HELLO EVERYBODY

I am Ashikujjaman Himel. I have completed “Python Basic” in 2019, when I was in class 10.

And I also participated in “**NTCPC – Python Programming Contest 2019**” and obtained first place in whole Gazipur District. Then I participated at the national level in “**NTCPC – Python Programming Contest 2019**” to represent Gazipur District.

Also, recently I have revised “Python Basic” completely. So that, I think I can give you a full explanation of “Python Basic” and I hope you will enjoy this!

Thank You.

Python

What is Python

Python is a **High Level, Easier** and **Object Oriented** Programming Language.

Python was invented by **Guido van Rossum** in **1991**.

Why Python

Python used for –

- **Backend Web Development**
- **Software Development**
- **Mathematics**, etc.

Python Version

Python has two major version. They are –

- **Python 2**
- **Python 3** (Latest)

Since, **Python 3** is the latest version of python. So, you will learn **Python 3** in this class.

Install Python

If we want to run python in our computer, we need to install python in our system.

- First of all, we need to check via cmd if python is already installed in our system → *python - -version*
- If not installed, we need to download python from **python.org** and install it like other software we install.
- After installing, we need to make sure that we successfully installed python in our computer via cmd → *python - -version*
- Done! We complete the python installation in our system. Now time to run python in our system.

Run Python

There are several method to write python code and see output in our system. The are –

- Write python and see output in **Online Compiler**
- Write python and see output via **Python IDLE**
- Test python and see output via **Command Prompt (cmd)**
- Write python in **IDE** and see output via **Command Prompt (cmd)**
- Write python in **IDE** and see output via **IDE Extension**

We will use last one or, two method to write python and see it’s output.

Write Python and See Output

In the last slide, we saw 5 method to write python and see output. Now, we are going to see the process of 4th method of write python and see output. To write python and see it's output –

- First we need to open a project file and create a .py file inside it.
- Then we need to open the project file in our IDE.
- Write some code in .py file.
- Then to see it's output, we need to open cmd from the same directory where the .py file located.
- Then write command to see it's output. → python .py
- Hurray! Now we can how to write python code professionally and see it's output.

Python 3

Now it’s time to learn python 3!

print()

To see output in python, we must need to use **print()** method. Else, we can’t see output. Whatever we put inside the **parenthesis** of the **print()** method, it will be printed.

Python Comment

When we write long amount of code, it becomes difficult for us to understand that what we do in where. Python comment can help us there. Python Comment are not executable.

Python Comment is used for –

- To understand code what we do where
- To stop execute code

We can use two types of comment in python. They are –

- Single Line Comment
- Multiline Comment *(It can done within two way)*

Python Variables

Variables are used for store any types of data in python. It has a similarity with math.

Declare Variable

- name = “Himel”
- name, age, friend_list = “Ashik”, **20**, [“Shimul”, “Sakib”, “Al-amin”]
- name = short_name = nick_name = “Himel”

Print Variable

- print(name, age, friend_list)
- print(name + age + friend_list) *[This will occurs an error!]*

Rules for Declaring Variable

Variable Name

- We need to declare variable with letters (A-Z and a-z), numbers (0-9) and underscore (_) only.
- Variable names cannot starting with numbers (0-9)
- Variable names are case-sensitive.
- We can use **global** keywords to make variable global from local.
- To define strings in variable, we can use single quotes or, double quotes. There is no difference between single quote and double quote.

Rules for Declaring Variable

Naming Convention

If we need to use multi-word variable name, we can use any naming convention from below –

- **Camel Case**
- **Pascal Case**
- **Snake Case**

Unpack Collection

We can unpack data from list, tuple, set to variables. This called Unpack Collection.

friend_list = [“Shimul”, “Sakib”, “Al-amin”]

