Inclass-Lab (Day 1)

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Let's begin with some hands-on practice exercises

1. Using print()

1. To display a statement. For example, "Hello, How are you?"

In [1]:
```
# type your code here
print('"Hello world"')
```

```
"Hello world"
```

2. Display the following pattern using print()

```
    *
   ***
  *****
 *******
*********
```

In [25]:
```
# type your code here
print("    *    ")
print("   ***   ")
print("  *****  ")
print(" ******* ")
print("*********")
```

```
    *
   ***
  *****
 *******
*********
```

3. Write the alphabets 'A', 'B', 'C' on new lines using a single print function.

In [2]:
```
# type your code here
print("A\nB\nC\n")
```

```
A
B
C

```

2. Data types

4. Create a string, a numeric and boolean variables by assigning variable names. Further, check their datatype. For numeric variable check for whole numbers and numbers with decimal point.

Declare a string variable and check its data type.

In [4]:
```
# type your code here
v = 'Hello world'
print(type(v))
```

```
<class 'str'>
```

Declare a numeric variable and check its data type.

i. An interger variable.

In [5]:
```
# type your code here
num = 24
print(type(num))
```

```
<class 'int'>
```

ii. A fractional variable

In [6]:
```
# type your code here
fract = 24/12
print(type(fract))
```

```
<class 'float'>
```

Declare a boolean variable and check its data type.

In [7]:
```
# type your code here
a = True
b = False
print(type(a))
print(type(b))
```

```
<class 'bool'>
<class 'bool'>
```

5. Write a complex number and assign it the name 'comp_var'

In [8]:
```
# type your code here
comp_var = 34.65j
print(type(comp_var))
```

```
<class 'complex'>
```

6. Convert a float variable f = 23.45 to integer.

In [10]:
```
# type your code here
f = 23.45
print(type(f))
z = int(f)
print(z, type(z))
```

```
<class 'float'>
23 <class 'int'>
```

3. Arithmetic Operations

8. Evaluate 145 into 354 minus 1345 divided by 45 plus (462 plus 23) divided by 3.

In [28]:
```
# type your code here
# using BODMAS
z = 145*354-1345/45+(462+23)/3
print(z)
```

```
51461.777777777774
```

9. Evaluate and print the results of the following

1. 1353 plus 234
2. 2355 minus 346
3. 234 times 457
4. 25 divided by 6
5. Obtain remainder of 25 divided by 6
6. 33 raised to 4
7. 45 divided by 6 (floor division)
8. 2 raised to 10

In [24]:
```
# type your code here
A = 1353 + 234
print(A)
B = 2355 - 346
print(B)
C = 234 * 457
print(C)
D = 25/6
print(D)
E = 25%6
print(E)
F = 33**4
print(F)
G = 45//6
print(G)
H = 2**10
print(H)
```

```
1587
2009
106938
4.166666666666667
1
1185921
7
1024
```

10. Calculate BMI of a person (take input for height and weight from user).

In [29]:
```
# type your code here
weight = int(input("Enter your weight"))
height = float(input("Enter your height"))
BMI = weight/(height**2)
print("Your BMI is:",BMI)
```

```
Enter your weight78
Enter your height158
Your BMI is: 0.003124499278961705
```

4. Boolean Operations

11. Check whether the expression (54+34)* 45 is equal to the expression (0.9*2432)/0.9

In [17]:
```
# type your code here
z = (54+34)*45
x = (0.9*2432)/0.9
if(x == z):
    print("They are equal")
else:
    print("they are not equal")
```

```
they are not equal
```

5. Concatenation

12. Create two strings and concatenate them using '+' operator.

In [18]:
```
# type your code here
str1 = "My name is Fayiq"
str2 = " Ahmed"
str3 = str1 + str2
print(str3)
```

```
My name is Fayiq Ahmed
```

13. Concatenate the variables 'num = 34 and 'string ='How old are you?' using '+' operator.

In [1]:
```
# type your code here
num = 34
string1 = "how old are you"
print(num + string1)
#THIS WILL GIVE ERROR AS WE ARE TRYING TO CONCATINATE A INTEGER TO STRING DATA TYPE
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-1-389d16a50810> in <module>
      2 num = 34
      3 string1 = "how old are you"
----> 4 print(num + string1)
      5 #THIS WILL GIVE ERROR AS WE ARE TRYING TO CONCATINATE A INTEGER TO ST
RING DATA TYPE

TypeError: unsupported operand type(s) for +: 'int' and 'str'
```

6. Pseudo Codes

14. Write a pseudo code to print table of 5 using 'for' loop.

In [3]:
```
# type your code here
z = 1
for i in range(5,51,5):
    print("5*{}={}".format(z,i))
    z+=1
```

```
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
5*6=30
5*7=35
5*8=40
5*9=45
5*10=50
```

16. Write a pseudo code to know whether a number is greater than the other using 'if' statement.

In [5]:
```
# type your code here
x = int(input("Enter the value of x: "))
y = int(input("Enter the value of y: "))
if(x>y):
        print("X is greater than y")
else:
        print("Y is greater than x")
```

```
Enter the value of x: 24
Enter the value of y: 66
Y is greater than x
```

17. Write a pseudo code to check whether a number is divisible by 7 or not using if else statement.

In [9]:
```
# type your code here
x = int(input("Enter a number"))
if(x%7==0):
    print("{} is divisible by 7".format(x))
else:
    print("{} is not divisible by 7".format(x))
```

```
Enter a number56
56 is divisible by 7
```

18. Write a pseudo code to find factorial of a number using nested if-else statement.

In [15]:
```
# type your code here
def facto(x):
    if(x==0):
        return 1
    else:
        return x * facto(x-1)

x = int(input("Enter the number for which you want to find the factorial: "))
print("The factorial of {} is {}".format(x,facto(x)))
```

```
Enter the number for which you want to find the factorial: 5
The factorial of 5 is 120
```

19. Write a pseudo to know whether a number is prime or not using for and if else statement.

In [17]:
```
# type your code here
# Program to check if a number is prime or not

num = int(input("Enter a postive integer: "))

# To take input from the user
#num = int(input("Enter a number: "))

# prime numbers are greater than 1
if num > 1:
   # check for factors
   for i in range(2,num):
       if (num % i) == 0:
           print(num,"is not a prime number")
           print(i,"times",num//i,"is",num)
           break
   else:
       print(num,"is a prime number")

# if input number is less than
# or equal to 1, it is not prime
else:
   print(num,"is not a prime number")
```

```
Enter a postive integer: 3
3 is a prime number
```