

# SOFTWARE ENGINEERING

## 1. What is meant by Service based company and Product based companies. List out some product and Service based companies.

### A Service based companies:

Service based companies are the ones that do not have a particular product but their primary business is to provide services. A service-based company is the one that provides customers, clients the ultimate solution to their requirements or a service to another company. The service offered by the company is intangible and can be provided in the form of skills, amenities, and expertise.

- Infosys
- Accenture
- IBM
- Tata Consultancy Services (TCS)
- Deloitte
- Wipro
- NTT DATA
- LTI

### Product based companies:

Product based companies are the ones that produce high-end products in order to satisfy their customer requirements. These companies are focused on introducing or producing products that have a high market value.  
examples: Amazon, Microsoft, google.

- Alphabet
- Sales Force
- Apple
- Hewlett-Packard
- Amazon
- VMware
- Intel
- Microsoft

## 2. what models right now used by the companies to develop a software.

### A. 8 Types of Software Development Models:

- Waterfall Model.
- V-Model.
- Incremental Model.
- RAD Model.
- Agile Model.
- Iterative Model.
- Spiral Model.
- Prototype Model.

### 3. What is meant by testing tools and what are the various testing tools?

#### A. **Testing Tools:**

Tools from a software testing context can be defined as a product that supports one or more test activities right from planning, requirements, creating a build, test execution, defect logging and test analysis.

#### 1. **Test Complete:**

Test Complete developed by Smart Bear Software is a functional automated testing tool that ensures the quality of the application without sacrificing quality or agility.

##### **Features:**

- Test Complete has built-in keyword-driven test editor that consists of keyword operations that correspond to automated testing actions.
- It records the key actions that are necessary to replay test and discard all unneeded actions.
- It can run several automated tests across separate virtual machines.
- It has built-in code editor that helps testers write scripts manually.
- It automatically captures screenshots during test recording and playback.

#### 2. **Lambda Test:**

Lambda Test is a cross-browser testing tool that helps to evaluate how web application responds when accessed through a variety of different browsers.

##### **Features:**

- It has Selenium scripts on 3000+ browsers and operating system environments, giving higher test coverage.
- It can perform automated cross-browser testing of locally hosted web pages using Lambda Test tunnel.
- It can also help to run a single test across multiple browser/ OS configurations simultaneously.

#### 3. **TestRail:**

TestRail is a test management tool that helps to streamline software testing processes, get visibility into QA. This tool is used by testers, developers, and team leads to manage, track, and organize software testing efforts.

**Features:**

- It helps to manage test cases, plans, and runs.
- It helps to increase test coverage.
- It helps to get real-time insights into your QA progress.
- It helps to document test plans and track real-time progress.

**4. Xray:**

Xray is a test management app for Jira that helps to plan, execute, and track quality assurance with requirements traceability.

**Features:**

- It promotes Native Quality Management, where all tools, tests used by QA are built natively into development environment like Jira.
- It integrates with leading automation frameworks like Cucumber, Selenium, and JUnit to automate testing.
- It allows easy integration with CI tools like Jenkins, Bamboo, and GitLab.
- It helps to easily map stories using BDD.

**5. Zephyr Scale:**

Zephyr Scale is a test management provides a smarter and more structured way to plan, manage, and measure tests inside Jira.

**Features:**

- It offers cross-project integration, traceability, and a structured designed useful in large environments.
- It helps to scale tests in Jira.
- It helps to improve visibility, data analysis, and collaboration.
- It provides detailed changed history, test case versioning, and end-to-end traceability with Jira issues and challenges.

**6. Selenium:**

Selenium provides a playback tool for authoring tests across most web browsers without the need to learn a test scripting language.

**Features:**

- It provides multi-browser support.
- It makes it easy to identify web elements on the web apps with the help of its several locators.
- It is able to execute test cases quicker than the other tools.

**7. Ranorex:**

Ranorex Studio is a GUI test automation framework used for testing web-based, desktop, and mobile applications. It does not have its own scripting language to automate application.

