## Analysis

- Defines the problem and gathers requirements through feasibility studies and fact-finding.
- Produces a Requirement Specification outlining functional and non-functional needs.

Problem Statement, Feasibility Study, Formal document

## Design

- Translates requirements into a structured plan.
- Uses flowcharts, pseudocode, and UI/UX design to visualize system behavior.

•) Structure Charts

Break down system into modules — Frontend, Backend, api

•) State transition diagrams

## Coding (Implementation)

- Writes the program using structured programming and modular design.
- Uses version control (Git) and documentation for maintainability.

C++, Python, Write and Structure the code efficiently

## Testing

- Ensures functionality through 1 unit, 2 integration, 3 system, and 4 user acceptance testing (UAT).
- Regression testing checks that updates don't introduce new issues.

Program, function (Bugs)

devs.com

User1 — Software

## Maintenance

- Ensures long-term functionality by fixing bugs and adapting to changes.
- Includes corrective (bug fixes), adaptive (hardware/software updates), and perfective (feature enhancements) maintenance.

Bug fixes, Performance improvements, Feature updates, Security Patches