



Chhatrapati Shahu Maharaj Shikshan Sanstha's
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Kanchanwadi, Paithan Road Chhatrapati Sambhaji Nagar

Date :

Practical No : 01

Aim :- To sketch and analyze the architecture of moodle cloud portal and moodle cloud site, and to dynamically create various entities such as users, courses, and activities.

Objectives :-

- Understand the layered architecture of moodle LMS and moodle cloud
- Explore the deployment model of moodle cloud
- Create and manage entities dynamically using the moodle cloud admin interface.
- Document the process with structured steps and screenshots.

Theory :-

Moodle is a modular, open-source learning management system (LMS) built using PHP and MySQL. It supports a wide range of plugins and is widely used in academic institutions. Moodlecloud is a hosted version of moodle provided by Moodle Pty Ltd. offering scalable infrastructure and simplified setup.

Moodle Architecture :-

- 1) Application Layer:-
Core moodle code and plugins.



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3) Data Layer :-

MySQL / PostgreSQL database storing user and course data.

4) Storage Layer :-

file system for media, backups and cache.

5) Client Layer :- Web browser accessing the LMS.

Moodlecloud deployment :-

Moodlecloud uses cloud infrastructure (Eg. AWS) with :-

- Auto-scaling servers
- cloud-based database (Amazon)
- CDN for content delivery
- Load balancer for traffic distribution

Procedure :-

Step 1 : Create a moodlecloud account

- Visit <https://moodlecloud.com>

- Select the free plan and click "Get started".

- Fill in registration details and verify your email

- Fill in your "firstname" for the moodlesite for example :-

<https://raishali.moodlecloud.com>

- Log in to your moodlecloud site as administration

Step 2 : Access site Administration.

→ From the dashboard, click on "site administration".

- Explore tabs like users, courses, plugins, Appearance



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Step 3 : Create course categories

- Navigate to courses → Manage categories
- click "Add category"
- Enter name, description, and parent category.

Step 4 : Add courses :-

- Go to courses → Add a New course
- fill in course name, summary, format
- Assign category and save

Step 5 : Create users

- Navigate to users → Add a new user
- fill in username, password, email
- Assign role (student, teacher, manager)

Step 6 : Add Activities and Resources

- Enter a course and turn editing on
- click "Add an activity or resources"
- choose from assignment, quiz, forum, file, page
- configure settings and save

Step 7 : Use Groups and Enrollment

- Go to participants → Groups
- create groups for segmentation
- use manual or auto-enrollment



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Conclusion :-

This practical provided hands-on experience with Moodlecloud, including architectural analysis and dynamic entity creation understanding the layered structure and cloud deployment model of moodle enhances the ability to manage academic workflows efficiently. The ability to create users, courses, and activities dynamically is essential for scalable and flexible learning environments.



Practical No : 02

Aim :- To create a scenario in WordPress for social marketing search engine optimization, and sharing tools.

Objectives :-

- understand tools and techniques for social marketing in WordPress
- implement SEO strategies using WordPress plugins
- Integrate content sharing features for improved engagement

Prerequisites :-

- basic understanding of WordPress
- web hosting environment with PHP and MySQL
- Access to WordPress admin dashboard

Procedure :-

- 1) Install WordPress
 - download from <https://wordpress.org/download/>
 - upload files to your server and extract
 - create a MySQL database and user
 - Run the installer via your site URL
- 2) Configure Basic Settings:
 - login to settings > general : set site title and tagline
 - under settings > permalinks , choose post name



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3) Install and configure social marketing plugin.

- Go to plugin > Add New: search for Blog2Social or Social Snap
- click install now, then activate
- In plugin settings, connect your social media accounts
- Schedule and automate post sharing.

4) Install and configure SEO plugin

- Search for Yoast SEO or All in one SE pack under plugins > Add New
- Install, activate, then complete your social media accounts
- Schedule and automate post sharing

5) Install and configure sharing tools

- Search for add to any share buttons or ShareThis
- Install, activate then complete the setup wizard
- Generate an XML sitemap and choose button style and placement (above/below posts)
- Test sharing on facebook, twitter, linkedin

6) Create a sample blog post :-

- Write a post on a cloud computing topic
- Optimize it using your SEO plugin (focus keyword)
- Use the social marketing plugin to share automatically.



