



MOOLJI JAITHA COLLEGE, JALGAON

Faculty of Commerce & Management
Professional Courses

COMPUTER LABORATORY

Name _____

Title of Practical _____

Class _____ Batch _____ Performed on _____

Roll No. _____ Practical No. _____ Submitted on _____

Remarks _____ Returned on _____

Practical No -1 :- Study and implementation of infrastructure as a service (IAAS)

- Infrastructure as a Services :-

Infrastructure as a Service as a cloud computing model that provide on demand access to computing service, storage networking virtualization.

- Studying and Implementing infrastructure as a Service (IaaS)

Involves understanding virtualization, resource management and Scalability choose a cloud provider like AWS or Azure & explore Service such as virtual machines storage and networking to build and manage infrastructure dynamically clearly outline your infrastructure needs considering computing Power Storage & networking requirement

- 1) Select a cloud Service Provider (CSP) :-

Clearly outline your infrastructure as a Service provider such as AWS, Azure or Google Cloud based on your specific need, budget and performance

- 2) Create an Account :-

Sign up for an account with service & setup information.

- 3) Access Cloud Consol :-

log into the Cloud Provider Console to access the management interface.

1) Create virtual machine (vms) :-

Launch virtual machine according to your requirement specifying the operating system, compute Power & storage.

2) Configure Networking :-

Setup virtual network, define Subnets and configure Security groups or network access Control list to control traffic.

3) Allocate Storage :-

Utilize cloud storage services to allocate storage volumes for your virtual machine.

4) Backup and Recovery :-

Implement backup strategies to ensure data durability & establish recovery process in case of failures.

5) Security measures :-

Enhance Security Firewall by configuring firewall encryption & Identity & access management setting.

6) Monitoring & Logging :-

Setup monitoring tools to track the performance of your infrastructure & configure logging for better visibility into system activities.

7) Scaling :-

Implement auto scaling mechanism to dynamically adjust resource based on demand, ensuring optimal performance and cost efficiency.

8) Cost management :-

Regularly monitor and optimise resource usage to manage cost.

9) Documentation :-

Maintain documentation for your IaaS setup set up including configuration, policies and procedures for easy reference and future scaling.

10) Training and Skill Development :-

Ensure that your team receives proper training to manage the cloud infrastructure.



MOOLJI JAITHA COLLEGE, JALGAON

Faculty of Commerce & Management
Professional Courses

COMPUTER LABORATORY

Name _____

Title of Practical _____

Class _____ Batch _____ Performed on _____

Roll No. _____ Practical No. _____ Submitted on _____

Remarks _____ Returned on _____

Practical No. - 2^o Study of Cloud Computing & architecture.

1) Cloud Computing :-

- Cloud Computing is a technology that allows users to access and use computing resources (Storage Processing Power, and application) over the internet rather than relying on local Server or Computer.

- It enables Flexible, Scalability and often Cost effectiveness as users can pay for the Services they use on a Subscription basis.

example :- Cloud Storage Services - they use Virtual Server and Software as a Service (SaaS).

Cloud Computing architecture refers to the structure and design of the various Components & Services that make a Cloud Computing environment.

- Cloud Computing architecture includes :-

1) Front End

- Used interfaces and application that clients interact with

2) Back End -:

- Services, Storage and the entire infrastructure that runs the cloud service.

3) Cloud Services Delivery models -:

- Infrastructure as a Service (IaaS)
- Platform as a Service (PaaS)
- Software as a Service (SaaS)

4) Deployment models -:

- Public Cloud
- Private Cloud
- Hybrid Cloud
- Community Cloud :

5) Network -:

- Internet Connection and internal communication network that facilitate data transfer.

6) Virtualization -:

- Enables multiple virtual instances to run on the same physical hardware.

7) Security -:

- Measures to protect data, application and infrastructure.



MOOLJI JAITHA COLLEGE, JALGAON

Faculty of Commerce & Management
Professional Courses

COMPUTER LABORATORY

Name _____

Title of Practical _____

Class _____ Batch _____ Performed on _____

Roll No. _____ Practical No. _____ Submitted on _____

Remarks _____ Returned on _____

Practical No. 3 - : Study and Implementation
of Storage as a Service.

Storage as a Service - :

It is a Cloud Computing model that allows individuals and organizations to use cloud-based storage infrastructure without the need to invest in and maintain physical storage hardware.

- Using Google Drive as Software for Storage as a Service, Google Drive is primarily cloud-based storage service provided by Google.

1) Setting up Google Drive - :

- Create a Google account or Gmail account.
- Access Google Drive using Google account.