**Features:**

- It helps to automate tests on Windows desktop, then execute locally or remotely on real or virtual machines.
- It runs tests in parallel to accelerate cross-browser testing for Chrome, Firefox, Safari, etc.

- It tests on real iOS or Android devices, simulators, emulators, etc.

### **8. Test Project:**

Test Project is a test automation tool that allows users to create automated tests for mobile and web applications. It is built on top of popular frameworks like Selenium and Appium.

#### **Features:**

- It is a free end-to-end test automation platform for web, mobile, and API testing.
- Tests are saved as local files directly on your machine with no cloud-footprint to get a complete offline experience.
- It helps to create reliable codeless tests powered by self-healing, adaptive wait, and community add-ons.
- It provides insights about release quality, step-by-step detailed report with screenshots and logs.

### **9. Katalon Platform:**

Katalon Platform is a comprehensive quality management platform that enables team to easily and efficiently test, launch, and optimize the best digital experiences.

#### **Features:**

- It is designed to create and reuse automated test scripts for UI without coding.
- It allows running automated tests of UI elements including pop-ups, iFrames, and wait-time.
- It eases deployment and allows wider set of integrations compared to Selenium.

### **10. UFT/QTP:**

Micro Focus UFT is a software that provides functional and regression tests automation for software applications and environments.

#### **Features:**

- It helps to accelerate end-to-end testing.
- It boasts AI-based machine learning and advanced OCR for advanced object recognition.
- It helps to test both front-end functionality and back-end service parts.

## **3. list out the versions of andriod mobiles?**

| Name                                    | Internal<br>codename <sup>[11]</sup> | Version<br>number(s) | release date                        |
|---|--------------------------------------|----------------------|-------------------------------------|
| Android 1.0                             | —                                    | 1.0                  | September 23,<br>2008               |
| Android 1.1                             | Petit Four                           | 1.1                  | February 9,<br>2009                 |
| <a href="#">Android<br/>Cupcake</a>     | Cupcake                              | 1.5                  | April 27, 2009                      |
| <a href="#">Android Donut</a>           | Donut                                | 1.6                  | September 15,<br>2009               |
| <a href="#">Android Eclair</a>          | Eclair                               | 2.0 – 2.1            | October 27,<br>2009                 |
| <a href="#">Android Froyo</a>           | Froyo                                | 2.2 – 2.2.3          | May 20, 2010                        |
| <a href="#">Android<br/>Gingerbread</a> | Gingerbread                          | 2.3 – 2.3.7          | December 6,<br>2010                 |
| <a href="#">Android<br/>Honeycomb</a>   | Honeycomb                            | 3.0 – 3.2.6          | February 22,<br>2011                |
| <a href="#">Android Jelly<br/>Bean</a>  | Jelly Bean                           | 4.1 – 4.3.1          | July 9, 2012                        |
| <a href="#">Android KitKat</a>          | Key Lime Pie                         | 4.4 – 4.4.4          | October 31,<br>2013                 |
| <a href="#">Android Lollipop</a>        | Lemon Meringue<br>Pie                | 5.0 – 5.0.2          | November 4,<br>2014 <sup>[20]</sup> |
| <a href="#">Android<br/>Marshmallow</a> | Macadamia Nut<br>Cookie              | 6.0 – 6.0.1          | October 2,<br>2015 <sup>[22]</sup>  |

|                                |                                     |                     |                   |
|--------------------------------|-------------------------------------|---------------------|-------------------|
| <a href="#">Android Nougat</a> | New York Cheesecake                 | 7.0                 | August 22, 2016   |
| <a href="#">Android Oreo</a>   | Oatmeal Cookie                      | 8.0                 | August 21, 2017   |
| <a href="#">Android Pie</a>    | Pistachio Ice Cream <sup>[23]</sup> | 9                   | August 6, 2018    |
| <a href="#">Android 10</a>     | Quince Tart <sup>[24]</sup>         | 10                  | September 3, 2019 |
| <a href="#">Android 11</a>     | Red Velvet Cake <sup>[24]</sup>     | 11                  | September 8, 2020 |
| <a href="#">Android 12</a>     | Snow Cone                           | 12                  | October 4, 2021   |
| <a href="#">Android 12L</a>    | Snow Cone v2                        | 12.1 <sup>[a]</sup> | March 7, 2022     |
| <a href="#">Android 13</a>     | Tiramisu                            | 13                  | August 15, 2022   |
| <a href="#">Android 14</a>     | Upside Down Cake <sup>[27]</sup>    | 14 <sup>[b]</sup>   | Q3 2023           |
| Android 15                     | Vanilla Ice Cream <sup>[29]</sup>   | 15                  | Q3 2024           |

#### 4.What are the companies working for cyber security?

A.