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7) Verify and Analyze Result:-

- check the Social plugin dashboard for sharing logo
- Review google Analytics for referral traffic
- confirm UTM parameters in shared links.



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Conclusion :-

This practical guided you through installing word press, configuring social marketing, SEO and sharing tools, you learned how to automate content distribution, optimize for search engines, and enhance user engagement, these skills form a solid foundation for cloud based digital marketing and content management.



Practical No :- 03

Aim:- To learn how to write and execute simple programs in python, JS and C++ using a credit-free cloud IDE (Replit) and to understand the alternatives of AWS cloud g

Objectives:-

- Get hands-on experience with a cloud IDE that requires no credit card.
- understand how to create, configure, and run code in Replit
- compare Replit's workflow with AWS cloud's (credit card required)
- Develop, compile and execute basic program in python, JavaScript and C++.

Software Requirement:-

- web Browser (chrome / firefox)
- Internet connection
- AWS account and valid credit/debit card

Theory:-

- Replit is a browser-based IDE supporting over fifty language it allows instant project creating without payment information AWS cloud g offers deeper AWS integration but mandates credit-card verification even for free-tier usage.



Procedure :-

Step 1 : using Replit (NO credit card required)

- 1) open your browser and go to <https://replit.com/>
- 2) click Signup and register with google, Github or email
- 3) After signing in click + create → Repl
- 4) In the "Create a Repl" dialog
 - choose your language (python, node.js, for.js, or c++)
 - Name it (eg. hello-python, hello-js)
 - click Create Repl
- 5) You are now in Replit editor
 - The code editor is on the left
 - The console / terminal is on the Right

Step 2 : Write and Run python on Replit

Step 3 : Write and Run JS on Replit

Step 4 : Write and Run C++ on Replit

- 1) Open your hello-cpp Repl and edit main.cpp
 - #include <iostream>
 - using namespace std;

```
int main() {
```

```
    cout << "Hello from C++ on Replit" << endl;
```

```
    return 0;
```

```
}
```

Step 5 : AWS cloud 9 over view (optional)



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Conclusion :-

Freshers without credit cards details can seamlessly use Replit to write, compile, and run python, js and c++ code , this cloud g remain an optional, more AWS, integrated platform for those with verified accounts



Practical No :- 04

Aim :- Working in codenvy to demonstrate provisioning and scaling of a website

Requirement: Login account in codenvy, cloudBees.

Theory :- one of the advantage of coding in cloud with codenvy is developing to a paas of choice. once the app has been built, run and tested in codenvy talks to API of most popular paas provide currently, the following paas are supported.

- Appfog
- cloudBees
- AWS elastic Beanstalk
- Google App Engine
- Heroku
- openshift
- ManyMo (to run android apps)

The mechanism of deploying, updating and configuring apps slightly differs depending on the chosen paas provider to be able to deploy to paas authentication is required (login or switch account in paas menu) codenvy will handle connection to paas account, retrieving information on existing apps and providing tools manage them



- Some providers will require deploy of SSH keys and git operations to update the apps (heroku, openshift), while others (GAE, AKS) make it possible to update apps in one click.

When deploying an application, it is created in codenvy and deployed to a PaaS, openshift is an exception from this. Here the application is created there and then pulled to a codenvy workspace.

It is possible to import existing apps deployed to some PaaS (heroku) or overwrite existing application (Google App Engine)

- You can find detailed how-to guide on how to get started with PaaS in codenvy in PaaS menu on the left sidebar check out PaaS support chart.

