VIGNAN'S NIRULA
INSTITUTE OF TECHNOLOGY & SCIENCE FOR WOMEN
(Approved by AICTE, New Delhi & Affiliated to JNTU Kakinada)
Vignan Avenue, Peda Palakaluru, Guntur - 522009
Department of Information Technology

Innovative Practice

Faculty Name : Mrs.G.Lakshmi Durga Mr.R.Srinivas
Course Name : Cloud computing
Class : IV B.Tech I Semester
Academic Year : 2024-2025
Title of the Topic : Virtualization of CPU
Activity Name : Mind Mapping

Objective

The Mind Mapping activity is designed to help students visually organize and relate key concepts of CPU Virtualization in Cloud Computing. The objective of this activity is to enable students to understand the complexities of CPU virtualization by breaking down and connecting its core components.

Method to Implement: Virtualization of CPU in Cloud Computing

Introduction:
Introduce CPU virtualization and its importance in cloud computing, explaining how it allows multiple virtual machines to run on a single physical machine.

Mind Map Creation:

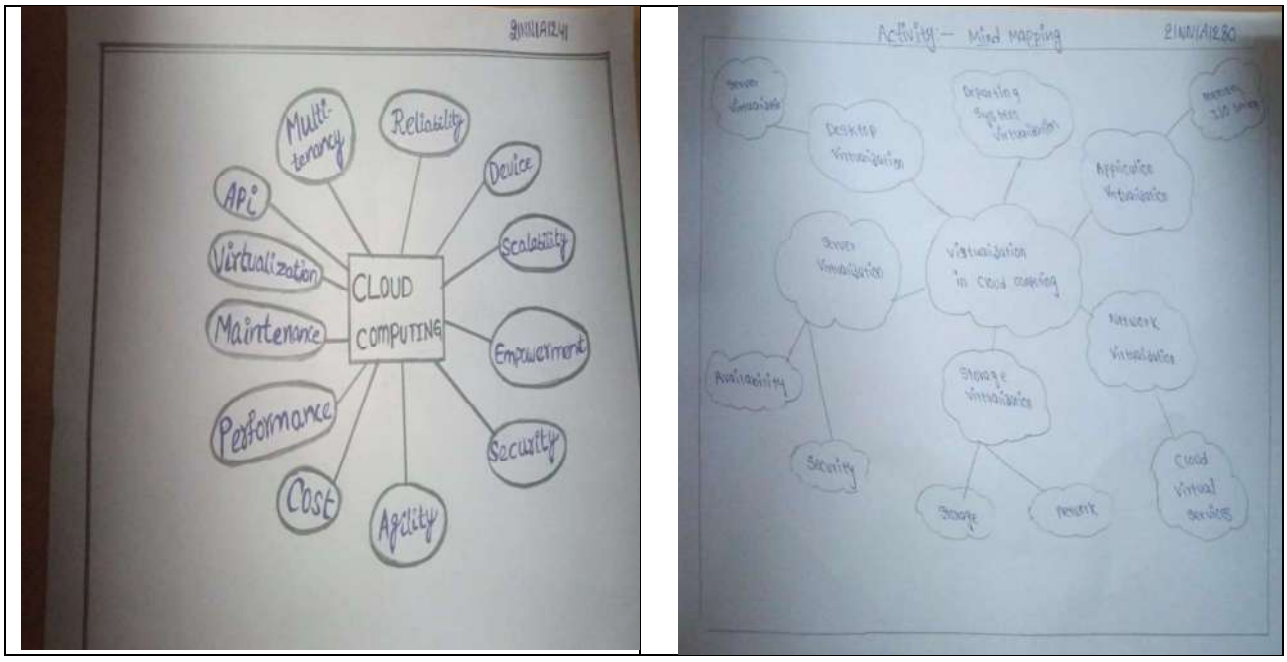
- **Central Topic:** "Virtualization of CPU in Cloud Computing"
- **Subtopics:**

- **CPU Virtualization Concept:** Virtual CPUs, Host vs. Guest
- **Hypervisors:** Type 1 (bare-metal) and Type 2 (hosted)
- **Benefits:** Efficiency, Scalability, Cost Reduction
- **Cloud Providers:** AWS EC2, Azure VMs
- **Challenges:** Performance Overhead, Compatibility

Collaborative Activity:
Divide students into groups, each working on a subtopic. They create a mind map with key points and examples.

Discussion:
Each group presents their mind map and explains how their subtopic connects to the larger concept of CPU virtualization in cloud computing.

Screenshot of the Practice



Central Node: Virtualization of CPU in Cloud Computing

Branch 1: Concept of CPU Virtualization

- **Sub-branches:**
  - Virtual CPUs (vCPUs)
  - Hypervisor Types (Type 1 and Type 2)
  - Host vs. Guest Machines

Branch 2: Hypervisors

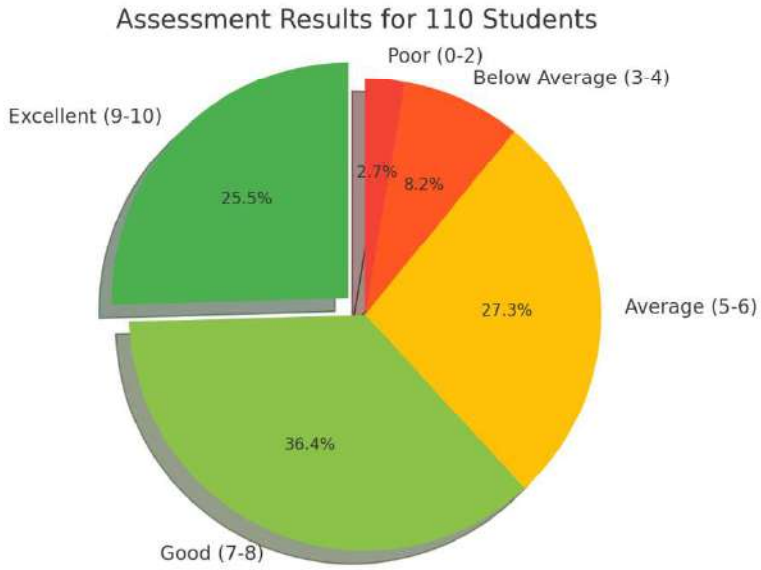
- **Sub-branches:**
  - Type 1 (Bare-metal) Hypervisor
  - Type 2 (Hosted) Hypervisor
  - Hypervisor Functions

Branch 3: Benefits of CPU Virtualization

- **Sub-branches:**
  - Resource Utilization Efficiency
  - Isolation and Security
  - Scalability and Flexibility
  - Cost Reduction in Cloud Computing

Assessment Analysis:

Marks Range	Number of Students	Percentage
9-10 (Excellent)	28	25.45%
7-8 (Good)	40	36.36%
5-6 (Average)	30	27.27%
3-4 (Below Avg)	9	8.18%
0-2 (Poor)	3	2.73%
Total	**110**	**100%**



Conclusion:

In conclusion, CPU virtualization is a cornerstone technology in cloud computing, enabling efficient use of hardware resources by allowing multiple virtual machines to run on a single physical host. It enhances scalability, flexibility, and resource allocation, allowing cloud providers to offer cost-effective solutions to users.

Signature of the Faculty **Head of the Department**