switch : term definition

1. Algorithm

An algorithm is basically a list of steps to solve a problem. You can

think of it like a recipe for cooking food.

Algorithms can be written in any way, as long as they work. They don’t have to

be efficient or correct . There’s no need to worry about how many steps it takes.Algorithms

are useful in computer science and other fields like mathematics.

For example : to find maximum , algorithm will store first value as maximum then check all values if find one bigger than maximum it update maximum .

2. Database

A database is a place to store data for an application.for example It can be like a big Excel sheet , there are two type of database relational and NonRelational. Data base can be both in the cloud and in local device .

There are many types of databases, and some of them work in differenet way— can storing data in rows and columns or in graphs .

Databases need to worry about security because they for storing and the data can be personal and sensetive. For example, if you have a website, all the user data is stored in the database with special structure to save data for each user individuals. Databases are useful for big companies as well for small companies. SQL is the one of the language used with databases.

3. HTTP

HTTP is a communication protocol used to transfer data between a client and server , websites use it to load pages and exchange data. It is a protocol that lets users interact with websites.

developers need to understand http to build a matintain websites . It’s mostly about sending data like text and images. For example, when you open a website, HTTP sends the information from the server to your browser . HTTP is not outdated but HTTPS is used widely because it have more privacy . HTTP is important for both front-end and backend. It’s a slow protocol but good enough for simple websites. Understanding HTTP is still important even if you’re using modern web development tools like React or Angular as they relay on http . It’s a very simple technology that doesn’t have much complexity.

4. Recursion

Recursion is when function repeats itself. It’s used in programming to solve problems. For example, you might use recursion to add numbers or print a message multiple times. It’s not really necessary to use recursion because loops can do the same thing. Recursion works by just calling the same function over and over again. There are special rules for recursion like when it will stop to prevent stackoverflow error or infinity loops. People often use recursion to make their code shorter and to split the problem into subproblems, even though it’s harder to read. It’s algorithm that you need to understand deeply if you’re use it . The best part about recursion is that it’s easier to write than other methods.

5. Big-O Notation

Big-O notation is a way to measure how an algorithm performs. It’s used to see how much operation algorithm do and counting how many steps the algorithm takes to finish also it’s used for space complixity to see how much algorithm use. For example, if an algorithm takes 10 steps, its Big-O is O(10). Big-O is usually written with symbols like O(n), O(n^2), and O(1), this important to arrive to optimal solution and effeiecnt one to work effeiently to each device . Developers need to worry about Big-O because code must run effeciently in all computers even if most is fast enough to handle inefficient code.

6. Machine Learning

Machine learning is when computers learn things by themselves. They don’t need to be programmed; they just figure out stuff on their own. It’s like teaching a computer to be smart. For example, if you show a machine learning model some pictures of cats, it will magically know what a cat looks like. Machine learning is mostly used for creating AI, like robots and chatbots. You don’t really need to understand how it works as long as you can use tools like TensorFlow. Machine learning is mostly about collecting data and letting the computer do the rest. It’s not related to programming because it’s more about science. Machine learning models are always accurate because they learn from data. It’s the easiest way to make technology smarter .

7. REST API

A REST API is a type of API that’s used to send and receive data between apps. It follows the REST principles, which emphasize stateless communication, resource-based architecture, and data exchange in formats like JSON or XML. REST APIs use HTTP to send data, and you can call them with any tool, like Postman. For example, if you want to get a list of users, you just make a GET request to the API. REST APIs are useful for web developers and mobile apps. They are mostly about sending JSON and XML data. Security is an important aspect of REST APIs, but proper measures like authentication and encryption need to be implemented, as they are not inherently secure.

8. Git

Git is a tool that you use to control your code. It’s like Dropbox for developers, but it’s more complicated. With Git, you can store your files online and get them back if you lose them. It’s mostly used by teams to share files, but it’ also useful for individual developers to control their differenet version of their code. Git have both gui and bash to use using differenet commands . but you only need to know a few to use it. Git have unique mission to track version and project all changes .For example, if you make a mistake, Git lets you undo it. Git is used among all developers. You can’t replace Git with Google Drive project because git not only to save files.