2) Updating and Retrieving files - :

- Create a Storage folder
- Create a new folder in Google Drive to organize file.

a) Upload file - :

- Select file and then upload it on Google Drive. It takes internet for uploading file.
- Use the web interface to upload file.

b) Retrive and Download file :-

- For download file Go to my Drive.
Click file three dots then click "Download"

3) Stored files :-

- You can make stored files than are very important you can store it.

4) Share a file or folder. :-

- For sharing file Go to → Shared → Select file → Send Copy
- You can also share a folder

5) Syncing Components files with Google Drive. :-

- For Adding files from Computer in Google Drive go to → Computers → Then click on it → Symbol to add files from computer.

6) We can also rename, move, copy, print the files in symbol to add files from computer. Google Drive.

7) Switch and Access Document from multiple Accounts

- for accessing documents from multiple accounts. Click on profile picture then switch accounts added in mobile

8) Security and Access Control :-

- Set access permissions

9) Example Two-factor Authentication :-

- Implement Two-factor Authentication for added security

10) Provide online storage upto 15GB per user.

This platform.



MOOLJI JAITHA COLLEGE, JALGAON

Faculty of Commerce & Management
Professional Courses

COMPUTER LABORATORY

Name _____

Title of Practical _____

Class _____ Batch _____ Performed on _____

Roll No. _____ Practical No. _____ Submitted on _____

Remarks _____ Returned on _____

Practical No. 4 :- Study and implementation of Identity management

Identity management :-

Identity management refers to the processes and technologies used to manage and secure digital identity within an organization or system. It involves creation, maintenance & termination of users account and their access right to various resources.

- Identity management system help ensure that only authorized individuals have access to specific data application or services, enhancing security and streamlining administration.
- An example of identity management is an organization implementing a single sign-on system. With SSO, users only need to authenticate once per system reducing the need for multiple password.

The identity management system centralizes user authentication and access control, making it more efficient and secure for both user and administrator.

- Implementing identity management involves several key steps :-
 - 1) Assessment :- Understand the organization's needs. Identify existing system, and evaluate potential risks.
 - 2) Planning :- Develop a comprehensive strategy for identity management tools or platform, considering factors like user roles, access level and authentication method.
 - 3) Technology Selection :- Choose appropriate identity management tools or platform that align with the organization requirement. This could include Single-sign-on.



MOOLJI JAITHA COLLEGE, JALGAON

Faculty of Commerce & Management
Professional Courses

COMPUTER LABORATORY

Name _____

Title of Practical _____

Class _____ Batch _____ Performed on _____

Roll No. _____ Practical No. _____ Submitted on _____

Remarks _____ Returned on _____

Practical No. 5 :- Study and implementation of Single Sign-on

Single-Sign-on (SSO) is a technology which combines several different application login screens into one. With SSO, a user only has to enter their login credential (username, password) one time on a single page to access all of their SaaS application.

SSO is often used in a business context when user applications are assigned and managed by an internal IT team. Remote workers who use SaaS applications also benefit from using SSO.

