

Flowchart and Pseudocode Tutorials

خرائط التدفق بالعربي

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❑ The Target Audience

If you're an incoming university student, whether you're pursuing degrees in Computer Science, Information Technology, or Artificial Intelligence, or even if you're in your preparatory year of Engineering.

Additionally, this course is tailored for beginners in the field of programming, welcoming anyone who is new to coding and even those unfamiliar with programming languages. Whether you're taking your first steps in the world of computer science.

This flowchart course is designed to provide a comprehensive introduction to the basics. We're here to guide you through the journey of understanding and applying flowcharts, making it accessible to everyone interested in computer science.

❏ Fundamentals of Computer Science Course (CS111)

- This course will introduce you to the field of computing.
- This course consists of two parts.

1. Hardware

Computer Basics, Data Representation, and Data Manipulation.

2. Software

Flowchart and Pseudocode, and basics of programming language.

❏ What is Algorithms?

- We face with many problems in daily life that we need to solve .
- **Computational Problems :**
 - a problem that can be solved step-by-step with a computer.
 - Problems that can be solved by following a sequence of computational steps .
 - This sequence of steps/instructions are called **Algorithms**.
- **Algorithm :**
 - a set of steps that defines how a task is performed.
 - computational procedure that takes some values as input and produces some values as output.

- **Programming :**

- Is the process of converting an algorithm into a program using one of the programming languages .
- ***Problem Solving*** is the core of computer science .

Algorithms Representation

➤ Plain English

➤ Structured English

It aims to make the algorithm's structure clear and understandable.

➤ Programming Languages

This representation is suitable for those who are familiar with the programming language being used.

➤ Pseudocode

It is used to outline the logic and steps of an algorithm without being tied to a specific programming language syntax.