PaaS	Languages	Features	Cloud SDK
			Run
1) Amazon web service	java	Application management EC2 and S3 console	Yes
2) appfog	Java, PHP, Python, Ruby	Manage applications	No
3) cloud foundry	Java, Ruby	Manage Application	Yes - micro cloud foundry
4) cloudbees	Java	Manage Application	No
5) TIER 3	Java, Ruby	Manage Applications	



There are several registration options available in codenvy

- > Getting started using codenvy factories
- > Create a project from scratch
- > Import GitHub projects.

> Device Support :-

codenvy currently supports all desktop and laptop devices. We currently provide touch support through the use of the puffins web browser which visualize double clicks and eight clicks. We have not yet created a naive touch UI design.

Browser Support

Browser	Version
chrome	21+
firefox	15+
safari	5.1+
puffin Browser	2.4+

> Web Server Support

Web Server	Version
Apache tomcat	7.0.39

> Build Environment Support.

Build System	Version
Maven	3.0.9



- > Version control system Support

Version control System	Version
git	1.6

- > Git Hosting providers support:-

Provider	Homepage	Tutorial link
Assembly	https://www.assembla.com/	Assembly
Beanstalk	https://beanstalkapp.com/	Beanstalk
unfuddle	https://unfuddle.com/	unfuddle
planio	https://planio.io/	planio

- > Language Support :-

Language	Version	Syntax coloring	Code outline	Code assistant	Debug mode
CSS	2.0	Yes	No	Yes	-
HTML	4.1	Yes	Yes	Yes	-
Java	1.6	Yes	Yes	Yes	Yes
Java Script	Ecma-262	Yes	Yes	Yes	No



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- framework support

- Paas support

- URL format for work spaces, projects and files

- Every codenvy user has a domain, also called a workspace
[https://codenvy.com/idv/\[workspace name\]](https://codenvy.com/idv/[workspace name])

- Each workspace contains projects that also have their
urls: [https://codenvy.com/idv/\[workspace name\]/\[ProjectN\]](https://codenvy.com/idv/[workspace name]/[ProjectN])



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Conclusion :-

In this practical, we have studied about working in codeenvy to demonstrate provisioning and scaling of a website.

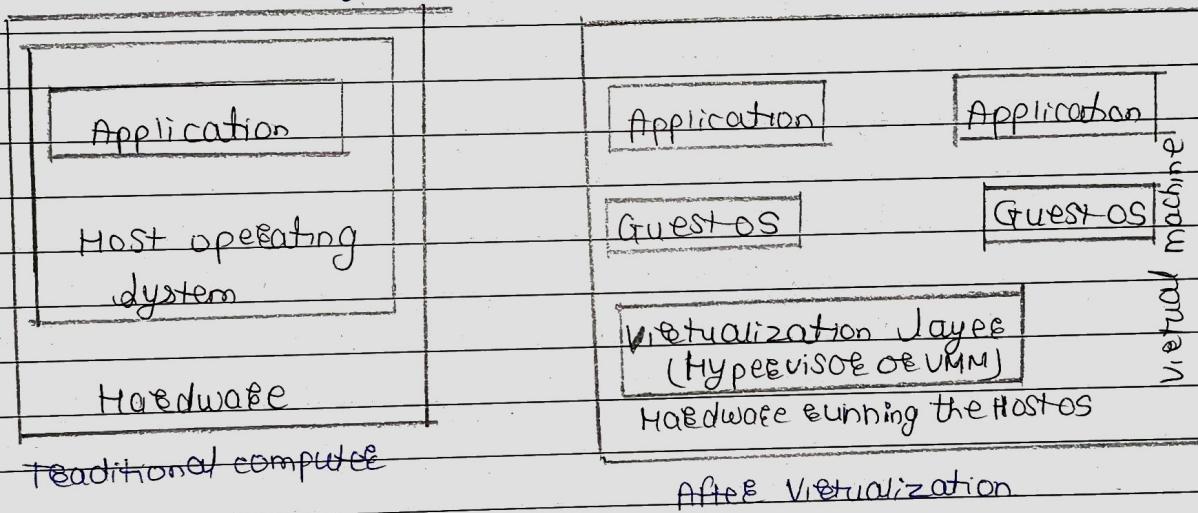


Practical No : 06

Aim :- Installation and configuration of virtual machine with guest OS.

