**ST.FRANCIS INSTITUTE OF TECHNOLOGY**

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**Computer Engineering Department**

**LIST OF EXPERIMENT**

**Academic Year:** 2020-2021

**Class/Branch**: BE-A & B/CMPN

**Subject:** CSL803: Cloud Computing Laboratory

**Semester**: VIII

| **Course Outcomes:** | |
| --- | --- |
| CSL803.1 | The students should be able to understand Cloud computing Architecture. |
| CSL803.2 | The students should be able to Create and Run Virtual machines |
| CSL803.3 | The students should be able to build a private cloud using open source technology. |
| CSL803.4 | The students should be able to Implement various service models. |
| CSL803.5 | The students should be able to Install and apply appreciated security on the cloud. |
| CSL803.6 | The students should be able to develop real world applications and deploy on cloud. |

| **Sr. No** | **List of Experiment** | **CO mapped** |
| --- | --- | --- |
| **1** | Installation of Operating System on Virtual Machine | **CPL801.2** |
| **2** | Study of NIST model of Cloud Computing | **CPL801.1** |
| **3** | Implement Storage as a Service using Own Cloud | **CPL801.3** |
| **4** | Study Software as a Service and Cloud Security | **CPL801.5** |
| **5** | Study of Platform as a Service | **CPL801.4** |
| **6** | Study Infrastructure as a Service | **CPL801.4** |
| **7** | Case Study on Fog Computing | **CPL801.6** |
| **8** | Case Study on open source cloud solutions | **CPL801.6** |
| **9** | Mini project |  |

Experiment 1

# Aim:

Installation of Operating System on Virtual Machine

# Theory:

1. Explain virtualization and types of Virtualization
2. Explain Hypervisor in detail (Host and Bare Metal Hypervisor)
3. Explain XEN, ESXi and KVM.
4. What is a Virtual Box?
5. Role of Virtualization in cloud computing
6. Advantage and limitation of virtualization

# Installation of Operating System on Virtual Machine

1. Explain steps to install OS on VM using KVM/Virtual Box with screenshots.

# CONCLUSION

Criteria to select specific type of Hypervisor

How to resolve limitations of Virtualization

# REFERENCES

Experiment 2

# Aim:

Study of NIST model of Cloud Computing

# Theory:

1. Define and explain cloud computing
2. Draw and explain NIST cloud computing Architecture
3. Explain the need for cloud computing.
4. Explain various service models of cloud computing with examples
5. Explain various deployment models of cloud computing
6. Advantages and disadvantages of cloud computing

# CONCLUSION

Which factors to consider before opting for Cloud Computing

Compare containers and Virtual Machine

# REFERENCES

Experiment 3

# Aim:

Implement Storage as a Service using Own Cloud

# Theory:

1. Prepare a detailed study of OwnCloud
2. Advantages and disadvantages of Owncloud

# Activity

1. Install Own Cloud Server

2. Configure

3.Creat an account on ownCloud

4. Upload documents

5. Share with users

6. Access file from user account

7. Download it

# Conclusion

# REFERENCES

# Experiment 4

# Aim

Study Software as a Service and Cloud Security

# Theory

1. Prepare a detailed study of Software as a Service
2. Advantages and Limitation of SaaS
3. Study security issues in cloud computing
4. Explain Server and Data Security is cloud computing

# Activity

1. With the help of any suitable cloud service explain SaaS
2. Use owncloud to explain the security of the webserver and data directory.

# Conclusion

Why is SaaS required?

Why cloud computing security is important.

# REFERENCES

Experiment 5

# Aim:

Study of Platform as a Service

# Theory:

1. Prepare a detailed study of Platform as a Service
   1. What is PaaS
   2. How to use PaaS (Customer)
   3. How to provide PaaS (Cloud Service Provider)
2. Advantages and Limitation of PaaS
3. Study security issues in PaaS
4. Technologies used to provide PaaS

# Activity

1. Use any suitable cloud service, providing a platform as a service
2. Deploy an application
3. Access it from a remote machine

# Conclusion

What are the benefits of using Paas

# REFERENCES

Experiment 6

# Aim:

Study Infrastructure as a Service

# Theory:

1. Prepare a detailed study of Infrastructure as a Service
2. Advantages and Limitation of IaaS
3. Study security issues in IaaS

# Activity

1. Use AWS, to create a VM and configure it.
2. Access the created machine remotely

# Conclusion

What are the benefits of using IaaS

# REFERENCES

Experiment 8

# Aim

Case Study on open source cloud solutions

# Theory

1. List Open source cloud solution, Openstack, nextcloud, etc
2. Prepare detailed study on anyone
   1. Software and Hardware requirements
   2. How to install and Configure
   3. Features and characteristics
   4. How to deploy an application

# Conclusion

Advantages and limitations of using open-source cloud solutions.

# REFERENCES