INSTITUTE VISION AND MISSION

INSTITUTE VISION

PACE is envisaged as a center of evolution for excellence in Technological, Management and Research Education. The institution aspires to spread universal knowledge through villages and cities enabling expansion of human resources.

INSTITUTE MISSION

* To provide career-oriented professional education to produce technically competent engineers and managers with moral and ethical values.
* To foster and promote an effective learning environment in the campus to be recognized as place that encourages excellence and diversity in thoughts and endeavor.
* To provide research and intellectual resources to address problems facing the industry and the society while advancing the scopes of multidisciplinary applications.

DEPARTMENT VISION AND MISSION

DEPARTMENT VISION

To be a leading centre of excellence in the field of Computer Science and Engineering, with specialization in IoT, Cyber Security, and Blockchain Technology, dedicated to developing innovative, ethically grounded professionals who can contribute to global technological advancement.

DEPARTMENT MISSION

* To provide comprehensive education in Computer Science & Engineering with specialization in IoT, Cyber Security, and Blockchain Technology, equipping students with the knowledge, skills, and ethical foundation to excel in their careers.
* To foster a collaborative and inclusive learning environment that encourages creativity, critical thinking, and leadership through interdisciplinary research and partnerships with industry, academia, and government.
* To nurture entrepreneurial abilities and empower students to embrace evolving technologies, contributing to technological progress and societal welfare, while ensuring competence across various aspects of Computer Science and Engineering.

DEPARTMENT PEO's AND PSO's

- **PEO's: Program Educational Objectives**
- **PSO's: Program Specific Outcomes**

DEPARTMENT PEO's

After 4 years of graduation, graduates will be able to:

- **PEO1:** Analyze, design, and implement secure and innovative solutions in Computer Science and Engineering, specializing in IoT, Cyber Security, and Blockchain Technology, to address complex real-world challenges.
- **PEO2:** Demonstrate leadership, professionalism, and ethical responsibility while collaborating in multidisciplinary teams across various industries.
- **PEO3:** Pursue continuous learning & adapt to evolving technologies, contributing to research, innovation, and professional growth.

DEPARTMENT PSO's

At the end of the program, graduates will be able to:

- **PSO1:** Design and develop practical software and hardware solutions to address real-world challenges in Computer Science and Engineering, with a focus on advanced methodologies and innovations, including specialized areas like IoT, Cyber Security and Blockchain Technology.
- **PSO2:** Apply knowledge and skills with professionalism and ethical responsibility, collaborating effectively in multidisciplinary teams, and leveraging expertise in Computer Science and Engineering, with specialization in IoT, Cyber Security and Blockchain Technology, in alignment with industry standards.

PO's AND CO's

- **PO's: Program Outcomes**
- **CO's: Course Outcomes**

PO's

- **PO1:** Engineering Knowledge
- **PO2:** Problem Analysis
- **PO3:** Design/Development of Solutions
- **PO4:** Conduct Investigations of Complex Problems
- **PO5:** Modern Tool Usage
- **PO6:** The Engineer and Society
- **PO7:** Environment and Sustainability
- **PO8:** Ethics
- **PO9:** Individual and Team Work
- **PO10:** Communication
- **PO11:** Project Management and Finance
- **PO12:** Life-Long Learning

CO's

At the end of the course, the student will be able to:

- **CO1:** Describe the basic elements of a relational database management system.
- **CO2:** Design entity relationship for the given scenario.
- **CO3:** Apply various Structured Query Language (SQL) statements for database manipulation.
- **CO4:** Analyse various normalization forms for the given application.
- **CO5:** Develop database applications for the given real-world problem.
- **CO6:** Understand the concepts related to NoSQL databases.

STEPS FOR INSTALLING MYSQL ON UBUNTU

Step 1: Update/Upgrade Package Repository

* To ensure the latest MySQL version installation, update the package repository. Open the terminal and run the following command:

```
sudo apt update
```

* Next, upgrade the installed packages to the latest versions:

```
sudo apt upgrade
```

Step 2: Install MySQL

* Once the repository is updated, install MySQL with the following command:

```
sudo apt install mysql-server
```

* Verify the installation with:

```
mysqld --version
```

* The output confirms that the required version of MySQL is successfully installed on Ubuntu.

Step 3: Securing MySQL

* After installing MySQL, the next step is to perform an initial security setup for your MySQL installation. Securing includes setting a strong password, removing unnecessary accounts and databases, and restricting access to enhance overall security.
* To secure the installation, run the following command:

```
sudo mysql_secure_installation
```

* The output shows the command establishes a connection to MySQL without a password.
* Depending on the system, users might be prompted to provide a root password in this step.
* The rest of the configuration consists of several parts.

Part 1: Password Validation

* The first part is password validation. Press the **"Y"** key to confirm password validation.
* Users have three options for password policy: **0** – low, **1** – medium and **2** - strong.
* Select one option and hit Enter.
* Depending on the system, the next step either asks to set up the password or is skipped completely.
* In the first case, set up a new password by typing it once and then once again to validate. Finally, press Enter to confirm the change.

- Another scenario is that the command skips setting the password where the operating system credentials are used for authentication.
- The root user logs in without providing a password. In this case, the authentication method auth_socket is used by default.

Note: In case auth_socket is used, users still have the option to set the password after logging in to the MySQL server. The command is ALTER USER root@localhost IDENTIFIED BY [password]. The command produces no output.

Part 2: Remove Anonymous Users

- Upon installation, MySQL automatically incorporates an anonymous user, permitting unrestricted access without a dedicated user account. While initially designed for testing and streamlined installations, it is advisable to remove this user for security reasons.
- Users can revisit this step by running the **sudo mysql_secure_installation** command and responding with **"Y"** to ensure a more secure MySQL setup.

Part 3: Disallow Root Login Remotely

- For enhancing the security of the MySQL further, we will have to disable the root login remotely option, for this simply type "**Y**" when it prompts you to disable the login remotely feature.

Part 4: Remove Test Database

- Having a test database accessible to anyone poses a security risk. The safest way is to remove it. Once prompted, type **"Y"**.

Part 5: Reload Privilege Tables

- The privilege tables in MySQL store information about user privileges and access rights.
- Reloading the privilege tables is necessary to apply the changes made throughout the **mysql_secure_installation** process.
- Reloading privilege tables was the last step in securing MySQL installation. Once prompted, type **"Y"**.

Step 4: Check if MySQL Service Is Running

- After the installation, the MySQL service starts automatically. To verify that the server is working, run the following command:

```
sudo systemctl status mysql
```

- The output shows that the service is active and running.

Step 5: Log in to MySQL Server

* The final step is to log in to the MySQL server:

```
sudo mysql -u root
```

* When executed, the command gives the root user access to the MySQL command-line interface and the ability to interact with the MySQL database server using SQL commands and queries.
* If the user has set a password for the root, the command prompts for the root user's password. Once provided, the user gets full access.