A Report on Two-days Hands on Workshop on "The DevOps Vanguard: Tools, Tactics & Transformation" Organized by Department of Computer Science & Engineering in association with ISTE Student Chapter on 19.09.2025 & 20.09.2025

Report Submitted by: Mr. K. Sathish, Assistant Professor, Department of Computer Science & Engineering.

Organized by: Mr. K. Sathish, Assistant Professor, Dept. of CSE. Dr. K. Sree Divya, Assistant Professor

Resource Person Details: Mr. B. Surendra Reddy, Software Developer, Capgemini Technology Chennai.
Attended: Third year ISTE Chapter Students from MITS (Total Count: 59)
Venue: Scale Up Class Room, MITS
Mode of Conduct: Offline

Event Overview:

The Department of Computer Science & Engineering, in association with the ISTE Student Chapter, organized a Two-days hands-on workshop titled **"The DevOps Vanguard: Tools, Tactics & Transformation"** on **19th and 20th September 2025**. This workshop was aimed at equipping participants with in-depth knowledge and practical experience in modern DevOps methodologies, tools, and best practices.

Designed to bridge the gap between theoretical understanding and real-world implementation, the event provided students with a comprehensive learning platform focusing on the continuous integration and delivery (CI/CD) pipeline, infrastructure automation, containerization, monitoring, and collaboration tools that are central to DevOps.

Over the Two days of the workshop featured:

1. **Foundational DevOps Concepts**: Introduction to DevOps culture, principles, and lifecycle, emphasizing the collaboration between development and operations teams to enhance software delivery and reliability.
2. **Toolchain Exploration**: Hands-on exposure to widely-used DevOps tools including Git, Jenkins, Docker, Kubernetes, Ansible, and monitoring tools like Prometheus and Grafana.
3. **Real-Time Implementation**: Practical sessions on setting up CI/CD pipelines, container orchestration using Docker and Kubernetes, and infrastructure automation, allowing participants to apply concepts in real-world scenarios.
4. **Expert-Led Discussions**: Interactive sessions led by industry professionals and experienced developers, offering insights into DevOps trends, real-world challenges, enterprise implementations, and emerging career opportunities.

This immersive workshop enabled students to develop a strong foundation in DevOps practices and gain the technical proficiency required to excel in a fast-evolving software engineering landscape. It also fostered a collaborative learning environment, encouraging innovation, critical thinking, and a deeper understanding of the DevOps mindset.

Inauguration

The Two-Days Hands on workshop, **"The DevOps Vanguard: Tools, Tactics & Transformation"** was officially inaugurated on 19th January 2025 with an engaging welcome address delivered by Poojitha, a Third-year CSE student. In her speech, Poojitha expressed gratitude to the Management, Honourable Vice Chancellor, Respected Principal, Dean, Head of the Department, and the coordinators for their unwavering support, which made the event possible. She also warmly welcomed the resource person for the workshop, Mr. B. Surendra Reddy, Software Developer, Capgemini Technology Chennai, who brought with him six years of expertise in DevOps Technology. Mr. Surendra experience in working on various DevOps projects made him the ideal person to lead the sessions throughout the workshop.

Dr. M. Sreedevi, Head of the Department, also welcomed the participants, highlighting the importance of such initiatives in shaping their skills. The inauguration was further enriched by an insightful address from Dr. Chandra Prakash Gupta, Professor & Dean who emphasized the significance of mastering DevOps for success in the software industry.

Resource Person Profile:

Mr. B. Surendra Reddy is a skilled DevOps Engineer with over 6.6 years of experience in CI/CD pipelines, automation, containerization, and cloud infrastructure. He currently works at Capgemini Technologies as a Software Developer (DevOps) and serves as the Single Point of Contact (SPOC) for the Ericsson MTAS project, focusing on test integration and environment management.

He is proficient in a wide range of DevOps tools and technologies including Jenkins, Docker, Kubernetes, Ansible, and AWS, and is known for collaborating effectively across teams to streamline workflows and resolve production issues.

