

# Assignment 1

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## What is SaaS

- SaaS stands for Software as a Service
- SaaS is a software delivery model, that means it delivers software as a service.
- A SaaS provider hosts software applications on their end and makes them available to users over the internet.
- Users pay for the software on a subscription basis - monthly, yearly etc. They can access the software through a web browser or a mobile app.
- The main advantage of SaaS is that users don't need to maintain the software. The SaaS providers take care of the maintenance, updates and security of the software.
- SaaS helps businesses well, because they don't need to bear the expenses of IT infrastructure or development of the software. They can pay for the service based on their capacity requirements. SaaS also provides easy and quick access.

Examples -

Dropbox -

Dropbox is a SaaS where users can upload and share their files with other users.

It provides subscriptions based on upload capacity for files and number of users, thus providing flexibility to choose desired plans.

Google Workspace - Google Docs, Google Sheets etc.

Zoom, Netflix

## What is PaaS

- PaaS stands for Platform as a Service.
- As SaaS delivers software, PaaS delivers a platform as a service.
- A PaaS provider offers a platform where customers can develop, run and manage applications.
- Users don't need to build and maintain the application and its infrastructure.

- The PaaS provider typically provides a pre-configured platform, including operating system, database, web server, and other development tools. Customers can then deploy their own applications on top of this platform.
- Advantage is PaaS if that it reduces the time and cost of developing and deploying the applications.
- It also provides scalability and flexibility, as customers can easily scale their applications up or down as needed.
- Customers can choose from a range of pricing plans based on their usage.
- Examples of PaaS -  
     AWS Lambda -  
         It is the part of AWS Cloud  
         It allows its users to build custom backend services that can be triggered on demand through the use of custom API endpoints.

## What is IaaS

- IaaS stands for Infrastructure as a Service.
- It provides virtualized computing resources over the internet.
- With IaaS, a third-party provider hosts computing infrastructure, including servers, storage, and networking hardware, and makes them available to customers on a pay-as-you-go basis.
- For eg. website Hosting provider - they provide us a virtual server with pre-installed OS, SQL server, PHP, etc. We can set up our site using their installed configuration. We can pay for their service as per our storage required for the site and no. of site visitors.
- Advantages of IaaS are -  
     Scalability: Customers can scale their infrastructure up or down based on their needs, without having to worry about managing physical hardware.

Cost savings: Customers don't need to invest in and maintain their own hardware, which can be expensive.

Flexibility: Customers can choose the infrastructure they need, and can change their infrastructure in future as they need.

Reliability: IaaS providers typically offer service level agreements (SLAs) that guarantee uptime and availability.

Some examples of IaaS providers include Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform.

## What is IaaS

- IaaS stands for Infrastructure as a Code.
- It provides managing and provisioning infrastructure in a programmable and automated way.
- With IaaS, infrastructure components such as servers, networking, and storage are defined in code, rather than manually configured.
- Advantage is IaaS allows organizations to manage their infrastructure as a single, coherent system, rather than as a collection of individual resources.
- IaaS can generate significant cost savings and greater agility in responding to changing business needs.
- IaaS tools are Terraform, Ansible, and Puppet and it allows users to define infrastructure as code using a variety of programming languages, including YAML, JSON, and HCL.

Features of tools -

Version control, testing, and deployment automation, which make it easier to manage infrastructure across different environments.

## What is Software

- It is a set of instructions, programs, and data that are used to perform a specific set of tasks or functions that also operate and control the behavior of a computer system.
- It can be written in a variety of programming languages like Python, Java, C, among others.
- Every single task that a user intends to perform is regulated by software.
- It can be run on different platforms, including personal computers, servers, mobile devices, and embedded systems.
- There are two types of Software -

System Software : It is responsible for managing the resources and operations of the computer system.

E.g. - Operating System

Application software : It is designed to perform specific tasks for end-users, such as word processing, accounting, or graphic design.

E.g. - Office suites, Graphics software, Web browsers, Image editors, etc.