

PYTHON FOR HIGH SCHOOL STUDENTS



Press Esc to exit full screen

BUILDS AN EXCELLENT FOUNDATION IN PROGRAMMING CONCEPTS



A group of diverse students are sitting at a long table in a classroom or computer lab. They are looking at laptops and talking to each other. One student in the foreground is wearing a blue hoodie and is smiling. Another student is wearing a red and black striped shirt. There are laptops, notebooks, and a white cup on the table. A large blue graphic overlay is on the right side of the image, containing text. An orange circle highlights a student in the background. A white speech bubble icon is in the bottom right corner.

**PROGRESS TO EITHER
ROBOTICS OR DATA
DATA SCIENCE
WITH EASE**



Course Content

- Introduction
- Variables & Function
- Strings and Numbers
- If Statement & Random
- Data Collections – List, tuple, Set and Dictionaries
- Build Custom Function and libraries
- File handling and error handling
- Data and Time functions
- Object Oriented Programming
- Common Algorithms
- Password Hasing
- CRUD with SQLite database engine
- Graphical User Interface
- Recursion



Symbols

() ++ & @

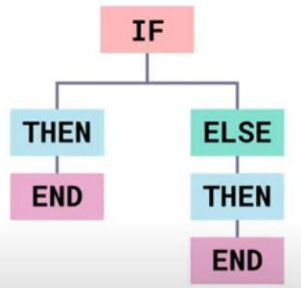
for * {} <>

// ; = :

Symbols

() ++ & @
for * {} <>
// ; = :

