

Integrated Development Environment

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IDE is an Integrated Development environment which provides comprehensive facilities to computer programmers for software development. An IDE usually consists of at least a source code editor, build automation tools and a debugger.

Types of Applications:

- Console: a computer program designed to be used via a text-only computer interface, such as a text terminal, the command line interface. **Terminal, Command prompt**
- Client-Server: a software that runs on a client computer and makes requests to a remote server. **Gmail, World Wide Web**
- Web based: a program that is accessed over a network connection using HTTP, rather than existing within a device's memory. **Online forms - google forms, shopping carts - Amazon, Flipkart**

- Enterprise: softwares which involve customer relationships and knowledge management. It provides business logic and tools to model entire business processes for organizations to improve productivity and efficiency. **Billing systems, Zoom Application, Google Analytics**

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Terminal

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Gmail servers

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Amazon, Flipkart

Enterprise

a software which provides tools to model entire business processes.

Zoom, Marketo

Software Development Life Cycle:

- Requirement gathering
- Analysis
- Designing
- Coding
- Testing
- Deployment

Library management system SDLC: Client-Server application

Waterfall Model can be preferred since it is easy to understand; each phase is completed before the next phase can begin with no overlapping.

- **Requirements:**

- maintain information about its users and books; able to **accommodate** around 10,000 books; maintain databases for students, teachers, researchers separately; The **student database** stores information about a student's pin, name, address, course, course year and contact number; The **book database** stores information about book title, ISBN, author, publisher, price, bill number, year of publishing and pages; The **teacher database** stores information about a teacher's id, name, department, designation, address and contact number.
- availability 24/7; database backup and recovery should be at hand; high security databases; administrator has complete access to all the databases; librarians should be provided with restrictions to databases and has complete access to the application.
- **Analysis:** Add New Book; Add New Member; Issue Book; Return Book; List of Books; List of Members; Update/Delete Member; Update/Delete Book; Search For a Book; Check In Book; Check Out Book.
- **Designing:** Wire-framing, UML Diagrams, Data Flow Diagrams, User Experience Designs, Prototyping, Mockups.
- **Coding:** Coding in a preferred Language based on the requirement, cost and the timeframe.
- **Testing:** Testing strategy - Unit Testing, Integration Testing, End-to-End tests, UI Testing.

- **Deployment:** software system will be available for use only to the designated members like the librarians.
- **Maintenance:** managing risks; updating policies; improving security of the databases; preparing backups from time to time; improving the user interface;