Class 2 Notes

What is programming?

Process of Giving instructions to computer to perform a specific task

Why do we need programming?

Programming is a way for humans to interact with computer
Human readable format - English   - programming language
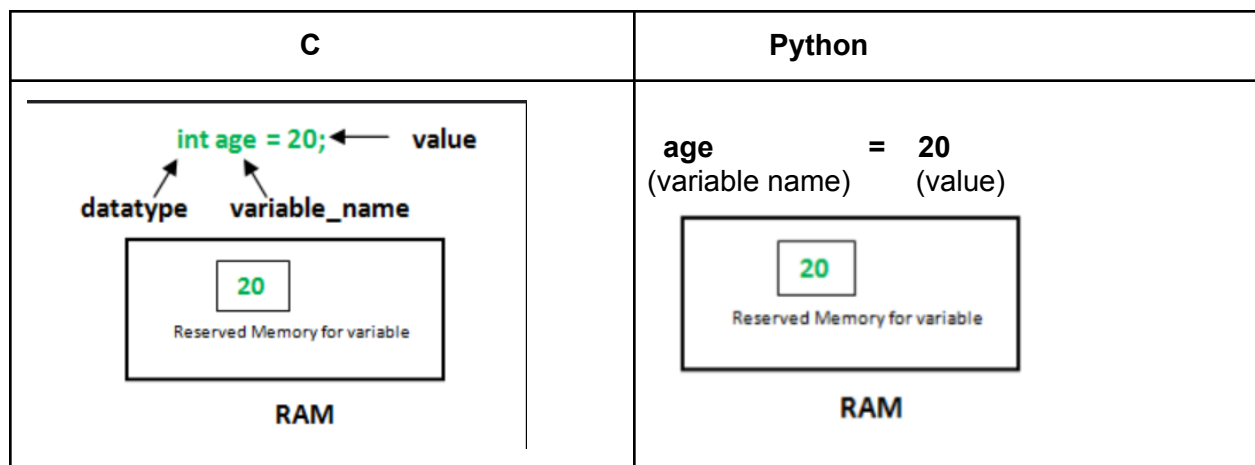Binary readable format - 0's & 1's - Machine or computer language

Tools to Bridge between human and computer - compiler, interpreter

How computer understands it is a single letter (alphabets) or single or multiple words or sentence (string) or number or decimal value ? datatype

How we are allocating memory for above? While creating variables

What is a variable?

a variable is a named memory location that stores data.

C	Python
int age = 20;←—— value datatype variable_name 20 Reserved Memory for variable RAM	age = 20 (variable name) (value) 20 Reserved Memory for variable RAM

Variables naming convention:
- Variable names can only contain letters, digits and underscores (_).
- A variable name cannot start with a digit. Can start with underscore _
- Variable names are **case-sensitive** (myVar and myvar are different).
- Avoid using Python keywords (e.g., if, else, for) as variable names.

What is datatype?

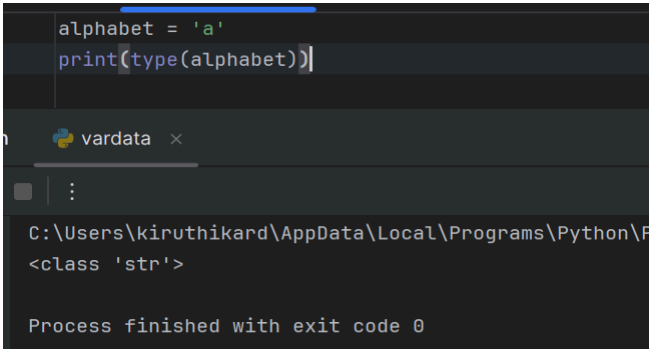It specifies the type of data that the variable can store

Integer => datatype used to store a whole number either positive or negative or zero without decimal point

C	Python

Syntax:
        int variablename = value
Eg: int a = -1;
    int m = 20;
    int x = 0;
	Syntax:
	    variablename = value
	Eg: a= -1
	    m = 20
	    x = 0

Float => used to store numerical values with decimal points.

