JEPPIAAR
ENGINEERING COLLEGE

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Name: CS3451- Introduction to Operating Systems

Year/ Semester: II/ IV

Faculty Name: Dr.Vidhya

Academic Year: 2024–2025

Title of Activity:

Animation-Based Demonstration of Linux Utilities and Commands

Objective of the Innovation:

To enhance conceptual clarity and student engagement in learning **Linux commands and utilities** through **animation-based visualizations**, helping students visualize how operating system components interact in the background.

CO & PO Mapping

Foster self-paced and visual learning habits for lifelong skill development	**CO5**
Lifelong Learning	PO12
Problem Analysis	PO2
Design/Development of Solution	PO3

Brief Description of the Activity:

In the course **CS3451 – Introduction to Operating Systems**, a classroom innovation was introduced by using **animated videos** and **visual simulations** to demonstrate the functioning of Linux utilities such as:

- File system navigation (ls, cd, pwd)
- File handling commands (cat, cp, mv, rm, touch)
- Process management (ps, top, kill)
- Permissions (chmod, chown)
- Piping and redirection (|, >, <)

Animations illustrated what happens internally when these commands are executed — including process creation, memory usage, and file system changes — allowing students to relate command-line actions to OS-level behaviors.

Tool/Innovation Used:

Animation-Based Learning Modules (created using tools like Animaker, Powtoon, or custom GIFs/video walkthroughs)

Benefits:

- Visual memory retention
- Simplified complex internal OS operations
- Student-friendly explanation of abstract concepts
- Easy integration with regular teaching (played during class or uploaded to LMS)

Topics Covered Using the Tool:

- Linux shell environment and terminal basics
- Command syntax and flags

- File operations and directory structure
- Process life cycle (visualized using animations)
- User and permission management
- Real-time execution flow of common shell commands

Learning Outcomes Achieved by Students:

- Understood Linux commands and their practical usage
- Visualized how commands affect files, memory, and processes
- Developed comfort with command-line interface (CLI)
- Retained command syntax and concepts better due to animated explanation
- Showed increased participation and curiosity in lab sessions

Impact and Reflections:

- Students who found CLI difficult became more comfortable
- Complex OS concepts were grasped faster
- Helped slow learners catch up visually
- Improved lab performance and command retention in practical exams