Chapter 01 - First Program

In [1]:
```python
print(2+3)
```

5

In [2]:
```python
print("Hello world")
```

Hello world

In [3]:
```python
print("we are learning Python with Ammar")
```

we are learning Python with Ammar

Chapter 0 - Operators

In [4]:
```python
print(2+3)
```

5

In [5]:
```python
print(3-1)
```

2

In [6]:
```python
print(6/2)
```

3.0

In [7]:
```python
print(2*3)
```

6

In [8]:
```python
print(13%2)
```

1

In [9]:
```python
print(6//2)
```

3

In [10]:
```python
print(2**3)
```

8

In [11]:
```python
print(4**2/2*5/5+8-4)    # PEMDAS
```

12.0

Chapter 02 - Strings

In [12]:

```
print('Test for single quotes')
```

Test for single quotes

In [13]:
```
print("Test for double quotes")
```

Test for double quotes

In [14]:
```
print("test for triple quotes")
```

test for triple quotes

In [15]:
```
print("What's up!")
```

What's up!

In [16]:
```
print("Muhammad Faizan Ahmed")
```

Muhammad Faizan Ahmed

Chapter 04 - Comments

comment helps us to understand the code easily.

In [17]:
```
print(2+7)    # Adding two numbers
```

9

In [18]:
```
#print("Hello World")    # Skipping any specific line of code
```

Chapter 05 - Variables

Variable is used to store any value like a container

In [19]:
```
x = 5  # numeric or integer variable
print(x)
```

5

In [20]:
```
y = "We are learning Python with Ammar"    # String variable
print(y)
```

We are learning Python with Ammar

In [21]:
```
x = 15        # Overwritting previous value of x
print(x)
```

15

Types of Variable

In [22]:
```
type(x)
```

Out[22]: int

In [23]:
```python
type(y)
```

Out[23]: str

In [24]:
```python
a = 15.7
type(a)
```

Out[24]: float

Rules for assigning variable name

1- The variable should contain letters, numbers or underscores.

2- Do not start with numbers, otherwise error

3- Spaces are not allowed, otherwise error

4- Do not use keywords used in functions(break, mean, median, test etc.), otherwise error

5- Short and Descriptive

6- Case sensitivity (lowercase, uppercase letters. preferred : lowercase letters)

In [25]:
```python
x_32 = 5      # Rule 1
x_32
```

Out[25]: 5

In [26]:
```python
12x = 10      # Rule 2 - Showing error if variable is not named according to given rules
```

```
  File "<ipython-input-26-80d50b9ed686>", line 1
    12x = 10     # Rule 2 - Showing error if variable is not named according to given rul
es
       ^
SyntaxError: invalid syntax
```

In [27]:
```python
x y = 34      # Rule 3 - Showing error if variable is not named according to given rules
```

```
  File "<ipython-input-27-050a5d3b574e>", line 1
    x y = 34     # Rule 3 - Showing error if variable is not named according to given rul
es
      ^
SyntaxError: invalid syntax
```

In [28]:
```python
break = "Hello"      # Rule 4 - Showing error if variable is not named according to given
```

```
  File "<ipython-input-28-16ddc82d005a>", line 1
    break = "Hello"    # Rule 4 - Showing error if variable is not named according to gi
ven rules
          ^
SyntaxError: invalid syntax
```

In [29]:
```python
fruit = "Apple"      # Rule 5
```

```
      fruit
```

Out[29]: 'Apple'

Chapter 06 - Input Variables

In [30]:
```python
# Simple Input function

favorite_player = input("Who's your favorite cricket player? ")
print(favorite_player)
```

```
Who's your favorite cricket player? Babar Azam
Babar Azam
```

In [31]:
```python
# Input Function of 2nd stage

name = input("What is your name? ")
greetings = "Assalam-u-Alaikum!"

print(greetings, name)
```

```
What is your name? Muhammad Faizan Ahmed
Assalam-u-Alaikum! Muhammad Faizan Ahmed
```

In [32]:
```python
# Another way of 2nd stage

name = input("What is your name? ")

print("Hello!", name)
```

```
What is your name? Muhammad Faizan Ahmed
Hello! Muhammad Faizan Ahmed
```

In [33]:
```python
# Input function of 3rd stage

name = input("What is your name? ")
age  = input("How old are you? ")

print("Hello!", name + ". You're still young.")
```

```
What is your name? Muhammad Faizan Ahmed
How old are you? 21
Hello! Muhammad Faizan Ahmed. You're still young.
```

Chapter 07 - Conditional Logics

In [34]:
```python
print(4==4)
```

```
True
```

In [35]:
```python
print(4 != 4)
```

```
False
```

In [36]:

```
print(5 > 7)
```

False

In [37]:
```
print(5 < 7)
```

True

In [38]:
```
print(5 <= 7)
```

True

In [39]:
```
print(4 >= 3)
```

True

Application of Logical Operator

In [40]:
```
zeeshan_age = 3
age_at_school = 5

print(zeeshan_age==age_at_school)
```

