

**SAVEETHA SCHOOL OF ENGINEERING**

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SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES

**DEPARTMENT OF COMPUTER SCIENCE AND**

**ENGINEERING**

**Name:- Sharan.B**

**Register no:-192210486**

**LAB MANUAL**

**CSA15**

**CLOUD COMPUTING AND BIG DATA ANALYTICS**



**SAVEETHA SCHOOL OF ENGINEERING**



SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES

**DEPARTMENT OF COMPUTER SCIENCE AND**

**ENGINEERING**

**CSE DEPARTMENT VISION-MISSION**

**Vision of the Department**

To establish an environment to provide quality education and Inculcate research attributes among computer science engineering graduates through problem solving skills and technological innovations.

**Mission of the Department**

**M1**

To create and sustain an academic environment to the highest level in teaching and research by enhancing the knowledge of the faculties and students in technological advancements to solve real time problems.

**M2**

Providing a suitable environment for the students to develop professionalism with knowledge in Computer Science & Engineering to meet the contemporary industry needs and satisfy global standards.

**M3**

To facilitate the development of professional behaviour and stronger ethical values so as to work with commitment for the progress of the nation and face challenges with ethical and social responsibility.



**Course Outcomes (CO)**

| CO7 | Able to show resource provisioning in the |  |
| --- | --- | --- |
|  | cloud services using VMware workstation |  |
|  | and CSP | PO5 |
|  |  |  |
| CO8 | Ability to use the Hadoop Distributed File |  |
|  | Systems using Hadoop. | PO5 |
|  |  |  |
| CO9 | Ability to identify suitable Cloud deployment |  |
|  | services and BigData analytics to find |  |
|  | solutions to real time problems. | PO10 |
|  |  |  |
| CO10 | Ability to identify the solution for real time |  |
|  | applications using Cloud and Big Data |  |
|  | Analytics | PO10 |
|  |  |  |



**INSTRUCTIONS FOR THE EXPERIMENTS**

1.Students are advised to come to the laboratory on time; those who come after 5 minutes will not be

allowed into the lab.

1. Plan your task properly much before to the commencement, come prepared to the lab with the

synopsis / program / experiment details. Student should enter into the laboratory with:

* Laboratory observation notes with all the details (Problem statement, Aim, Implementation, Steps, Program, Expected Output, etc.,) filled in for the lab session.
* Laboratory Record updated up to the last session experiments and other utensils (if any) neededin the lab.
* Proper Dress code and Identity card.
* Sign in the laboratory login register, write the TIME-IN, and occupy the computer system allotted to you by the faculty.
* Execute your task in the laboratory, and record the results / output in the lab observation note book, and get certified by the concerned faculty.
* All the students should be polite and cooperative with the laboratory staff, must maintain the discipline and decency in the laboratory.
* Computer labs are established with sophisticated and high-end branded systems, which should be utilized properly.
* Students / Faculty must keep their mobile phones in SWITCHED OFF mode during the lab sessions. Misuse of the equipment, misbehaviors with the staff and systems etc., will attract severe punishment.
* Students must take the permission of the faculty in case of any urgency to go out; if anybody found loitering outside the lab / class without permission during working hours will be treated seriously and punished appropriately.
* Students should LOG OFF/ SHUT DOWN the computer system before he/she leaves the lab after completing the task (experiment) in all aspects. He/she must ensure the system / seat is kept properly.



