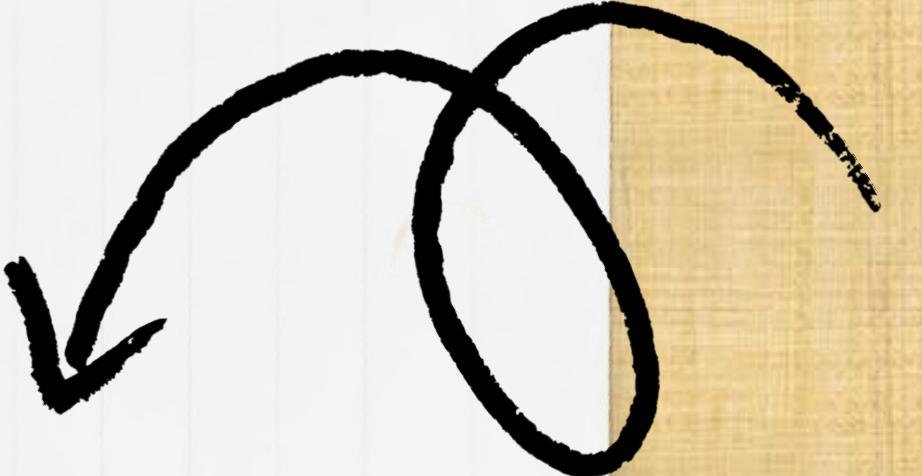




# Programming

# Basics



By Ahmed Abubakr

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# Introduction

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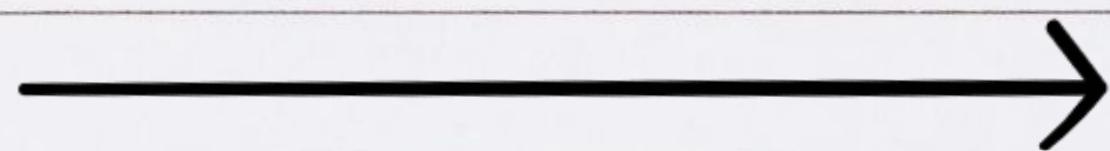
Who Am I ?

Who Can Learn Programming ?

Why We Learn Programming ?