Theory :- What is virtualization in cloud computing?

Virtualization is the "creation of a virtual (emulation of actual) version of something such as a server, a desktop, a storage device, an operating system or network resources".



Types of virtualization :-

- 1) Hardware virtualization
- 2) operating system virtualization
- 3) Server virtualization
- 4) Storage virtualization

1) Hardware virtualization :-

When the virtual machine software or virtual machine manager (VMM) is directly installed on the hardware



System is known as hardware virtualization

2) operating system virtualization:-

- when the virtual machine software or virtual machine manager (VMM) is installed on the Host operating system instead of directly on the hardware system is known as operating system virtualization

3) Server Virtualization:-

- when the virtual machine software or virtual manager (VMM) is directly installed on the server system is known as server virtualization

4) Storage Virtualization:-

Storage virtualization is the process of grouping the physical storage from multiple network storage device so that it looks like a single storage device.

> Level of virtualization:-

Application level

JVM/.NET CLR/parrot

Library (User-level API) level

NVME/WABT/LXRUN/visual/mainwin/UCUDA

OS level

Jail/Virtual environment/Ensim's UPS/FUM

Hardware abstraction layer (HAL) level

Instruction set architecture (ISA) level



Levels of virtualization:-

1) Instruction set architecture level:-

Instruction set emulation leads to virtual ISA's created on any hardware machine.

2) Hardware Abstraction level:-

Hardware-level virtualization is performed right on top of the bare hardware. On the one hand, this approach generates a virtual hardware environment for a VM.

3) operating system level:-

This is the abstraction layer between traditional OS and user application.

4) Library support level:-

Most application use API's exported by user-level libraries rather than using lengthy system calls by the OS.

5) User-application level:-

Virtualization at the application level virtualizes an application as a VM.

Procedure to install :-

1) download link

2) download the installer file.

3) Locate the downloaded installer file.



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Advantages of virtualization:

- 1) Resource optimization
- 2) Save resource and money
- 3) Enhanced security
- 4) Easy disaster recovery



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conclusion :-

In this practical, we successfully install the virtual machine using guest OS.



Practical No: 09

Aim :- Implement and use sample cloud services with the help of Microsoft Azure.

Software Requirements :- Microsoft Azure Subscription.

Theory :-

1) Microsoft Azure :-

Microsoft Azure, formerly known as Windows Azure, is Microsoft's public cloud computing platform. It provides a range of cloud services, including compute, analytics, storage and networking.

- users can pick and choose from these services to develop and scale new applications, or run existing applications in the public cloud.

- The Azure platform aims to help businesses manage challenges and meet their organizational goals.

It offers tools that support all industries including e-commerce, finance and variety of fortune 500 companies.

2) How does Microsoft Azure work ?

Once customer subscribe to Azure, they have access to all the services included in the Azure portal.

Subscribers can use these services to create cloud based resources, such as virtual machine (VM) and database.



Microsoft provides five different customer support options for Azure:-

- Basic
- Developer
- Standard
- Professional Direct
- Premier

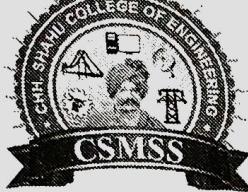
3) What is Microsoft Azure used for?

- Because Microsoft Azure consists of numerous service offerings its use cases are extremely diverse.
- Running virtual machines or containers in the cloud is one of the most popular uses for Microsoft Azure.

Azure is also commonly used as a platform for hosting databases in the cloud. Microsoft offers serverless relational databases such as Azure SQL and non-relational databases such as NoSQL.

4) Azure cloud service:-

- One type of cloud alternative is Infrastructure as a Service (IaaS). With IaaS you manage everything that runs within the OS, and your cloud provider handles the rest, the physical management of the servers, taking care of storage of storage and the network, virtualization, backup power, etc.



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Conclusion :-

In this practical, we have studied about the cloud services with the help of Microsoft Azure.