Welcome Onboard

image

```
# print("hello")
# print("Bye")
# Print("Error")
```

Variables and Identifiers

image

```
# Underscore

# Name should start either with (_ or an alphabet)
# We can have alpha numeric
# We should not use keywords as a vaiable name

# @hello = 12

# We should not use any keyword to define a variable

help('keywords')
```

```
# Mutable vs immutable

x = 5
y = x

print(id(x), id(y))

x = 25

id(x)

id(y)

print(x, y)
```

```python
# Only mutable DS in Python are: Lists, Sets and Dictionaries
l = [2, 3, 4]
id(l)
l.append(25)
l
id(l)
```

```python
# If data is being changed at same memory location then it's known as mutable
# Else Immutable
```

```python
# Instance of a class
isinstance(23, int)
isinstance(23.5, int)
print(isinstance(print, object))
isinstance(12, object)
```

```python
# Integer Interning
x = 5
id(x)
id(5)
y = 5
id(y)
id(x) == id(y)
x is y
```

```
y = 7
id(y)

x is y

a = 5
b = 5
id(a) == id(b)

b = 7
c = 8
id(b) == id(c)

id(b)

id(c)

x = 5
y = 5
id(x) == id(y)

x = 324234
y = 324234
id(x) == id(y)

x = 256
y = 256
id(x) == id(y)

x = 257
y = 257
id(x) == id(y)
```

Input and Print Functions

- Type Conversion

```
# input

x = input()

type(x)

int("5")

# int("12.2")

int(12.2)

int(float("12.3"))
```

```
# int("Rahul")

# You can convert anything into string

bool("False")
```

```
# Print

print("rahul","yash ji",23,23.3)

print("rahul","yash ji",23,23.3, sep="->")
```

Operators in Python

- Arithmetic (+, -, *, //, %)
- Comparison (==, >, etc)
- Assignment Operators (=, -=, etc)
- Logical (and, or, not)
- Special (is and in)

```
print("10+10")

print(10 + 10)

print(5 // 2)

print(5/ 2)

print(-5 // 2)

# -3 -2 -1 0 1 2

print(5 % 2)
```

Control Statements

- if
- elif

- else

```
# Quizzes

a = 60
if a > 50:
    print("FIRST")
if a > 40:
    print("SECOND")



x = 0
a = 5
b = 5
if a > 0:
    if b < 0:
        x = x + 5
    elif a > 5:
        x = x + 4
    else:
        x = x + 3
else:
    x = x + 2
print(x)
```

Iteration Protocols

```
# How do you know if an object is iterable or not

print(dir("Rahul"))



# While loop

x = 0 # initialization

# condition
while x < 5:
    # do something
    print("Do something")
```

```
    # update the value
    x += 1


# for loop

# for iterator in iterable: You need an iterator and iterable

for i in "Rahul":
    print(i)


# Difference btw for and while

# Take input from user until input taken is stop

x = input()
while x != "stop":
    print(x)
    x = input()
```

```
 rahul

rahul

 stop
```

Functions

```
def is_even(x):
    if x % 2 == 0:
        return True
    else:
        return False

is_even(23)

is_even(22)


x = int(input())
print(x % 2 == 0)
```

```
def is_even(x):
    return x % 2 == 0

is_even(3)
```