friend_1, friend_2, friend_3 = friend_list

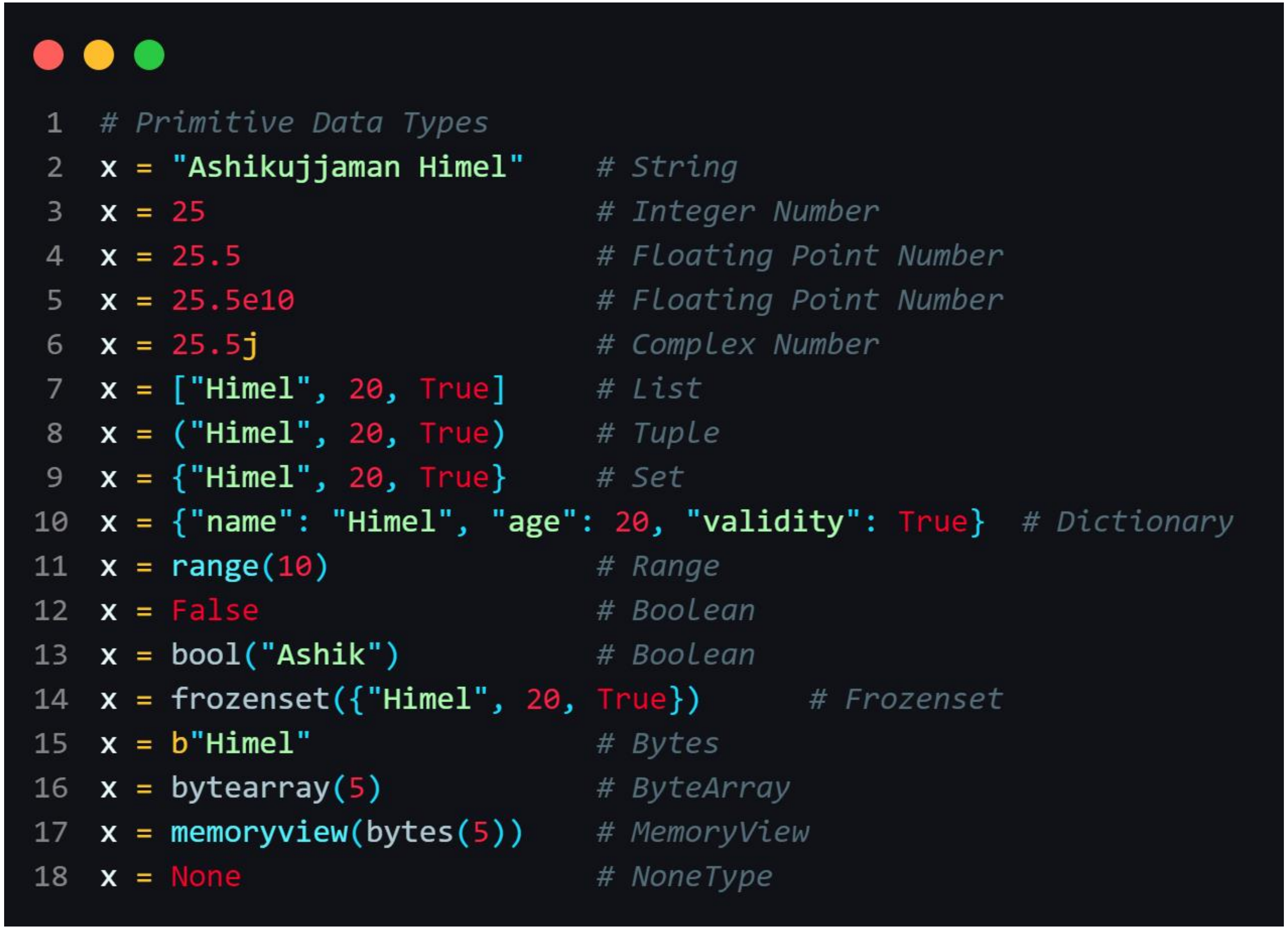
Python Data Types

There are 15 built-in data types in python. They are -

1. String
2. Integer
3. Float
4. Complex
5. List
6. Tuple
7. Range
8. Dictionary
9. Set
10. FrozenSet
11. Boolean
12. Bytes
13. ByteArray
14. MemoryView
15. NoneType

We can use **type()** method to see the type of a data.