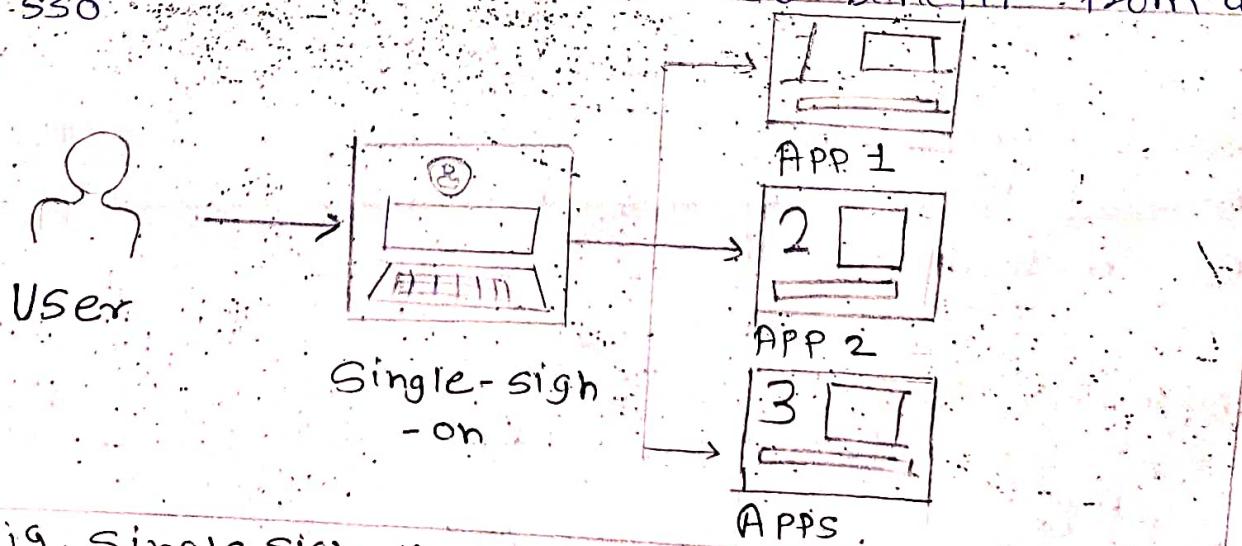


Fig. Single sign on

→ Select an SSO provider -> choose a service that provides SSO functionality like Okta, Azure AD, or Google identity platform.

- 2) Integrate SSO with your application - Follow the provided documentation to integrate SSO into your application
- 3) User Registration & Authentication - User need to register with the SSO Provider and your application should authenticate users through the SSO system.
- 4) Handle user session - Once authenticated, manage user session securely. The SSO Provider may offer tokens or other methods to identify and verify users.
- 5) User logout - Implement a secure logout process that communicates with the SSO Provider to end the user session.
- 6) Error Handling - Implement proper error handling for access like authentication failures, expired sessions or other issues.
- 7) Testing - Throughly test the SSO integration including scenarios like successful logins, failed logins & session handling.
- 8) User Communication - Inform user about the new SSO login process and any changes to existing authentication methods.
- 9) Monitoring & maintenance - Regularly monitor SSO related logs and update the integration as needed.



MOOLJI JAITHA COLLEGE, JALGAON

Faculty of Commerce & Management
Professional Courses

COMPUTER LABORATORY

Name _____

Title of Practical _____

Class _____ Batch _____ Performed on _____

Roll No. _____ Practical No. _____ Submitted on _____

Remarks _____ Returned on _____

Practical No - 6 :- Study and implementation of user management in cloud

- User management :-

- User management is an organizational function that enables users to access and control digital assets such as applications, devices, networks and cloud services.

- User management offers a solution that helps IT keep control of users' activities, files, applications, systems and devices on premises and in the cloud from unauthorized access by internal and external users.

- User management allows administrators to:

- 1) Group users according to their needs and roles.

- 2) Define flexible access policies.

- 3) Maintain the security of IT systems.

- 4) Prevent unauthorized access to infrastructure, applications and data.

- 5) Store user details and credentials.

6) Provide a convenient login mechanism for end users.

In a cloud environment, user management often involves using identity and access management (IAM) services provided by cloud platform.

Let's consider an example using AWS (Amazon Web Services) as a cloud provider.

* User management examples -:

1) Local user management

2) Ensuring a local user has a specific password

3) Ensuring local users are present

4) Ensuring local users are locked

5) Ensuring local users are absent.



MOOLJI JAITHA COLLEGE, JALGAON

Faculty of Commerce & Management
Professional Courses

COMPUTER LABORATORY

Name _____

Title of Practical _____

Class _____ Batch _____ Performed on _____

Roll No. _____ Practical No. _____ Submitted on _____

Remarks _____ Returned on _____

Practical No. 7 :- Study and Implementation of Platform as a Service (PaaS)

- Pass or Platform - as a Service is a cloud Computing model that provides customers a complete cloud platform - hardware, software & infrastructure - for developing, running, and managing applications without the cost, complexity and inflexibility that often comes with building and maintaining that platform on-premises.
- The PaaS provider hosts everything - servers, networks, storage, operating system software, databases, development tools at their data center. Typically, customers can pay a fixed fee to provide a specified number of users or they can choose 'pay-as-you-go' pricing to pay only for the resources they use. Either option enables PaaS customers to build, test, deploy, run, update and scale applications more quickly and inexpensively than they could if they had to build out and manage their own on-premises platform.
- How does PaaS Work?
- As mentioned above, PaaS does not

replace a Company's entire IT infrastructure for Software development. It is provided through a Cloud Service providers hosted Infrastructure.

- Users most frequently access the offerings through a web browser. Paas can be delivered through public, private and hybrid clouds to deliver services such as application hosting and Java development.
- Other PaaS Services includes the following :-
 - development team collaboration;
 - application design and development;
 - application testing and deployment;
 - web service integration;
 - information security;
 - database integration.
- Users will normally have to pay for Paas on a per-use basis. However, some providers charge a flat monthly fee for access to the platform and its applications.