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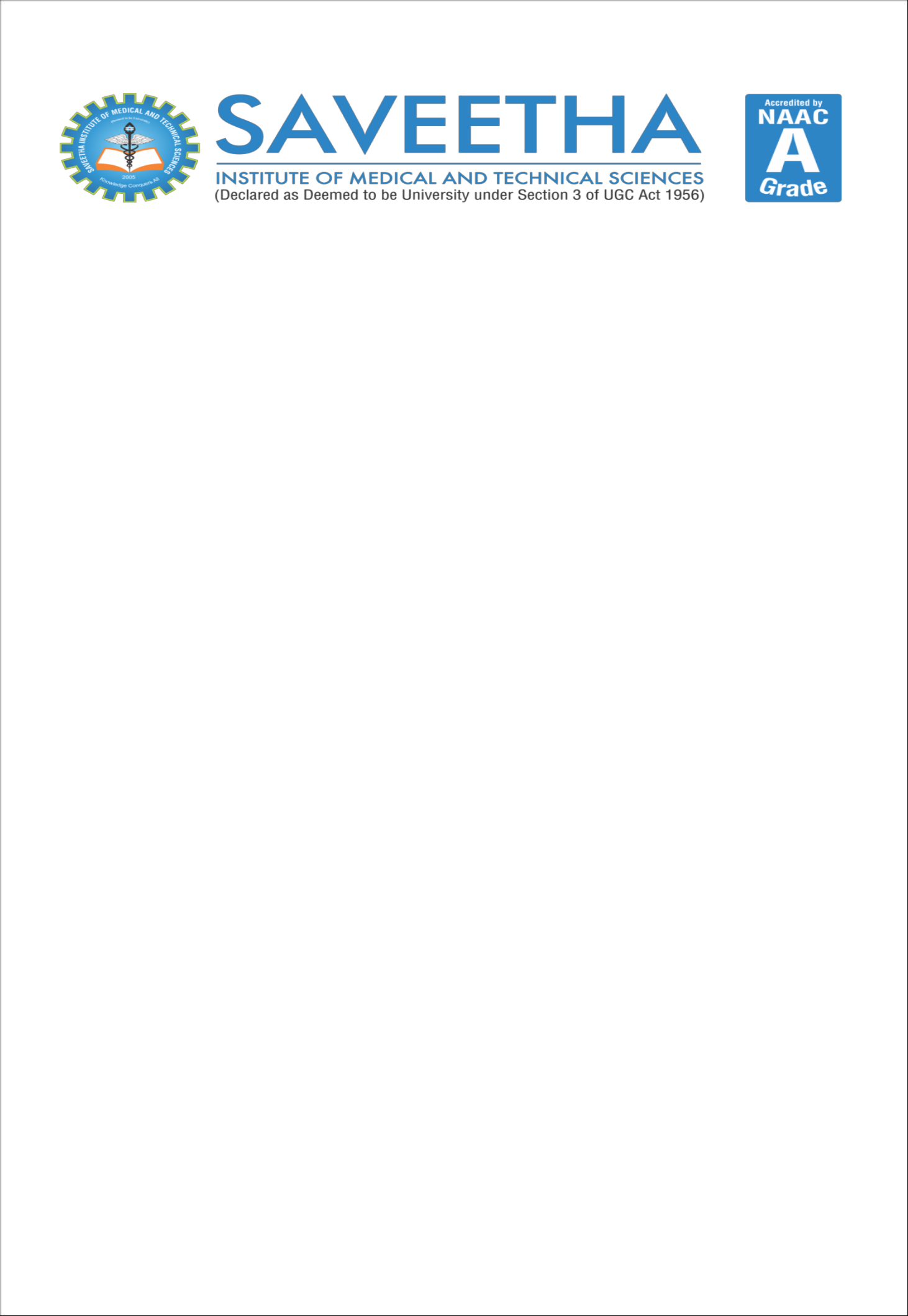
SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**DO’S AND DON’TS**

* Be on time to lab and maintain silence.
* Inform the instructor /TA in case of any working environment problem.
* Be aware of all the safety devices. Even through the instructor and TA will take care of emergencies.
* Bring all the necessary things required to do laboratory experiments like observation notebook, record notebook and any others.
* Enter the system number, in-time, out-time register number, name and signature in the students log register.
* Arrange the seating chairs and system accessories in place at the end of the session.
* Shut down the system properly and switch off the power switch at the end of the session.
* Keep your bags in front of the labs empty space.
* Do not eat, drink, chew gum, smoke or apply cosmetics in the lab.
* Do not unplug/plug any wires of the system connectivity.
* Do not use or charge the mobile phone or any electronic gadgets inside the lab.
* Not to troubleshoot by yourself without knowledge of instructor/TA.
* Do not open any unnecessary applications in system.
* Mobiles phones are prohibited inside the lab.
* Do not share a system to do experiments.

**Students strictly follow all the above instructions**



**SAVEETHA SCHOOL OF ENGINEERIING**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**CSA15 – CLOUD COMPUTING AND BIG DATA**