# About me



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Electrical Engineer

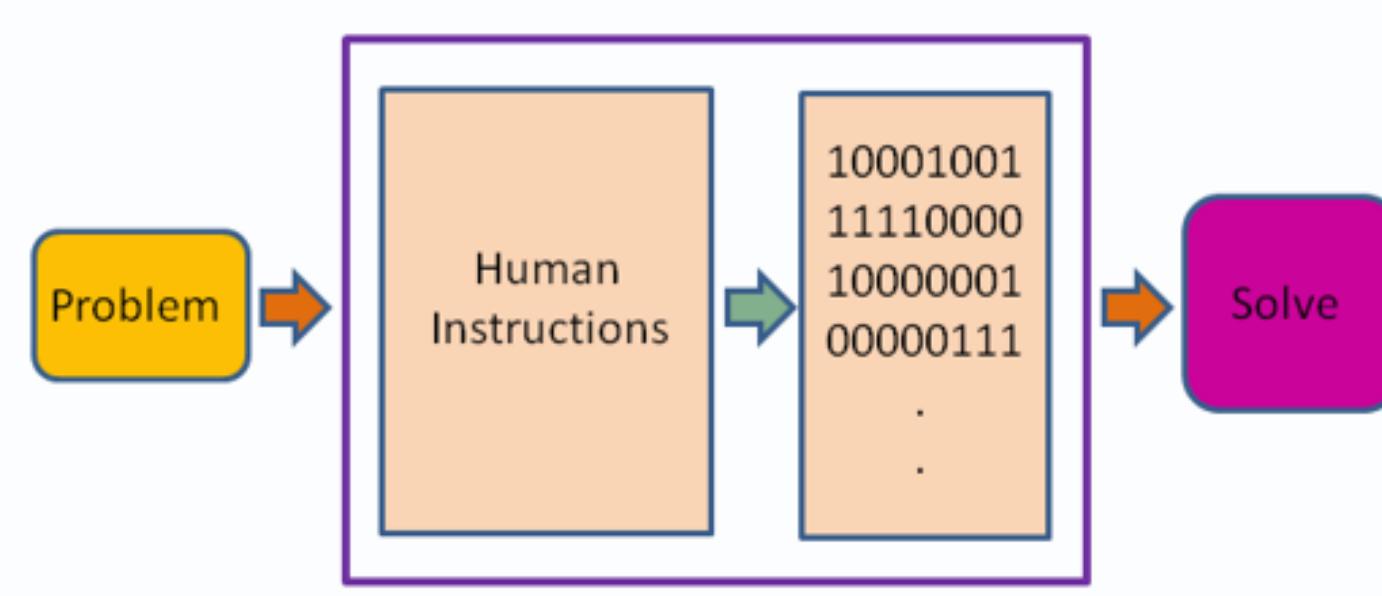


Ahmed Abubakr



# What is Programming

Writing a set of instructions that is executed by the machine to perform a specific task