### Top Cybersecurity Companies

- [Palo Alto Networks: Best for Comprehensive Security](#)
- [Fortinet: Best for Network Security](#)
- [Cisco: Best for Distributed Network Security](#)
- [CrowdStrike: Best for Endpoint Security](#)
- [Zscaler: Best for Cloud Security](#)
- [IBM: Best R&D](#)
- [Trend Micro: Best for Small Businesses](#)
- [Okta: Best for Access Management](#)
- [OneTrust: Best for Privacy and Compliance](#)
- [Rapid7: Best for Value and Ease of Use](#)
- [Proofpoint: Best for Phishing Protection](#)
- [Tenable: Best for Vulnerability Management](#)
- [KnowBe4: Best for Security Awareness Training](#)
- [Darktrace: Best for AI Security](#)
- [Check Point: Best for Firewalls](#)
- [Sophos: Best for Home and Small Office Security](#)
- [Broadcom: Best for Endpoint Management](#)
- [Trellix: Best XDR Solution](#)
- [RSA: Best Risk Management Solution](#)
- [Microsoft: Best for Windows Security](#)
- [Top Cybersecurity Companies Compared](#)
- [Honorable mentions](#)
- [Frequently Asked Questions \(FAQs\)](#)
- [Methodology](#)
- [Bottom Line: Top Cybersecurity Companies](#)

## 5.what is IEEE?

**A.** IEEE stands for Institute of Electrical and Electronics Engineer...

- It is independent of any government oversight
- It has two standards development participation models
- These are individual and entity

## 6.What is server and client?

**A. Server:** A system that provides services to other systems in its network. There are file servers, boot servers, data base servers, license servers.

- Servers supports multiple user login
- The term server to mean a system that provides files and installation software for other systems on the network
- It is used to receive, store and share data

**Client:** It is a program that uses services that other programs provide. The programs that provide the services are called Servers.

- Clients supports the login of single users.  
Ex: Laptops and desktops

## 7. List out some testing tool companies?

**A. Below is the list of top Software Testing Companies with excellent QA services:**

- 1) QA Mentor
- 2) A1QA
- 3) QASource
- 4) ScienceSoft
- 5) TestMatick
- 6) DeviQA
- 7) QualityLogic
- 8) TestingXperts
- 9) QA Wolf
- 10) Aspire Systems
- 11) TestFort
- 12) Mindful QA
- 13) QAlified
- 14) GlobalAppTesting
- 15) Testlio
- 16) QualiTest
- 17) IBeta
- 18) Abstracta
- 19) Surf
- 20) Altoros

## 8. Professions that related to databases :

**A. 7 careers in database technology**

- Database manager.
- Data analyst.
- Data scientist.
- Information security analyst.
- Database administrator.
- Data modeler.
- Software engineer.

## 9. Companies working on databases :

**A.**

- Tata Consultancy Services.



- IBM.
- Capgemini
- HCL Tech
- Accenture.
- Cognizant Technology Solutions. 3
- Tech Mahindra
- Oracle.

## 10.What is application domain?

**A.** It refers to the specific area or subject matter that a software application or system is designed to address or operate within.it defines the context or environment in which the software will be used to solve a particular set of problems or meet specific requirements.

It includes,

- ❖ Business rules
- ❖ User needs
- ❖ Data
- ❖ Regulation and standards
- ❖ Technological constraints
- ❖ User interfaces
- ❖ Security
- ❖ Scalability

## 11.write a simple use case diagram for user interaction?

**A.** +-----+

| Online Shop |

+-----+

|

|

+-----+

| User |

+-----+

|

+-----+

| Browse |

+-----+

|

+-----+

| Search Products |

+-----+

|

+-----+

| View Product |

+-----+

|

+-----+

| Add to Cart |

+-----+

|

+-----+

| Checkout |

+-----+

|

+-----+

| Make Payment |

+-----+

12.What is case tool?