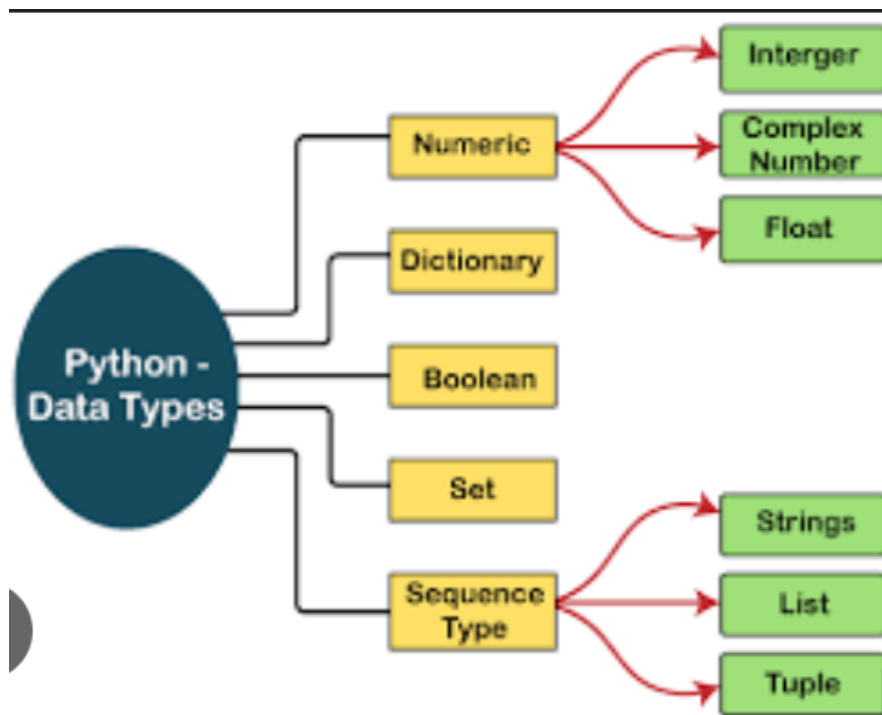| C	Python

Syntax:
        float variablename = value
Eg: float a = -0.5;
    float m = 20.8;
    float x = 15.5;
	Syntax:
	    variablename = value
	Eg: a= -0.5
	    m = 20.7
	    x = 15.5.8

Char => datatype used to store a single character

C	Python
| **Syntax:**<br>        char variablename = value<br>Eg: char a = 'A';<br>    char b = 'b'; | ```python
alphabet = 'a'
print(type(alphabet))
```<br>vardata ×<br><br>C:\Users\kiruthikard\AppData\Local\Programs\Python\F<br>&lt;class 'str'&gt;<br><br>Process finished with exit code 0 |

String => datatype used to store a string value

C	Python

Syntax:
 	
char variablename[size]
Eg: char name[10];
char message = "Hello World";
	Syntax:
	variablename = value
	Eg: message = "Hello world"
	
	``python
	alphabet = 'hello world'
	print(alphabet)
	print(type(alphabet))
	``
	
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	C:\Users\kiruthikard\AppData\Local\Programs\Python\P
	hello world
	<class 'str'>
	
	Process finished with exit code 0

C Datatypes

    Primitive - int, float,char, double,long int, short int
    Derived - array, pointers, functions
    User defined datatypes - structure, union, enum

```
a = 10
print(a)   # 10

x= 20
x= "Hello world"
print(x)   # Hello world

x= y= z= 200
print(x,y,z)  200

x,y,z = 100,2.5,"Hello"
print(x,y,z)
```

Typecasting - converting the value of one datatype to another datatype ""

```
a= "56"
print(int(a))


b= 5;
print(float(b))

c=2.6
print(str(c))
```

type() - used to determine the type of a variable

```
a = 35
b = 3.14
c = "Hello, World!"
li = [1, 2, 3]
dict = {'key': 'value'}
bool = True

# Get and print the type of each variable
print(type(n))
print(type(f))
print(type(s))
print(type(li))
print(type(d))
print(type(bool))
```

Class 2 Question

Is Python language used in operating system? No because of memory management and speed.

Class 2 Programs

1. Print a string 'Hello World' in Python?
2. Create a variable and assign
   - a integer value and print it
   - float value and print it
   - char value and print it
   - string value and print it
3. Assign a same value to four variables in a single line
4. Assign multiple datatype value to multiple variables in a single line
5. Typecasting
   - Convert int to float & vice-versa
   - Convert float to string & vice-versa
   - Convert string to int & vice-versa
6. How will you find out the datatype of a variable? Give examples.

Bonus Questions
1. What is the max integer or float or string value you can store in a python variable?
2. Does python have short int, long int, double datatypes like c,c++ or Java?