# How to select programming language ?



Web  
Development

Desktop  
applications

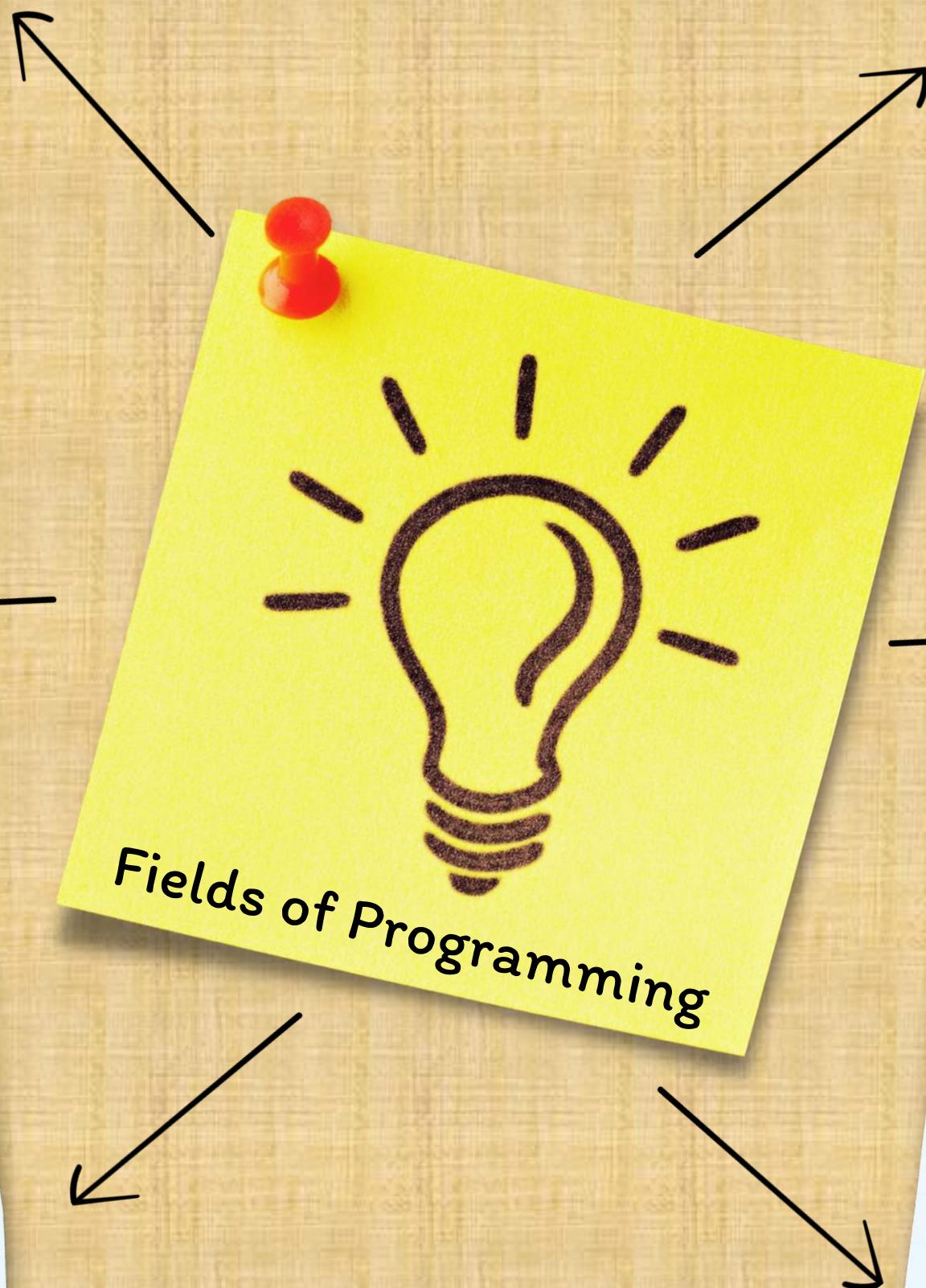
Android  
Applications

Cyber security

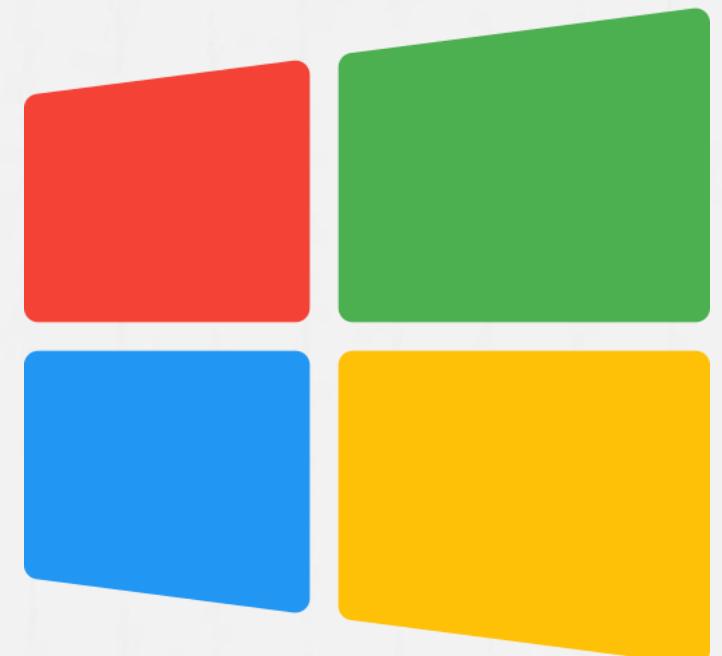
IOT

AI

Fields of Programming



# What is operating systems ?



Do you know the Difference between windows 64Bit and 32Bit



[Windows 32-bit vs 64-bit | Speed Test - YouTube](#)



# Do you know the Difference between windows 64Bit and 32Bit

A 32-bit system can access  $2^{32}$  different memory addresses, i.e 4 GB of RAM or physical memory ideally, it can access more than 4 GB of RAM also.

A 64-bit system can access  $2^{64}$  different memory addresses, i.e actually 18-Quintillion bytes of RAM. In short, any amount of memory greater than 4 GB can be easily handled by it.

