Problem solving techniques

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Algorithm

Algorithm are nothing but sequence of steps for solving problems.

In mathematics and computer science, an algorithm is a finite sequence of mathematically rigorous instruction, typically used to solve a class of specific problems or to perform a computation.

Algorithms are used as specifications for performing calculations and data processing.

Algorithm examples

Social Media Feeds :

Platforms like Facebook, Instagram, and Twitter use algorithms to determine which posts to show you first based on your interests, previous interactions, and trending topics.

Online Shopping :

Websites like amazon use algorithms to recommend product based on your browsing and purchases history, as well as what other user with similar preferences have bought.

Flowcharts

A flowchart is a type of diagram that represents a workflow or process.

A flowchart can also be defined as a diagrammatic representation of an algorithm, a step-by-step approach to solving a task.

The flowchart shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows.

This diagrammatic representation illustrates a solution model to a given problem.

Flowcharts are used in analyzing, designing, documenting or managing a process or program in various fields

Flow Chart Example

Start: You decide that you need a vacation.

Define Criteria:

Budget: Determine your budget for the trip.
Preferences: Consider what type of vacation you prefer (beach, mountains, city, etc.).
Time: Decide how much time you have available for the vacation.

Options Evaluation:

Research: Look up various destinations that fit your criteria.
Compare: Compare factors such as travel costs, activities available, and accommodation options.
Feedback: Seek input from friends or family who have been to these destinations.

Decision Making:

BudgetCheck: If your budget is limited, prioritize destinations within your budget range.
Preferences Match: Choose a destination that matches your preferred type of vacation.
Time Consideration: Ensure the destination can be comfortably visited within your available time.

Final Decision:

Select Destination : Make a final decision based on the evaluation of criteria.
Booking: Proceed to book flights, accommodation, and any necessary tours or activities.

End: Enjoy your vacation!

Pseudocode

In computer science pseudocode is a description of the steps in an algorithm using a mix of conventions of programming language (like assignment operator, conditional operator, loop) with informal, usually self-explanatory, notation of action and conditions.

Although pseudocode shares features with regular programming languages, it is intended for human reading rather than machine control.

Pseudocode typically omits details that are essential for machine implementation of the algorithm, meaning that pseudocode can only be verified by hand.

The programming language is augmented with natural language description details, where convenient or with compact mathematical notation.

The purpose of using pseudocode is that it is an efficient and environment-independent description of the key principles of an algorithm.

It is commonly used in textbooks and specific publications to document algorithms and in planning of software and other algorithms.

Thank You