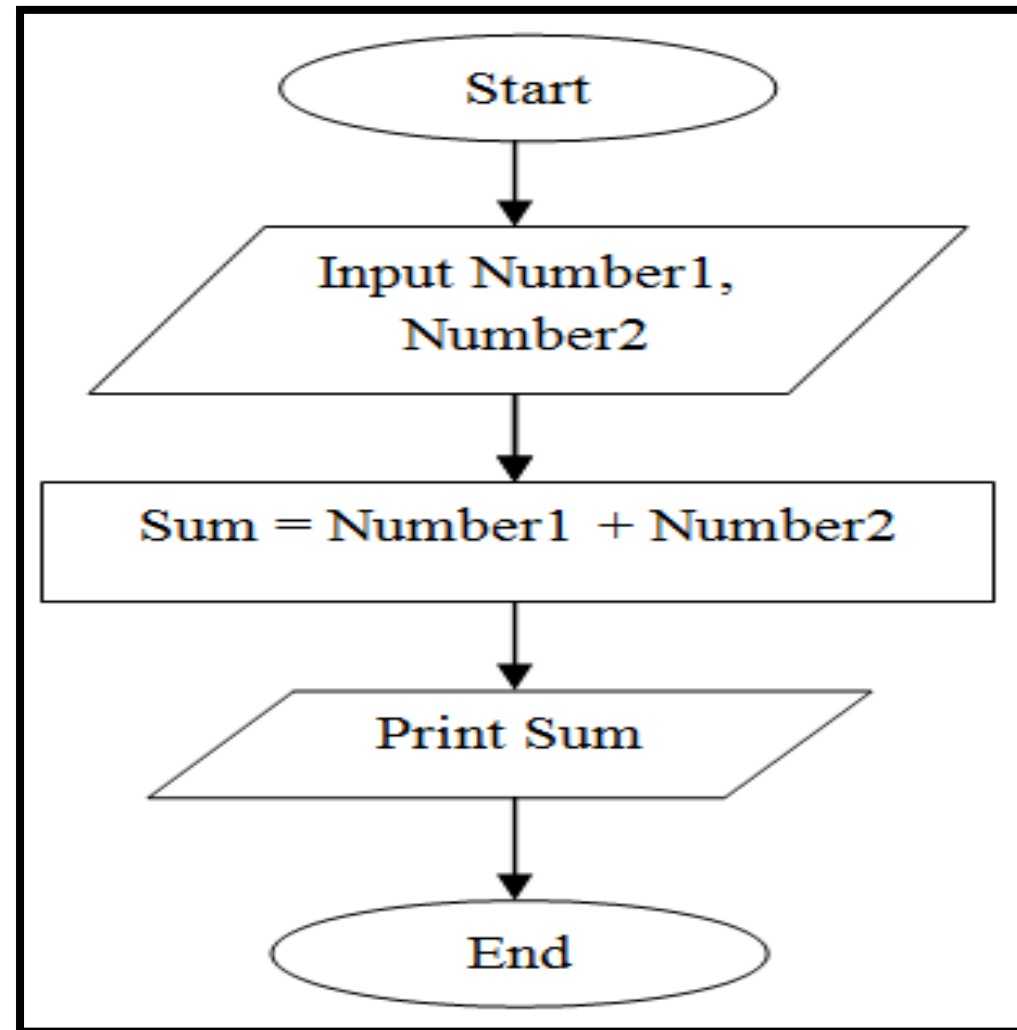
➤ Flowcharts

Flowcharts use graphical symbols and arrows to represent the flow of control within an algorithm.


❏ Pseudocode Example:

- Write a program to add 2 numbers.
1. Start Program
 2. Enter Two Numbers A and B
 3. Add Two Numbers Together
 4. Store The Result in Variable (ex: Sum)
 5. Print Sum
 6. End Program

❑ Flowchart Example:



□ Flowgorithm Program:

 **Flowgorithm**

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Welcome to the Flowgorithm Homepage!

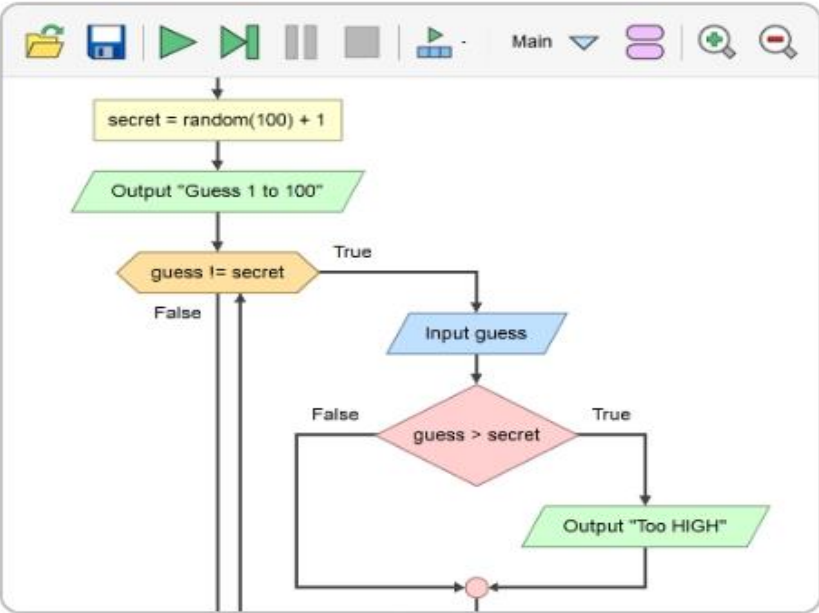
Flowgorithm is a **free** beginner's programming language that is based on simple graphical flowcharts.

Typically, when a student first learns to program, they often use one of the text-based programming languages. Depending on the language, this can either be easy or frustratingly difficult. Many languages require you to write lines of confusing code just to display the text "Hello, world!".

By using flowcharts, you can concentrate on programming concepts rather than all the nuances of a typical programming language. You can also run your programs directly in Flowgorithm.

Once you understand programming logic, it is easy for you to learn one of the major languages. Flowgorithm can interactively convert your flowchart to over 18 languages. These include: C#, C++, Java, JavaScript, Lua, Perl, Python, Ruby, Swift, Visual Basic .NET, and VBA (used in Office).

[More information >](#)



```
graph TD; Start([Start]) --> Init[secret = random(100) + 1]; Init --> Output1[/Output "Guess 1 to 100"/]; Output1 --> LoopStart(( )); LoopStart --> Decision{guess != secret}; Decision -- True --> Input[/Input guess/]; Input --> Decision2{guess > secret}; Decision2 -- True --> Output2[/Output "Too HIGH"/]; Decision2 -- False --> LoopStart; Decision -- False --> LoopStart;
```

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❑ How Access Course Materials ?

Drive

<https://drive.google.com/drive/u/0/folders/1bLf8n0JsIKspWMdGdL9ypynVsJygy785>

Github

https://github.com/Abdalla2030/Education_Youtube_Materials/tree/main/Flowchart

Thank You !!

Next Video We Will install Flowgorithm Program

<http://www.flowgorithm.org/index.html>