Mr. Surendra Reddy holds both Bachelor's (B. Tech) and Master's (M. Tech) degrees from JNTU Anantapur. He is passionate about sharing knowledge and regularly conducts hands-on training sessions and workshops, helping professionals adopt best practices in automation and deployment. He has been recognized with the prestigious WOW Award at Capgemini for his outstanding performance and commitment to CI support and issue resolution. Additionally, he is a WIPRO Certified Faculty and a Mentor for Project-Based Learning in Java J2EE.

Day 1 Session:

The First day of the Two-Days Hands-on workshop "**The DevOps Vanguard: Tools, Tactics & Transformation**" laid a strong foundation for participants by introducing the core principles and practices of DevOps, along with essential tools and scripting skills.

1. Introduction to DevOps

The session began with an insightful overview of DevOps, highlighting its significance in modern software development. Participants were introduced to the core objectives of DevOps—enhancing collaboration between development and operations, automating workflows, and accelerating software delivery with high reliability. The facilitator discussed the DevOps lifecycle, emphasizing key phases such as planning, development, testing, deployment, and monitoring.

2. Agile Process

The second session focused on the Agile methodology, a foundational component of the DevOps culture. Students learned how Agile practices promote iterative development, continuous feedback, and customer-centric delivery. The discussion also covered Scrum frameworks, sprint planning, daily stand-ups, and retrospectives, illustrating how Agile and DevOps complement each other in achieving faster and more efficient product development.

3. Linux Scripting Commands

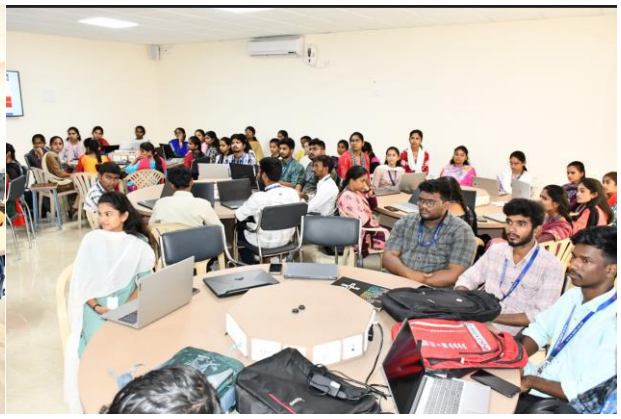
A practical hands-on session followed, where students were introduced to essential Linux commands and shell scripting. This session aimed at building proficiency in navigating Linux environments—a critical skill for DevOps professionals. Topics covered:

- Basic command-line operations
- File permissions and directory structures
- Process management
- Writing and executing simple shell scripts

4. DevOps Tools Overview

The final session of Day 1 provided a broad overview of popular **DevOps tools** used across the CI/CD pipeline. Students were introduced to:

- **Version control systems** (Git)
- **Build automation tools** (Maven, Jenkins)
- **Containerization platforms** (Docker)
- **Configuration management tools** (Ansible)
- **Monitoring solutions** (Prometheus, Grafana)



Day 2 Session:

Building on the foundational knowledge from Day 1, The Second day of the **"The DevOps Vanguard: Tools, Tactics & Transformation"** workshop focused entirely on hands-on implementation of industry-standard DevOps tools and real-time project deployment in a cloud environment. The sessions were designed to give participants practical experience in setting up CI/CD pipelines, containerization, and deploying applications on cloud infrastructure.

1. DevOps Tools – Hands-on Practice

The day began with guided, interactive sessions where participants worked directly with various DevOps tools introduced during Day 1. The goal was to reinforce understanding through real-world application.

2. Jenkins – Continuous Integration

A detailed hands-on session on Jenkins introduced students to the concept of Continuous Integration (CI). Participants learned how to:

- Set up Jenkins jobs
- Automate build and test cycles
- Trigger builds from code changes in GitHub
- Integrate build pipelines with other DevOps tools

3. GitHub – Version Control & Collaboration

Students explored GitHub as a powerful platform for version control, team collaboration, and source code management. Key activities included:

- Creating repositories
- Pushing/pulling code
- Branching and merging workflows
- Linking GitHub with Jenkins for automated CI

4. Docker – Containerization Essentials

In this session, participants gained hands-on experience with Docker, learning how to:

- Create and manage Docker containers
- Build custom Docker images
- Write Dockerfiles
- Understand Docker architecture and use cases

5. Containerization Concepts

Beyond basic Docker commands, this segment covered the broader concept of containerization, its advantages over traditional virtual machines, and how it supports scalable and consistent deployment across environments.