**A.** Case Tool, or Computer-Aided Software Engineering Tool, is software designed to assist in various stages of the software development life cycle. These tools can aid in tasks such as requirements analysis, system design, coding, testing, and maintenance, helping streamline and automate aspects of software development.

### **13.What is meant by embedded devices and examples of embedded devices?**

**A.** Embedded devices are specialized computing systems designed for dedicated functions within larger systems. They are embedded into other products or systems to perform specific tasks. Examples of embedded devices include:

#### **Microcontrollers in Appliances:**

**Example:** The microcontroller in a washing machine that controls its various functions.

#### **Automotive Control Systems:**

**Example:** Engine control units (ECUs) in cars that manage engine functions.

#### **Industrial Automation:**

**Example:** Programmable Logic Controllers (PLCs) used to control machinery in manufacturing.

#### **Consumer Electronics:**

**Example:** The embedded system in a smart TV that manages its features.

#### **Medical Devices:**

**Example:** Embedded systems in medical equipment like heart rate monitors.

#### **Smartphones and Wearables:**

**Example:** Embedded systems within smartphones and smartwatches.

## Home Automation Systems:

**Example:** Smart thermostats or security systems with embedded controllers.

## Networking Equipment:

**Example:** Routers and switches with embedded systems for network management.

These devices often have real-time computing requirements and are optimized for efficiency, reliability, and specific functionality specific **functionality.**

## 14.list out the tools for scheduling a project?

**A.** Several project scheduling tools are available to help manage and organize tasks within a project. Here are some popular ones:

### 1. \*Microsoft Project:\*

- A comprehensive project management tool for planning, scheduling, and tracking projects.

### 2. \*Smartsheet:\*

- Combines spreadsheet functionality with project management features for collaborative planning.

### 3. \*Asana:\*

- A task and project management tool that allows teams to organize and track work.

#### 4. \*Trello:\*

- Uses boards, lists, and cards to help teams organize and prioritize projects.

#### 5. \*Jira:\*

- Originally designed for software development, Jira is widely used for project management and issue tracking.

#### 6. \*Wrike:\*

- Offers tools for project planning, tracking, and collaboration in a flexible platform.

#### 7. \*Monday.com:\*

- A work operating system that includes project management features for planning and collaboration.

#### 8. \*GanttPRO:\*

- Specifically designed for creating Gantt charts, a visual representation of project tasks and timelines.

#### 9. \*TeamGantt:\*

- Focuses on Gantt chart-based project scheduling and collaboration.

### **15.list out software configuration management tools?**

**A.** Software Configuration Management (SCM) tools help manage and control changes in software development projects. Here are some popular SCM tools:

1. **\*Git:\***

- Distributed version control system widely used for source code management.

2. **\*Subversion (SVN):\***

- Centralized version control system that tracks changes to files and directories over time.

3. **\*Mercurial:\***

- Distributed version control system similar to Git, but with a simpler design.

4. **\*Perforce (Helix Core):\***

- Scalable version control and collaboration platform used in enterprise environments.

5. **\*IBM Rational ClearCase:\***

- Offers version control, workspace management, and parallel development support.

6. **\*Microsoft Team Foundation Server (TFS) / Azure DevOps:\***

- Provides version control, build automation, release management, and more.

7. **\*Apache Subversion (SVN):\***

- Open-source centralized version control system.

8. **\*CVS (Concurrent Versions System):\***

- Legacy version control system, mostly replaced by more modern tools like Git.

9. **\*Ansible:\***

- Configuration management tool that also handles application deployment and task automation.

10. **\*Chef:\***

- Automation platform for managing infrastructure as code.

These tools help development teams track changes, manage multiple versions of code, and collaborate effectively throughout the software development lifecycle. Choose the tool that aligns with your team's workflow and project requirements.