**ANALYTICS LABORATORY**

**LIST OF EXPERIMENTS**

|  |  | **Blooms** | **CO** | **PO** |
| --- | --- | --- | --- | --- |
| **SNO** | **EXPERIMENT NAME** | **Taxonomy** |  |  |
|  |  |  |  |  |
| 1. | Create a simple cloud software application and |  |  |  |
|  | provide it as a service using any Cloud Service | K03, K04 | CO7 | PO5 |
|  | Provider to demonstrate Software as a Service |  |  |  |
|  | (SaaS). |  |  |  |
| 2. | Create a simple cloud software application for Flight |  |  |  |
|  | Reservation System using any Cloud Service | K03, K04 | CO7 | PO5 |
|  | Provider to demonstrate SaaS |  |  |  |
| 3. | Create a simple cloud software application for |  |  |  |
|  | Property Buying & Rental process (In Chennai city) | K03, K04 | CO7 | PO5 |
|  | using any Cloud Service Provider to demonstrate |  |  |  |
|  | SaaS |  |  |  |
| 4. | Create a simple cloud software application for Car |  |  |  |
|  | Booking Reservation System using any Cloud | K03, K04 | CO7 | PO5 |
|  | Service Provider to demonstrate SaaS. |  |  |  |
| 5. | Create a simple cloud software application for |  |  |  |
|  | Library book reservation system for SIMATS library | K03, K04 | CO7 | PO5 |
|  | using any Cloud Service Provider to demonstrate |  |  |  |
|  | SaaS |  |  |  |
| 6. | Create a simple cloud software application for |  |  |  |
|  | product selling using any cloud service provider to | K03, K04 | CO7 | PO5 |
|  | demonstrate saas. |  |  |  |
| 7. | Demonstrate virtualization by Installing Type-2 |  |  |  |
|  | Hypervisor in your device, create and configure VM | K03, K04 | CO7 | PO5 |
|  | image with a Host Operating system (Either |  |  |  |
|  | Windows/Linux). |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 8. | Create a Virtual Machine with 1 CPU, 2GB RAM and | K03, K04 | CO7 | PO5 |
|  |  | 15GB storage disk using a Type 2 Virtualization |  |  |  |
|  |  | Software. |  |  |  |
|  | 9. | Create a Virtual Hard Disk and allocate the storage | K03, K04 | CO7 | PO5 |
|  |  | using VM ware Workstation |  |  |  |
|  | 10. | Create a Snapshot of a VM and Test it by loading | K03, K04 | CO7 | PO5 |
|  |  | the Previous Version/Cloned VM |  |  |  |
|  | 11. | Create a Cloning of a VM and Test it by loading the | K03, K04 | CO7 | PO5 |
|  |  | Previous Version/Cloned VM |  |  |  |
|  | 12. | Change Hardware compatibility of a VM (Either by |  |  |  |
|  |  | clone/create new one) which is already created | K03, K04 | CO7 | PO5 |
|  |  | and configured. |  |  |  |
|  | 13. | Demonstrate Infrastructure as a Service (IaaS) by |  |  |  |
|  |  | creating a resources group using a Public Cloud | K03, K04 | CO7 | PO5 |
|  |  | Service Provider (Azure), configure with minimum |  |  |  |
|  |  | CPU, RAM, and Storage. |  |  |  |
|  | 14. | Demonstrate Infrastructure as a Service (IaaS) by |  |  |  |
|  |  | creating a Virtual Machine using a Public Cloud | K03, K04 | CO7 | PO5 |
|  |  | Service Provider (Azure), configure with required |  |  |  |
|  |  | memory and CPU. |  |  |  |
|  | 15. | Demonstrate Infrastructure as a Service (IaaS) by |  |  |  |
|  |  | establishing the remote connection, launch the | K03, K04 | CO7 | PO5 |
|  |  | created VM image and run in your desktop. |  |  |  |
|  | 16. | Demonstrate Platform as a Service (PaaS) create |  |  |  |
|  |  | and configure a new VM Image in any Public Cloud | K03, K04 | CO7 | PO5 |
|  |  | Service Provider |  |  |  |
|  | 17. | Create a Simple Web Application using Java or |  |  |  |
|  |  | Python and host it in any Public Cloud Service | K03, K04 | CO7 | PO5 |
|  |  | Provider (Azure/GCP/AWS) to demonstrate Platform |  |  |  |
|  |  | as a Service (PaaS). |  |  |  |
|  | 18. | Demonstrate Storage as a Service (SaaS) create and |  | CO7 | PO5 |
|  |  | configure a new VM Image in any Public Cloud | K03, K04 |  |  |
|  |  | Service Provider |  |  |  |
|  | 19. | Create a Storage service using any Public Cloud | K03, K04 | CO7 | PO5 |
|  |  | Service Provider (Azure/GCP/AWS) and check the |  |  |  |
|  |  | public accessibility of the stored file to demonstrate |  |  |  |
|  |  | Storage as a Service. |  |  |  |
|  | 20. | Database as a Service (DaaS) create and configure a |  | CO7 | PO5 |
|  |  | new VM Image in any Public Cloud Service Provider | K03, K04 |  |  |
|  | 21. | Create a SQL storage service and perform a basic | K03, K04 | CO8 | PO5 |
|  |  | query using any Public Cloud Service Provider |  |  |  |
|  |  | (Azure/GCP/AWS) to demonstrate Database as a |  |  |  |
|  |  | Service (DaaS) |  |  |  |
|  |  |  |  |  |  |



| 22. | Perform the basic configuration setup for installing | K03, K04 | CO8 | PO5 |
| --- | --- | --- | --- | --- |
|  | HADOOP 2.x like creating the HDUSER and SSH |  |  |  |
|  | localhost |  |  |  |
| 23. | Install Hadoop 2.x and configure the Name Node | K03, K04 | CO8 | PO5 |
|  | and Data Node. |  |  |  |
| 24. | Launch the Hadoop 2.x and test the Map-Reduce | K03, K04 | CO8 | PO5 |
|  | Platform with Hadoop. |  |  |  |
| 25. | Launch the Hadoop 2.x and perform Map-Reduce | K03, K04 | CO8 | PO5 |
|  | program For a word count problem |  |  |  |