Instructions



```
for each (var i in range(1, 5)) {  
  console.log(i)  
}
```

Python programming Language



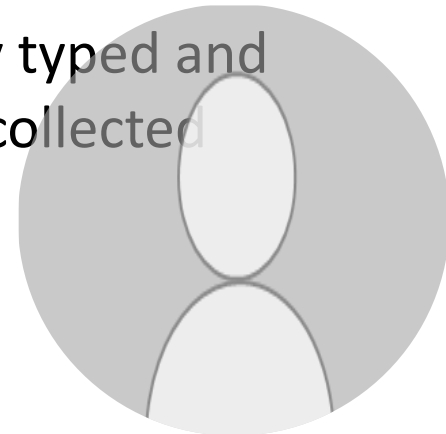
High Level



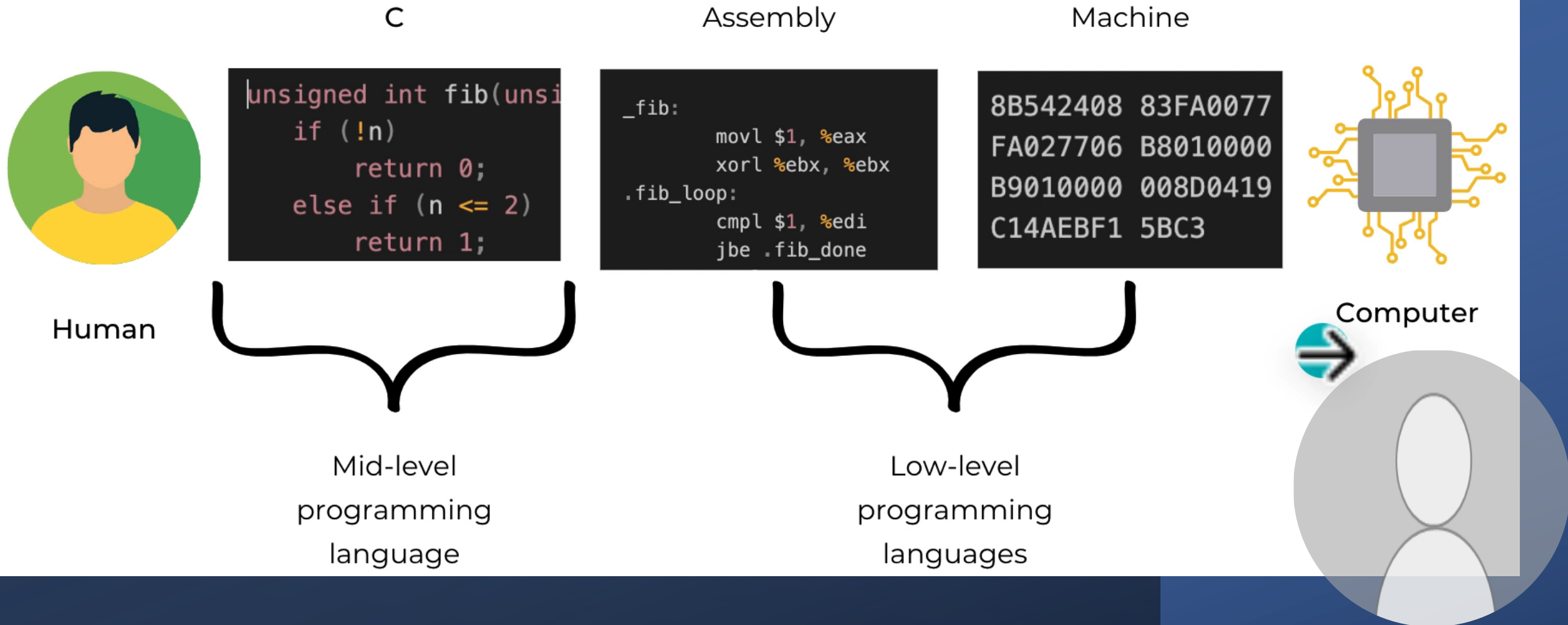
General Purpose



Dynamically typed and
garbage-collected



Levels of programming language



Python: High level language

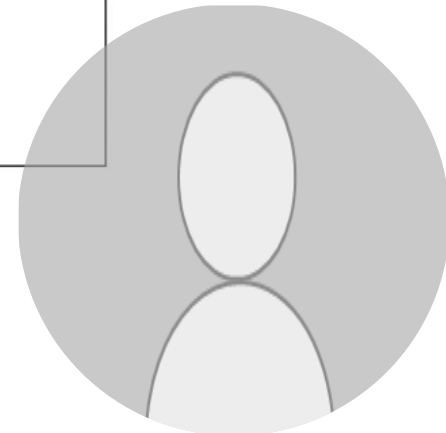
Python is a high-level language because its syntax is more human readable compared to C.

```
1 #!/usr/bin/python
2
3 print "Hello, World!";
4
```

"Hello, World!" program
in Python

```
1 #include <stdio.h>
2
3 int main()
4 {
5     printf("Hello, World! \n");
6     return 0;
7 }
8
```

"Hello, World!" program
in C

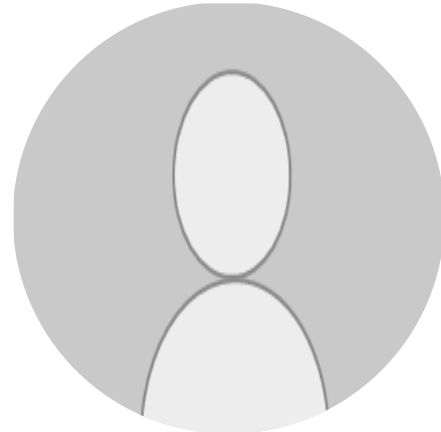


Python emphasises code readability

Python gives special importance to code readability.

One of the most readable programming languages.

Easy to use, easy to maintain.



Python is a general purpose language

A programming language used for building software in a wide variety of application domains.



Python is a GPL because it can be used to write desktop software, create web applications data science, ML etc.

As opposed to general purpose programming language, we also have domain specific programming languages(DSL) as well like SQL.

DSL are used within a specific area, i.e sql can only be used for querying relational database and nothing else.



Python is dynamically typed

While declaring a variable in C, we need to define the type of variable.

Example: `int a = 10.`



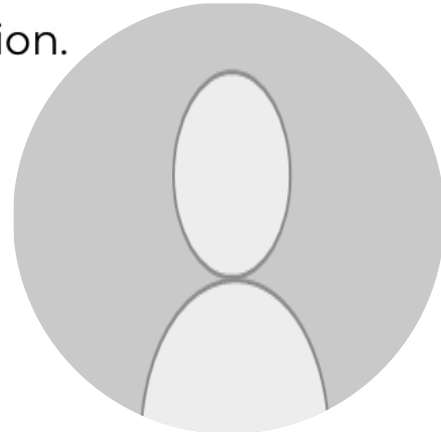
The type of that variable cannot be changed during execution of code.