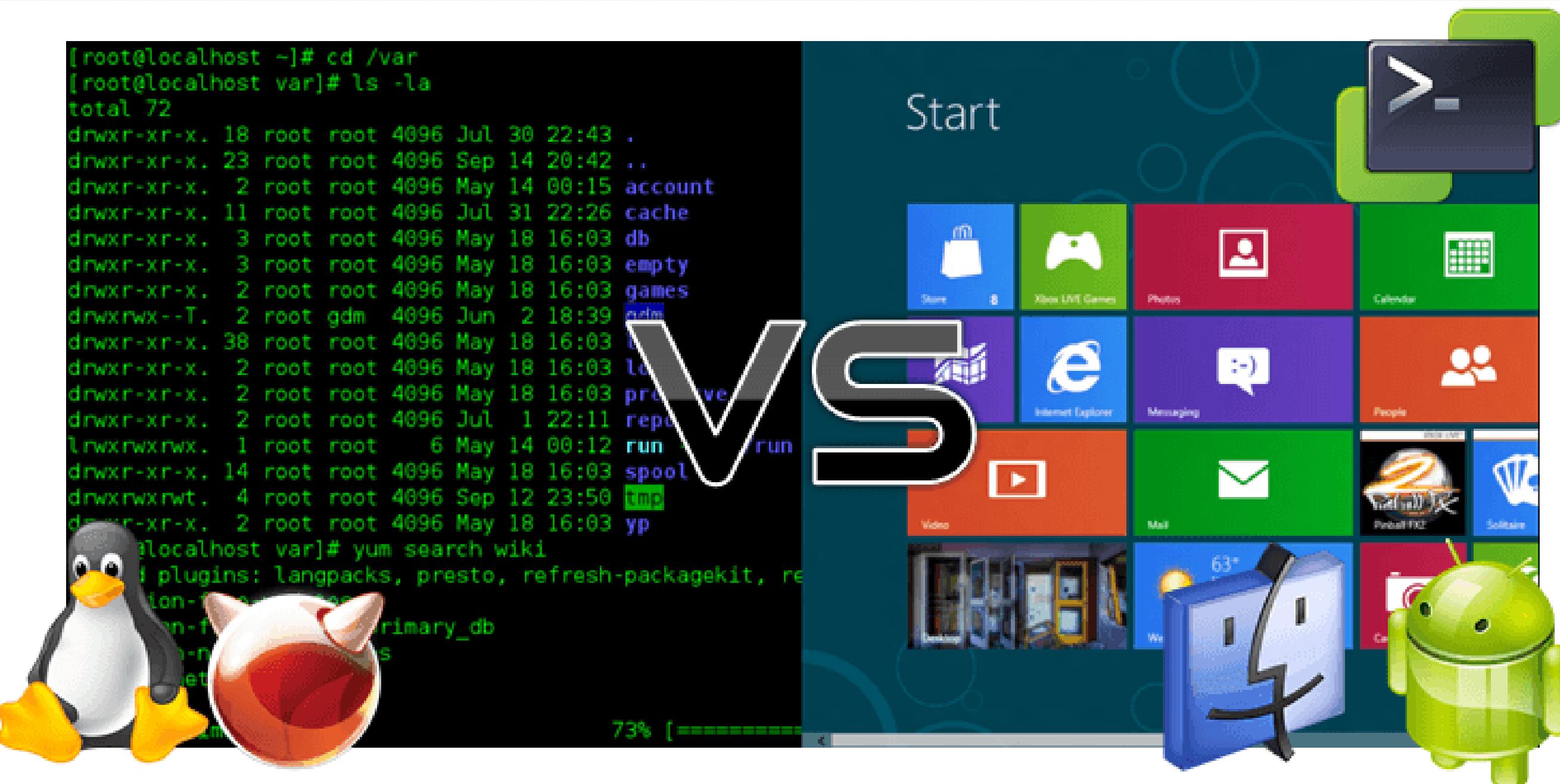


# Lets see hackers interface

Open search on windows taskbar and type **cmd** then press enter



# What is operating systems interfaces ?



C++

C#

Python

Javascript

programming  
Languages

PHP

Perl

Java

# Programming Language Levels

?

?

?

# Programming levels

**Low level**

Machine Code and Assembly Language.

**High level**

Java, Python, PHP, Perl, C#, JavaScript, etc.

# What is extensions ?

File.jpg

File name

Dot to separate

extension

# Machine language

```
100010110001010111111001111  
11111111111111111110100001  
1111100011111111111111111111  
111100000011101000010100011  
1111010011111111111111111111  
1111
```

# Low level (Assembly)

```
mov     edx, DWORD PTR [rbp-4]  
mov     eax, DWORD PTR [rbp-8]  
add     eax, edx  
mov     DWORD PTR [rbp-12], eax
```

# High level (C++)

```
z = x + y;
```



But what is different between  
high level languages ?



## **In brief expression there is two main types of high level languages**

- **Scripting languages (interpreted)**

sets of instructions that automate tasks that would otherwise be performed manually by a human.

- **Compiled languages**

need to be compiled before running and instruct the computer to perform tasks/calculations, including how to perform them (although if you're using a high-level language the low level instructions are hidden in the syntax).



