



OBJECT ORIENTED SOFTWARE ENGINEERING

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Software Application Domain

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There are various software application domains, like:

- 1) System software**
- 2) Application software**
- 3) Engineering / scientific software**
- 4) Embedded software**
- 5) Product line software**
- 6) Web applications**
- 7) Artificial intelligence software**

1. System Software

System software is a **collection of programs written to service other programs.**

Ex. Compilers,
operating system,
drivers etc.

2. Application Software

Application software consists of **standalone programs** that solve a **specific business need**.

Application software is used to **control the business function in real-time**.

For **Eg: Transaction processing**, real-time manufacturing process control

- Microsoft suite of products (Office, Excel, Word, PowerPoint, Outlook, etc.)
- Internet browsers like Firefox, Safari, and Chrome.

3. Engineering/Scientific Software

Characterized by "**number crunching**" algorithms.

- Applications range from
 - astronomy to volcanology,
 - automotive stress analysis to space shuttle orbital dynamics, and
 - molecular biology to automated manufacturing.
- **Ex. Computer Aided Design (CAD), System Simulation etc.**

4. Embedded Software

- It **resides within a product or system** and is used to implement and control features and functions for the end user and for the system itself.
- Embedded software can perform limited and intended functions.

Ex. keypad control for a microwave oven.

5. Product line software

- Software product line development, refers to software engineering methods, tools and techniques for **creating a collection of similar software systems from a shared set of software assets using a common means of production.**
- **Ex. Word processing, spreadsheet, Computer Graphics, multimedia, etc.**
- A cosmetic company selling a high-priced **product line** of makeup (that might include foundation, eyeliner, mascara, and lipstick) under one of its well-known brands might launch a **product line** under the same brand name with lower price.

6. Web Application

- Web apps can be little more than a set of linked hypertext files.
- It is evolving into sophisticated computing environments that not only provide **standalone features, functions** but also **integrated with corporate database and business applications**.
- Eg: **e-commerce application, Online shopping**, video and photo editing, file conversion, file scanning, **Google Docs** etc.

7. Artificial Intelligence Software

AI software **makes use of non-numerical algorithms** to solve complex problems that are not amenable to computation or straightforward analysis.

Ex. Robotics, Google Assistant, google AI power predictions (google maps), plagiarism checkers, Rides sharing app (uber), game playing, etc.

Software Applications – new categories

- **Open world computing**—pervasive, distributed computing.
- **Ubiquitous computing**—wireless networks
- **Netsourcing** (pay as you use)—the Web as a computing engine
- **Open source**—“free” source code open to the computing community (a blessing, but also a potential curse!)
- Also ...
 - **Data mining**
 - **Grid computing**
 - **Cognitive machines**
 - **Software for nanotechnologies**

Software Applications – new categories

- **Open world computing**—pervasive, distributed computing
- eg: Linux (operating system), Eclipse (development tools framework), Apache (HTTP server), Globus (grid **computing**), and Mozilla (Web browser).
- **Ubiquitous computing**—wireless networks
- NEST (which is now owned by Google) , Apple Watch or Fitbit.
- Smart speakers like Amazon Echo, Google Assistant or Apple HomePod.
- Self Driving Cars, Smart Bulbs, Smart Locks.

Software Applications – new categories

- **Netsourcing** (pay as you use)—the Web as a computing engine
- For Eg: e-mail/collaboration tools like **Microsoft Exchange**, Lotus Notes, Netscape Messenger
- **Open source**—“free” source code open to the computing community
 - For eg: Firefox—a Web browser that competes with Internet Explorer
 - OpenOffice—a competitor to Microsoft Office
 - Gimp—a graphic tool with features found in Photoshop, etc.



THANK YOU

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