Summary DSA

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- **DSA** - Data structure and Algorithm (DSA) is applied in all disciplines of software development. DSA is the building block of the software development process. DSA helps us to optimize our code according to our use case.

- Whenever we create any code, It gets stored in our hard disk and when we run that code it is loaded in RAM, and from RAM, the CPU picks the instructions/statements one by one and then executes it.

- One instruction has multiple operations,

  The **clock speed of the CPU** measures the number of cycles the CPU executes per second, It is measured in GHz (gigahertz)

  A CPU with a clock speed of 3.2 GHz executes *3.2 billion* cycles per second.

- **Asymptotic analysis** is the process of calculating the running time of an algorithm in mathematical units to find the program's limitations, or “run-time performance.

- The **algorithm** is the set of instructions that works together to achieve a goal.

  An algorithm is a procedure used for solving a problem or performing a computation. Algorithms act as an exact list of instructions that conduct specified actions step by step.

- Companies have limited budgets for hardware, So the responsibility of the software developer is to optimize the code(functions) in such a way that it will return the expected output but within limited resources.