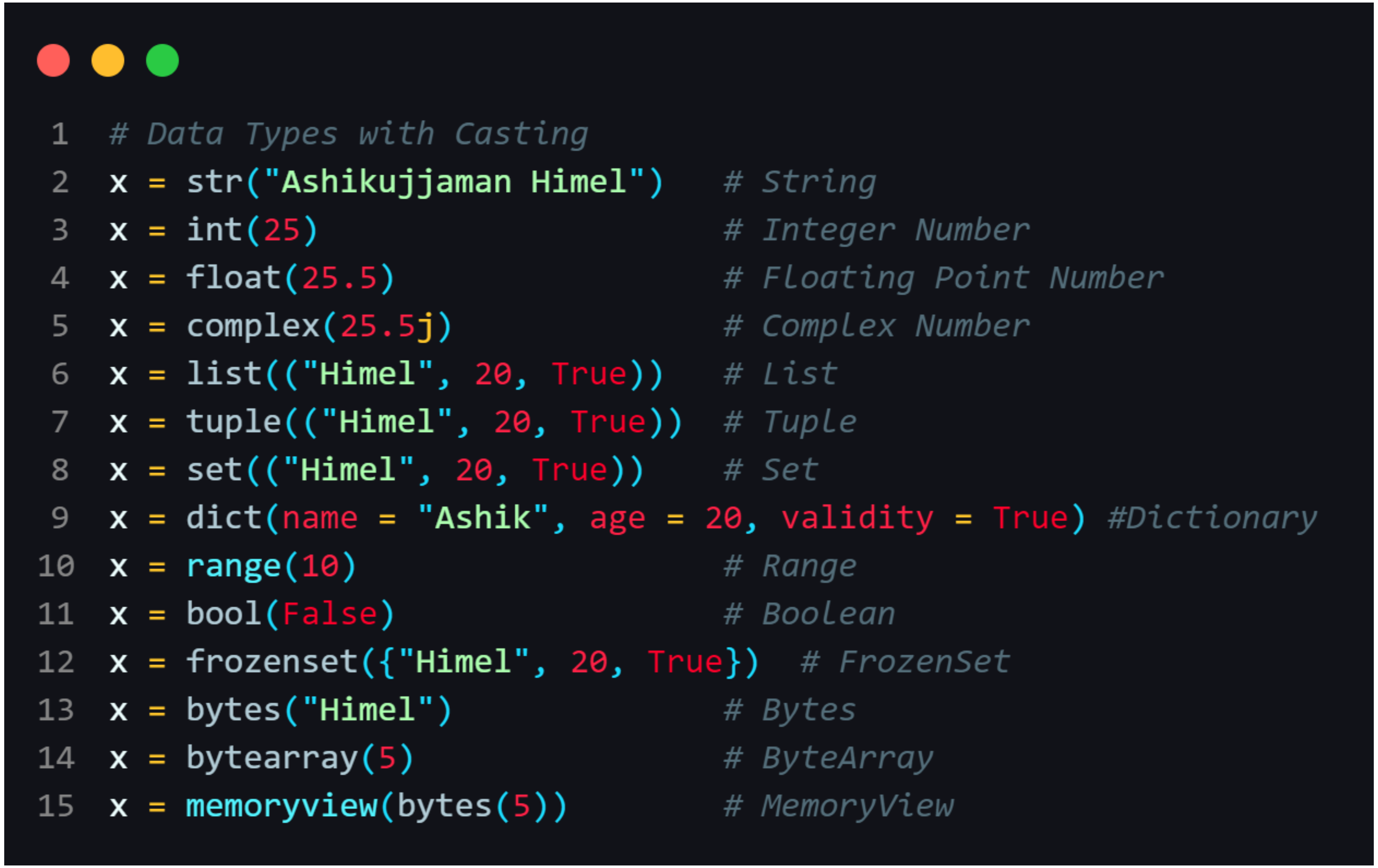
Python Data Types



```python
# Primitive Data Types
x = "Ashikujjaman Himel"    # String
x = 25                      # Integer Number
x = 25.5                    # Floating Point Number
x = 25.5e10                 # Floating Point Number
x = 25.5j                   # Complex Number
x = ["Himel", 20, True]     # List
x = ("Himel", 20, True)     # Tuple
x = {"Himel", 20, True}     # Set
x = {"name": "Himel", "age": 20, "validity": True}  # Dictionary
x = range(10)               # Range
x = False                   # Boolean
x = bool("Ashik")           # Boolean
x = frozenset({"Himel", 20, True})      # Frozenset
x = b"Himel"                # Bytes
x = bytearray(5)            # ByteArray
x = memoryview(bytes(5))    # MemoryView
x = None                    # NoneType
```