False

In [44]:
```
zeeshan_age = int(input("How old is zeeshan? "))
age_at_school = 5

print(zeeshan_age >= age_at_school)
```

How old is zeeshan? 5
True

Chapter 08 - Type Conversion

In [45]:
```
x = 10
print(type(x))
```

<class 'int'>

In [46]:
```
y = 15.2
print(type(y))
```

<class 'float'>

In [47]:
```
x = x*y
print(type(x))
```

<class 'float'>

In [48]:
```
name = input("What is your name? ")

print(name, type(str(name)))
```

```
What is your name? Muhammad Faizan Ahmed
Muhammad Faizan Ahmed <class 'str'>
```

Chapter 09 - if elif & else

In [50]:
```python
zeeshan_age = 10
age_at_school = 5

if zeeshan_age == age_at_school:
    print("Zeeshan can go to School.")

elif zeeshan_age >= age_at_school:
    print("Zeeshan should join Higher Secondary School.")

else:
    print("Zeeshan cannot go to School.")
```

```
Zeeshan should join Higher Secondary School.
```

Chapter 10 - Functions

In [53]:
```python
def Greetings(name):
    print("Hello!", name )
    print("Hello!", name )
    print("Hello!", name )
    print("Hello!", name )


Greetings("Muhammad Faizan Ahmed")
```

```
Hello! Muhammad Faizan Ahmed
Hello! Muhammad Faizan Ahmed
Hello! Muhammad Faizan Ahmed
Hello! Muhammad Faizan Ahmed
```

School Calculator

In [56]:
```python
def school_calculator(name,age):

    if age == 5:
        print(name, "can join School.")

    elif age > 5:
        print(name, "should join Higher Secondary School.")

    else:
        print("You should take care of", name)

name = input("What is the child name? ")
age  = int(input("How old is your child ?"))

print("--------------Calculating--------------------")
school_calculator(name,age)
```

```
What is the child name? Zeeshan
How old is your child ?13
--------------Calculating--------------------
Zeeshan should join Higher Secondary School.
```

In [60]:
```python
current_age = int(input("Enter your current age? "))

def future_age_after_10_Years(current_age):
    new_age = current_age + 10
    return new_age

New_age = future_age_after_10_Years(current_age)
print("After 10 Years, Your age will be :", New_age)
```

```
Enter your current age? 20
After 10 Years, Your age will be : 30
```

Chapter 11 - While & for loops

In [62]:
```python
# While Loop
x = 0

while x <= 5 :
    print(x)
    x = x+1
```

```
0
1
2
3
4
5
```

In [63]:
```python
# For Loop

for x in range(2,10):
    print(x)
```

```
2
3
4
5
6
7
8
9
```

In [64]:
```python
days = ["Saturday","Sunday","Monday","Tuesday","Wednesday","Thursday","Friday"]

for d in days:
    print(d)
```

```
Saturday
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
```

In [65]:
```python
# Break Statement
```

```
    for d in days:
        if d == "Wednesday":
            break
        print(d)
```

```
Saturday
Sunday
Monday
Tuesday
```

In [67]:
```
# Continue Statement

for d in days:
    if d == "Tuesday":
        continue
    print(d)
```

```
Saturday
Sunday
Monday
Wednesday
Thursday
Friday
```

Chapter 12 - Importing Libraries

In [68]:
```
import math
```

In [69]:
```
print("The value of pi is :", math.pi)
```

```
The value of pi is : 3.141592653589793
```

In [70]:
```
print("The sin of 30 is :", math.sin(30))
```

```
The sin of 30 is : -0.9880316240928618
```

In [71]:
```
import statistics
```

In [72]:
```
z = [150,250,330,120]

print("The mean is :", statistics.mean(z))
```

```
The mean is : 212.5
```

Chapter 13 - Trouble Shooting

Types of Error

1- Syntax Error 2- Runtime Error 3- Semantic Error

In [73]:
```
print(Hello, Muhammad Faizan Ahmed)      # Syntax Error
```

```
  File "<ipython-input-73-2bc105073ba4>", line 1
```

```
print(Hello, Muhammad Faizan Ahmed)     # Syntax Error
                   ^
SyntaxError: invalid syntax
```

In [74]:
```
print(10/0)    # Runtime Error (division by zero)
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
<ipython-input-74-4023e8002794> in <module>
----> 1 print(10/0)    # Runtime Error (division by zero)

ZeroDivisionError: division by zero
```

In [76]:
```
name = "Muhammad Faizan AHmed"
print("Hello, name")          # Semantic Error (our mistake)
```

```
Hello, name
```