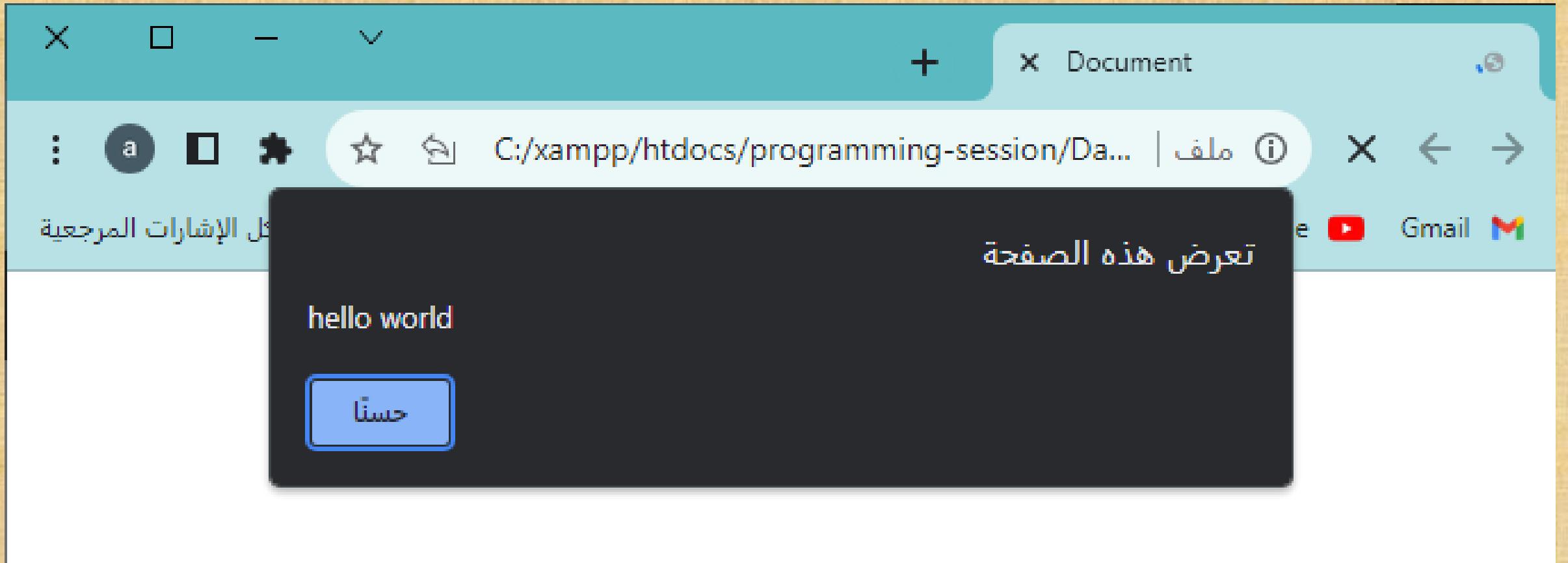
# Lets see two codes in compiled and interpreted languages

```
Day 1 > JS style.js
1 alert("hello world");
```

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     cout<<"hello world";
6     return 0;
7 }
```



# And know lets see the output