Casting

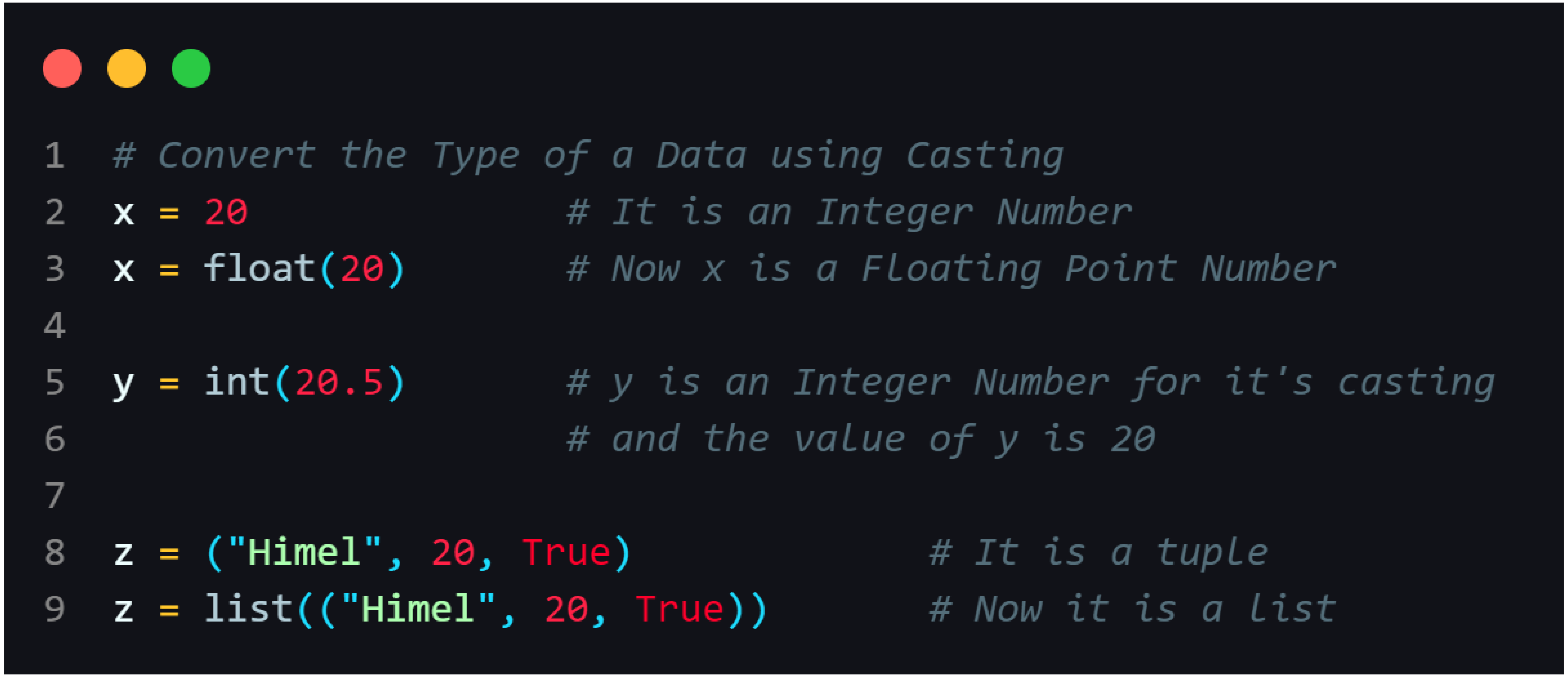
Declaring a variable with it’s data type, called Casting.



```python
# Data Types with Casting
x = str("Ashikujjaman Himel")   # String
x = int(25)                     # Integer Number
x = float(25.5)                 # Floating Point Number
x = complex(25.5j)              # Complex Number
x = list(("Himel", 20, True))   # List
x = tuple(("Himel", 20, True))  # Tuple
x = set(("Himel", 20, True))    # Set
x = dict(name = "Ashik", age = 20, validity = True) #Dictionary
x = range(10)                   # Range
x = bool(False)                 # Boolean
x = frozenset({"Himel", 20, True})  # FrozenSet
x = bytes("Himel")              # Bytes
x = bytearray(5)                # ByteArray
x = memoryview(bytes(5))        # MemoryView
```

Convert Type of a Data via Casting

We can change the type of a data using Casting.



```
# Convert the Type of a Data using Casting
x = 20              # It is an Integer Number
x = float(20)       # Now x is a Floating Point Number

y = int(20.5)       # y is an Integer Number for it's casting
                    # and the value of y is 20

z = ("Himel", 20, True)             # It is a tuple
z = list(("Himel", 20, True))       # Now it is a list
```

We can’t convert complex number to an another number.

Python Operators

In Python, There are 7 types of operators. They are –

- Arithmetic Operators (+, -, *, /, //, %, **)
- Assignment Operators (=, +=, -=, *=, /=, %=, //=, **=, etc)
- Comparison Operators (==, !=, >, >=, <, <=)
- Logical Operators (and, or, not)
- Identity Operators (is, is not)
- Membership Operators (in, not in)
- Bitwise Operators (&, |, ^, ~, <<, >>)

We will discuss more about operator in the next class.

THANK YOU EVERYBODY

Programming is a very interesting addiction,
If you can dive into it!