

1. *

4. * * * * *

 * * * *

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 *

6. *

 * *

 * *

 * *

 * *

2. *****

 *

5. * * * * *

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7. *****

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3. *

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8. *

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Day 10

01. 1
 1 1
 1 2 1
 1 3 3 1
 1 4 6 4 1

02. 1
 212
 32123
 4321234
 32123
 212
 1

03. *****
 **** ****
 *** ***
 ** **
 * *
 * *
 ** **
 *** ***
 **** ****

04. * *
 ** **
 *** ***
 **** *****

 **** ****
 *** ***
 ** **
 * *

05. *****
 * *
 * *
 * *





Day 11

01. 1
 2 3
 4 5 6
 7 8 9 10
 11 12 13 14 15

02. 1
 0 1
 1 0 1
 0 1 0 1
 1 0 1 0 1

03. 1
 2 1 2
 3 2 1 2 3
 4 3 2 1 2 3 4
 5 4 3 2 1 2 3 4 5

04. 4 4 4 4 4 4 4
 4 3 3 3 3 3 4
 4 3 2 2 2 3 4
 4 3 2 1 2 3 4
 4 3 2 2 2 3 4
 4 3 3 3 3 3 4
 4 4 4 4 4 4 4

05. E
 D E
 C D E
 B C D E
 A B C D E

06. 1 1 1 1 1 1
 2 2 2 2 2
 3 3 3 3
 4 4 4
 5 5
 6

07. a
 B c
 D e F
 g H i J
 k L m N o





Day 12

Python List and Tuples

Link: [Python Lists & Tuples for Beginners](#) | [Python tutorial](#)

Assignment:

1. Write a Python program to create a tuple.
2. Write a Python program to create a tuple with different data types.
3. Write a Python program to unpack a tuple into several variables.
4. Write a Python program to reverse a tuple.

Day 13

Assignment:

1. Write a Python program to convert a given string list to a tuple.
2. Write a Python program to calculate the product, multiplying all the numbers in a given tuple.
3. Write a Python program to check if a specified element appears in a tuple of tuples.

Day 14

Assignment:

1. Write a Python program to get the 4th element from the last element of a tuple.
2. Write a Python program to create the colon of a tuple.
3. Write a Python program to slice a tuple.



Day 15

Dictionaries and Sets

Link -: [Python Dictionaries and Sets for Beginners | Python tutorial](#)

Assignment –:

1. Write a Python script to print a dictionary where the keys are numbers between 1 and 15 (both included) and the values are the square of the keys.
2. Write a Python program to merge two Python dictionaries.
3. Write a Python program to sum all the items in a dictionary.
4. Write a Python program to find the maximum and minimum values in a set.
5. Write a Python program to remove all duplicates from a given list of strings and return a list of unique strings. Use the Python set data type.

Day 16

Functions

Link -: [Python Functions for Beginners | Python tutorial](#)

Assignment –:

1. Define two methods to print the maximum and the minimum number respectively among three numbers entered by the user.
2. Define a program to find out whether a given number is even or odd.
3. A person is eligible to vote if his/her age is greater than or equal to 18. Define a method to find out if he/she is eligible to vote.
4. Write a program to print the sum of two numbers entered by the user by defining your own method.





Day 17

Lambda, map, filter

Link:- [Python lambda, map, filter, & reduce - Higher Order Functions for Beginners](#)

- i. Write a program that will ask the user to enter his/her marks (out of 100). Define a method that will display grades according to the marks entered as below:

Marks Grade

91-100 AA

81-90 AB

71-80 BB

61-70 BC

51-60 CD

41-50 DD

≤ 40 Fail

- ii. Write a program to print the factorial of a number by defining a method named 'Factorial'. Factorial of any number n is represented by $n!$ and is equal to $1 * 2 * 3 * \dots * (n-1) * n$. E.g.-

$$4! = 1 * 2 * 3 * 4 = 24$$

$$3! = 3 * 2 * 1 = 6$$

$$2! = 2 * 1 = 2$$

Also,

$$1! = 1$$

$$0! = 1$$





Day 18

Python Lists Part 2

Link 1: [#26 Python Tutorial for Beginners | Array in Python](#)

Link 2: [#27 Python Tutorial for Beginners | Array values from User in Python | Search in Array](#)

Assignment:

1. Write a function that returns all prime numbers between two given numbers.
2. Write a function that returns the sum of first n natural numbers.

Day 19

Python Classes and objects Part 1

Video 1: [#48 Python Tutorial for Beginners | Object Oriented Programming | Introduction](#)

Video 2: [#49 Python Tutorial for Beginners | Class and Object](#)

Day 20

Python Classes and objects Part 2

Video 1: [#50 Python Tutorial for Beginners | __init__ method](#)

Video 2: [#51 Python Tutorial for Beginners | Constructor, Self and Comparing Objects](#)





Day 21

Assignment:-

1. Build Array from Permutation
2. Concatenation of Array
3. Running Sum of 1d Array
4. Shuffle the Array
5. Transpose Matrix
6. Two Sum
7. Palindrome Number

Day 22

Assignment:-

1. Maximum Population Year
2. Determine Whether Matrix Can Be Obtained By Rotation
3. Maximum Subarray
4. Reshape the Matrix
5. Add to Array-Form of Integer

Day 23

Assignment:-

1. Flipping an Image
2. Cells with Odd Values in a Matrix
3. Matrix Diagonal Sum
4. Find Numbers with Even Number of Digits





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Day 24

Assignment :-

1. Spiral Matrix
2. Spiral Matrix II
3. Spiral Matrix III
4. Set Matrix Zeroes

Day 25

Assignment:-

1. Product of Array Except Self
2. Find First and Last Position of Element in Sorted Array
3. Jump Game
4. Rotate Array
5. Sort Colors
6. House Robber

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