

# Learn Programming from Scratch

Python, C, C++, JavaScript, HTML, CSS, PHP, Java

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# 1. Basic Syntax

## Python:

```
print("Hello World")
```

## C:

```
#include <stdio.h>
int main() {
    printf("Hello World");
    return 0;
}
```

## JavaScript:

```
console.log("Hello World");
```

## 2. Variables and Data Types

Python:

```
x = 5 # integer  
y = "Hello" # string
```

C:

```
int x = 5;  
char y[] = "Hello";
```

Java:

```
int x = 5;  
String y = "Hello";
```

### 3. Conditional Statements

#### Python:

```
if x > 10:  
    print("x is greater")
```

#### C:

```
if (x > 10) {  
    printf("x is greater");  
}
```

#### JavaScript:

```
if (x > 10) {  
    console.log("x is greater");  
}
```

## 4. Loops

Python:

```
for i in range(5):  
    print(i)
```

C:

```
for (int i = 0; i < 5; i++) {  
    printf("%d", i);  
}
```

JavaScript:

```
for (let i = 0; i < 5; i++) {  
    console.log(i);  
}
```

## 5. Functions

Python:

```
def greet(name):  
    return "Hello " + name
```

C:

```
char* greet(char name[]) {  
    static char result[100];  
    sprintf(result, "Hello %s", name);  
    return result;  
}
```

## 6. Arrays / Lists

Python:

```
fruits = ["apple", "banana", "cherry"]
```

C:

```
char fruits[3][10] = {"apple", "banana", "cherry"};
```

JavaScript:

```
let fruits = ["apple", "banana", "cherry"];
```

## 7. Object-Oriented Programming (OOP)

Python:

```
class Person:  
    def __init__(self, name):  
        self.name = name
```

C++:

```
class Person {  
    public:  
        string name;  
        Person(string n) { name = n; }  
};
```

## 8. Mini Projects

### Example: Calculator (Python)

```
def add(x, y):  
    return x + y  
  
def subtract(x, y):  
    return x - y  
  
print("Select operation: + or -")  
choice = input("Enter choice: ")  
a = int(input("First number: "))  
b = int(input("Second number: "))  
if choice == "+":  
    print(add(a, b))  
else:  
    print(subtract(a, b))
```

## 9. Practice Problems with Solutions

Problem 1: Find Even or Odd

Python:

```
num = int(input("Enter number: "))
if num % 2 == 0:
    print("Even")
else:
    print("Odd")
```

Problem 2: Factorial (Recursion)

```
def factorial(n):
    if n == 0:
        return 1
    else:
        return n * factorial(n - 1)

print(factorial(5))
```