Python is a dynamically typed language.

We don't have to declare the type while creating any variable.

Also due to this, a variable can have different type at different times during execution.

In dynamic typing, the type of variable is decided at runtime.



Python is garbage collected

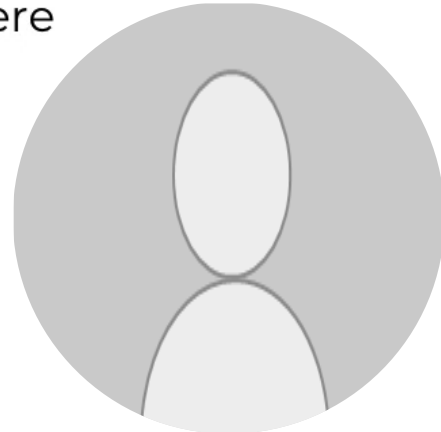
When you write code, you typically need to use data and this data needs to be saved into memory.

Example, let's say when you create a variable and store a value in it, we are essentially saving some data at a memory location.

When the program is done using or working with this data, the memory location is still not freed.

The programmer has to manually free up those spaces/ memory locations which were previously allocated.

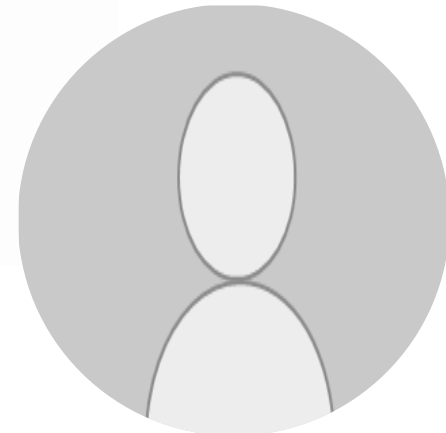
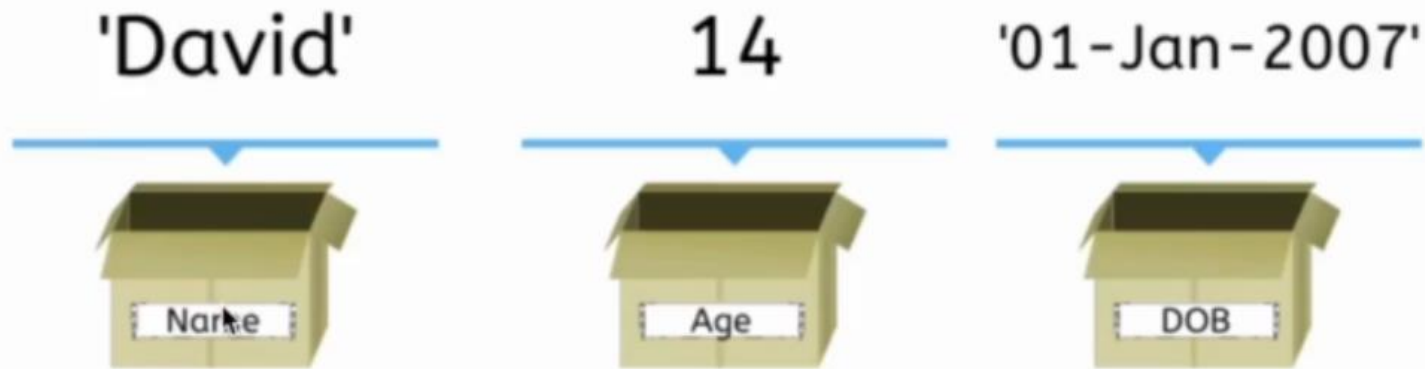
This is another headache for programmers.



VARIABLES

Variables can be considered as a storage area for a specific type of information. Storing information in variables help you use them throughout your program. The Information stored can be **Text, Numbers, Date or Boolean** values.

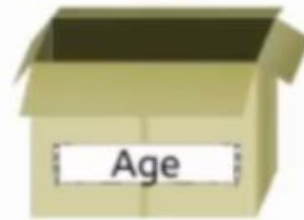
If the word **Boolean** is new to you. Do not worry about it. It's just **True** or **False**. We will explore more about them in future lessons.



'David'

14

'01-Jan-2007'



Usage of Variables

```
name = 'David'  
age = 14  
dob = '01-Jan-2007'
```