```
C:\xampp\htdocs\programming-session\Desktop app\project... - □ ×  
hello world  
-----  
Process exited after 0.08014 seconds with return value 0  
Press any key to continue . . .
```

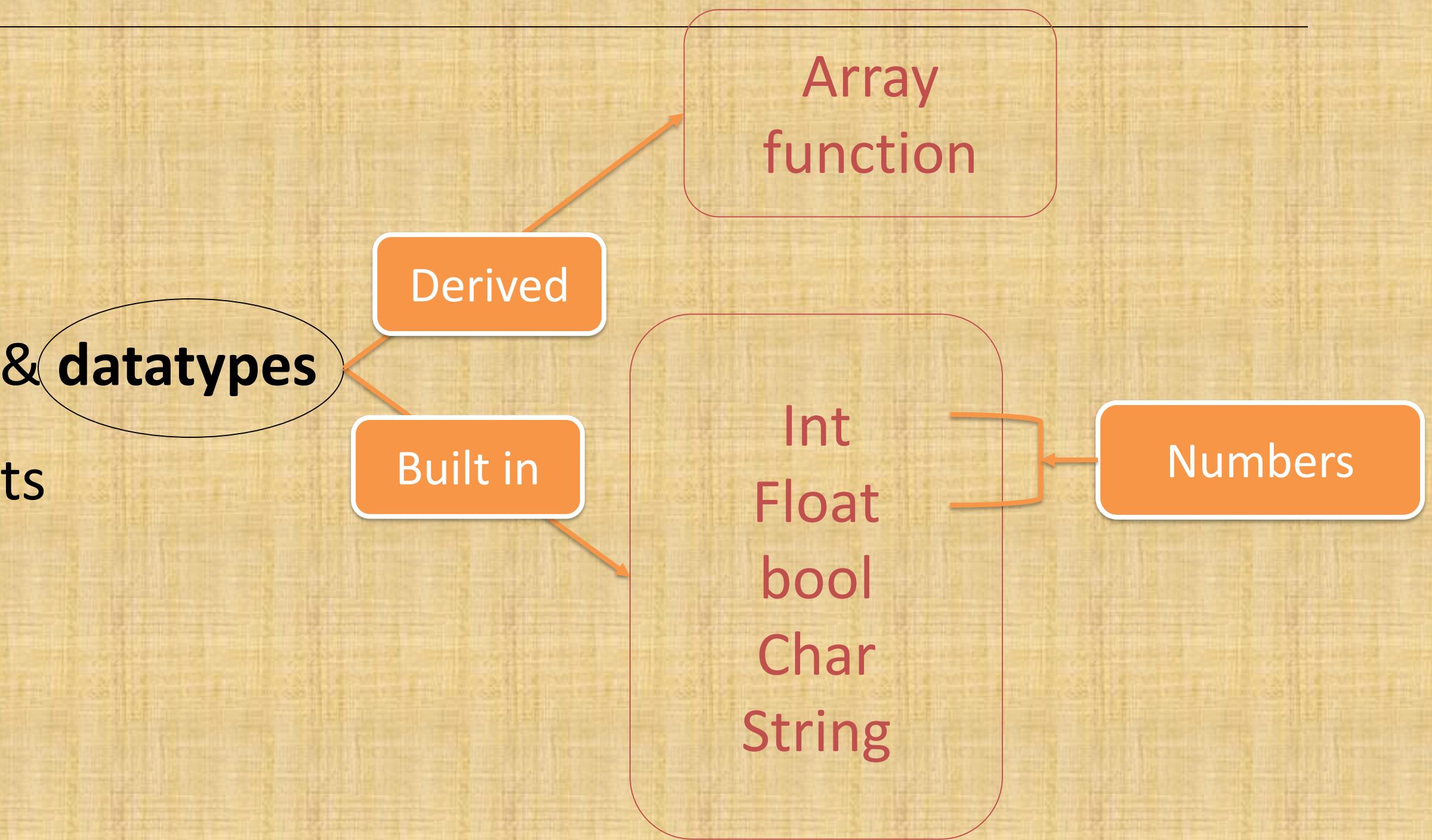
A screenshot of a terminal window showing the output of a "hello world" program. The terminal window title is "C:\xampp\htdocs\programming-session\Desktop app\project...". The output text is "hello world" followed by a dashed line, "Process exited after 0.08014 seconds with return value 0", and the instruction "Press any key to continue . . .".



# Things you should know about any programming language at start

---

- Structure of program
- Syntax
- Variables / Constants & **datatypes**
- Conditional Statements
- Loops
- Arrays
- Functions



Type this code and tell me what did you figure out

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     float a;
6     int x;
7     short int y;
8     long int z;
9     cin>>a>>x>>y>>z;
10    cout<<'\n'<<a<<endl<<x<<endl<<y<<endl<<z;
11    return 0;
12 }
```

# Example on (CPP)



```
1 #include <iostream>
2 #include "string"
3
4 using namespace std;
5
6 /* run this program using the console pauser or add your own getch, system("pause") or input loop */
7
8 int main() {
9     int age, phone;
10    string name;
11
12    cout<<"Enter your name:\n";
13    cin>>name;
14    cout<<"\nEnter your age:\n";
15    cin>>age;
16    cout<<"\n*****\n* Name:" << name << "\n* Age:" << age << "\n*****\n";
17    return 0;
18 }
```

```
C:\xampp\htdocs\programming-session\desktop app\main.exe
Enter your name:
ahmed

Enter your age:
123
\n*****
* Name:ahmed
* Age:123
*****


Process exited after 7.255 seconds with return value 0
Press any key to continue . . .
```

# Task 1 on CPP

Create a triangle with  
stars (\*) for 7 layers with  
two ways



## Task 2 on CPP

Create program that takes character and number and prints a number of pyramids with this number and each consists of the same character you entered



enter the number:5

enter the character:f

f

f

ff

f

ff

fff

f

ff

fff

ffff

f

ff

fff

ffff

fffff

f

ff

fff

ffff

fffff

ffffff

# Task 3 on CPP

Create program that takes 5 numbers and prints:-

- 1-the biggest number
- 2-the least number
- 3- averages all of them



Please Enter a number

4

Please Enter a number

5

Please Enter a number

7

Please Enter a number

1

Please Enter a number

3

Max = 7

Min = 1

The average is :3

Press any key to continue . . .

# The End

in the end I hope you understood all I said contact on :