6. AWS Instance – Cloud Deployment

A practical session was conducted on launching and configuring AWS EC2 instances. Participants learned how to:

- Set up a cloud server
- Install necessary software and dependencies
- Connect securely using SSH
- Prepare cloud infrastructure for deployment

7. Real-Time Project Deployment

The workshop concluded with a live deployment of a real-time application using the DevOps pipeline established throughout the day. Participants:

- Built the application
- Containerized it using Docker
- Deployed it to AWS using Jenkins and GitHub integration
- Monitored the running services and validated the deployment process

Vote of Thanks

The workshop concluded with a vote of thanks delivered by Dr. K. Sree Divya and

Mr. K. Sathish, who expressed their heartfelt appreciation to the resource person, management, and all the participants for their active involvement and contribution to the event's success.

Event Outcome:

1. Practical Understanding of Core DevOps Tools

- Gain hands-on experience with key DevOps tools such as Git, Jenkins, Docker, Kubernetes, Ansible, and Terraform.
- Learn how to integrate and automate using CI/CD pipelines.
- Understand real-world use cases and configurations.

2. Building a CI/CD Pipeline from Scratch

- Design and implement a complete CI/CD pipeline.
- Automate code testing, building, deployment, and monitoring.
- Understand version control workflows (e.g., GitOps, trunk-based development).

3. Cloud-Native DevOps Strategies

- Deploy and manage applications on cloud platforms (AWS, Azure, or GCP).
- Learn container orchestration with Kubernetes in a cloud environment.
- Practice infrastructure as code (IaC) using tools like Terraform.

4. DevOps Culture & Agile Alignment

- Explore the cultural shift required for DevOps adoption.
- Learn how DevOps complements Agile and Lean methodologies.
- Understand collaboration models between development, QA, and operations.

5. Monitoring, Logging, and Incident Response

- Implement observability tools (e.g., Prometheus, Grafana, ELK stack).
- Set up basic alerting and dashboards.
- Learn best practices for incident handling and SRE principles.

6. Security & Compliance in DevOps (DevSecOps)

- Integrate security checks into the CI/CD process.
- Learn secure coding, vulnerability scanning, and policy as code.
- Practice compliance automation using tools like SonarQube or Snyk.

7. Real-World Case Studies & Use Cases

- Analyze successful DevOps transformations.
- Understand challenges, trade-offs, and best practices.
- Learn how to tailor DevOps practices to their organization.

8. Personal and Team-Level Growth

- Enhance cross-functional collaboration skills.
- Leave with project-ready templates, code, and workflows.
- Be equipped to initiate or improve DevOps practices in their workplace.

Newspaper Clips:

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సాఫ్ట్‌వేర్ అభివృద్ధిపై దృష్టి సారించండి

విద్యార్థులకు అవగాహన కల్పిస్తున్న సాఫ్ట్‌వేర్ నిపుణుడు సురేంద్రరెడ్డి

మదనపల్లె విద్య, న్యూస్‌టుడే : ఇంజినీరింగ్ విద్యార్థులు సాఫ్ట్‌వేర్ అభివృద్ధిపై దృష్టి సారించాలని చెన్నైకు చెందిన ఓ కంపెనీ సాఫ్ట్‌వేర్ నిపుణుడు బి. సురేంద్రరెడ్డి అన్నారు. శుక్రవారం మిట్స్ డీమ్డ్ టుబీ విశ్వవిద్యాలయంలో కంప్యూటర్ సైన్స్ అండ్ ఇంజినీరింగ్ విద్యార్థులకు శిక్షణ కార్యక్రమం నిర్వహించారు. కార్యక్రమంలో డీన్ డాక్టర్ చంద్ర ప్రకాష్ గుప్త, విభాగాధిపతి డాక్టర్ శ్రీదేవి, సమన్వయకర్త కె.సతీష్, విద్యార్థులు, అధ్యాపకులు పాల్గొన్నారు.

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