Lab Manual: Operating Systems & Software Development Methodologies

Operating Systems Lab (8 Hours)

Session 2: Linux Basics & Shell Programming (4 hours)

1. Practice with OS commands
2. File & directory operations
3. Redirection, pipes, permissions (chmod, chown, ACLs)
4. Network commands (telnet, ftp, ssh, sftp, finger)
5. Shell programs: variables, wildcards, echo, read

Session 3: Shell Programming (4 hours)

1. Write shell scripts using decision loops (if, case, while, until, for)
2. Use regular expressions
3. Perform arithmetic expressions

Software Development Methodologies Lab (16 Hours)

Session 1: Git (4 hours)

1. Create a local git repository
2. Commit, update, and track changes
3. Create and merge branches
4. Explore Git workflow

Sessions 9 & 10: Docker (4 hours)

1. Install & configure Docker
2. Create Docker image using Dockerfile
3. Start and stop containers
4. Copy website code into container
5. Manage images & containers (list/remove/start/stop)

Session 11: Kubernetes (4 hours)

1. Configure Kubernetes cluster & dashboard
2. Deploy an application
3. Create Kubernetes services
4. Access deployed app via service

Sessions 14 & 15: Selenium (2 hours)

1. Install & configure Selenium in Eclipse
2. Create a test suite
3. Use locators (ID, name, class, XPath, etc.)
4. Add interactions (textbox, checkbox, dropdown, keyboard/mouse actions)

Session 16: Jenkins (2 hours)

1. Install & configure Jenkins

2 Build pipeline job
3 Create Maven project with Selenium test suite
4 Integrate Selenium with Jenkins