What is programming?

Programming is the process of giving machines a set of instructions that describe how a program should be carried out.

Computer programming is the process of writing code that instructs how a computer, application or software program performs.

At its most basic, computer programming is a set of instructions to facilitate specific actions.

What is Rust?

Rust is a multi-paradigm, general-purpose programming language designed for performance and safety, especially safe concurrency.

Rust is a systems level programming language, developed by Graydon Hoare. Mozilla Labs later acquired the programme.

What is system programming?

Systems programming languages like C/C++ are used to build software and software platforms. They can be used to build operating systems, game engines, compilers, etc.

Systems and application programming languages face two major problems –

• It is difficult to write secure code.

• It is difficult to write multi-threaded code.

Why Rust?

Rust focuses on three goals:

a. Speed
b. Safety
c. Concurrency

The language was designed for developing highly reliable and fast software in a simple way. Rust can be used to write high-level programs down to hardware-specific programs.

Performance

Rust programming language does not have a Garbage Collector (GC) by design. This improves the performance at runtime.

Memory safety at compiler time.

Software built using Rust is safe from memory issues like dangling pointers, buffer overruns and memory leaks. pointers, buffer overruns and memory leaks.

Multi-threaded applications

Rust's ownership and memory safety rules provide concurrency without data races.

Supports for web Assembly (WASM)

Web Assembly helps to execute high computation intensive algorithms in the browser, on embedded devices, or anywhere else. It runs at the speed of native code. Rust can be compiled to Web Assembly for fast, reliable execution