HITICX

From Learning to Earning

DevOps Engineer

Master's Program

About the Course

Accelerate your career with Hiticx's comprehensive DevOps Engineer Certification Course in collaboration with IBM. This program features the perfect mix of theory, case studies, and extensive hands-on practice to prepare you for a fast-growing field that bridges the gap between software development and operations.

You'll delve into version control and collaborative software development practices with Git and GitHub to manage code repositories, containerization with Docker to deploy applications at scale, and continuous integration and deployment (CI/CD) with Jenkins to automate, build, deploy, and test processes. This course will help you get equipped with essential skills and knowledge in Docker, Ansible, Terraform, Kubernetes & more.

The program is focused on a hands-on approach via application-based learning through projects, allowing one to gain practical experience and real-world insights as one progresses through the course. Whether you're a seasoned developer looking to expand your skill set or a newcomer eager to explore the realm of DevOps, this course offers a dynamic learning environment tailored to your needs. Embark on this journey as you delve into the cutting-edge technologies shaping the future of software development and operations.

Finally, conclude your journey with industry-ready capstone projects that put your newfound skills to the test in real-world scenarios.

HITICX
Learning Earning

Key Features of the Program

- Microsoft Learn portal access and an MS-branded certificate
- Engageincapstone projects in 3 domains
- Gain access to official IBM self-learning content
- Curriculum aligned to Amazon Web Services
- Access Hiticx's JobAssist Service to get noticed by top hiring companies
- Participate in live virtual classes led by industry experts, hands-on projects, and integrated labs

Partnerships and Certifications Alignment

- This DevOps EngineerProgram is aligned with the curriculum of Amazon Web Services, and we are the registered training provider for this program.
- The three electives on Docker, Kubernetes, Microservices and Serverless for application developer are provided in collaboration with the IBM Developer Skills Network.

DevOps Industry Trends

Market.us

20.5% CAGR

Projected market growth between 2023-2030

Glassdoor

$138K

The average annual salary of a DevOps professional in the U.S.

Market.us

$57.3 Billion

Forecasted DevOps market size by 2032

DevOps Career Outlook

Following highdemandfor DevOpsprofessionals, salariesinthisfield often reflect the reality of the market. A company's size, geographical location, and industry can significantly influence compensation levels. Taking these variables into consideration, we have compiled an estimate of what you can expect to earn in the following roles:

DevOps Engineer:

Harness the power of cloud giants, orchestrating seamless operations on leading platforms.

Average Annual Salary
$120,000 - $190,000

Site Reliability Engineer (SRE):

Site Reliability Engineers master the art of reliability, ensuring systems operate flawlessly in any condition.

Average Annual Salary
$120,000 - $180,000

DevSecOps Architect/Engineer:

DevSecOps Architects integrate security seamlessly into development and operations, ensuring safety without compromise.

Average Annual Salary
$140,000 - $210,000

Automation Architect:

They architect the future of efficiency, automating processes to streamline workflows.

Average Annual Salary
$130,000 - $200,000

A Career in DevOps: Potential Roadmap

Entry-Level DevOps Engineer:

Description: Assists in implementing and maintaining CI/CD pipelines and learns basic automation and cloud computing concepts.

Annual Salary
$60,000 - $90,000

Mid-Level DevOps Engineer:

Description: Manages CI/CD pipelines, automates infrastructure provisioning and configuration, and collaborates with development and operations teams.

Annual Salary

$90,000 - $120,000 Senior DevOps Engineer:

Description: Designs and implements complex CI/CD pipelines, develops automation scripts for infrastructure management, and provides technical leadership and mentorship.

Annual Salary
$120,000 - $150,000

Lead DevOps Engineer / DevOps Architect:

Description: Leads DevOps initiatives, designs scalable and resilient infrastructure architectures, defines best practices and standards, and mentors junior engineers.

Annual Salary
$150,000 - $180,000

Learning Outcomes

Uponsuccessfulcompletionofthis course,youwill:

- Understand DevOps principles: Gain insight into DevOps concepts, benefits, and challenges.
- Master version control and CI/CD: Learn to use Jenkins and GitHub Actions for automated software delivery.
- Gain configuration management and IaC skills: Become proficient in managing infrastructure with Ansible and Terraform.
- Become proficient in Docker containerization: Simplify the development, deployment, and scaling by packaging applications and their dependencies into lightweight, portable containers across various platforms.
- Gain expertise in Kubernetes orchestration: Learn about implementation, deployment, scaling, and security strategies with Kubernetes.
- Master monitoring and logging practices: Gain skills in monitoring with Prometheus, Grafana, Kibana, and ELK stack.
- Learn about DevOps on cloud platforms: Expand your knowledge of major cloud platform providers: Amazon Web Services (AWS) and Microsoft Azure.

Program Outcomes

Uponsuccessful completion ofthiscourse, you will:

- Gain access to 120+ live, instructor-led online classes conducted by experienced trainers.
- Gain access to high-quality e-learning content, featuring real-life case studies, chapter-end quizzes, and simulation exams.
- Earn the DevOps Master's certificate from Hiticx.
- Earn an official course completion badge/certificate from Microsoft.
- Gain additional learning from official IBM training content on DevOps.

Who Should Enroll in This Program?

Thisprogramisdesigned to trainprofessionals whowillberesponsible forDevOpsintheir respective organizations and is recommended for individuals pursuing positions including:

- DevOps or Platform Engineer
- Site Reliability Engineer (SRE)
- Release Manager
- Automation Architect
- DevOps Product Manager
- Build Engineer
- DevOps Evangelist
- Security Engineer
- DevOps Software Developer
- DevOps Data Analyst

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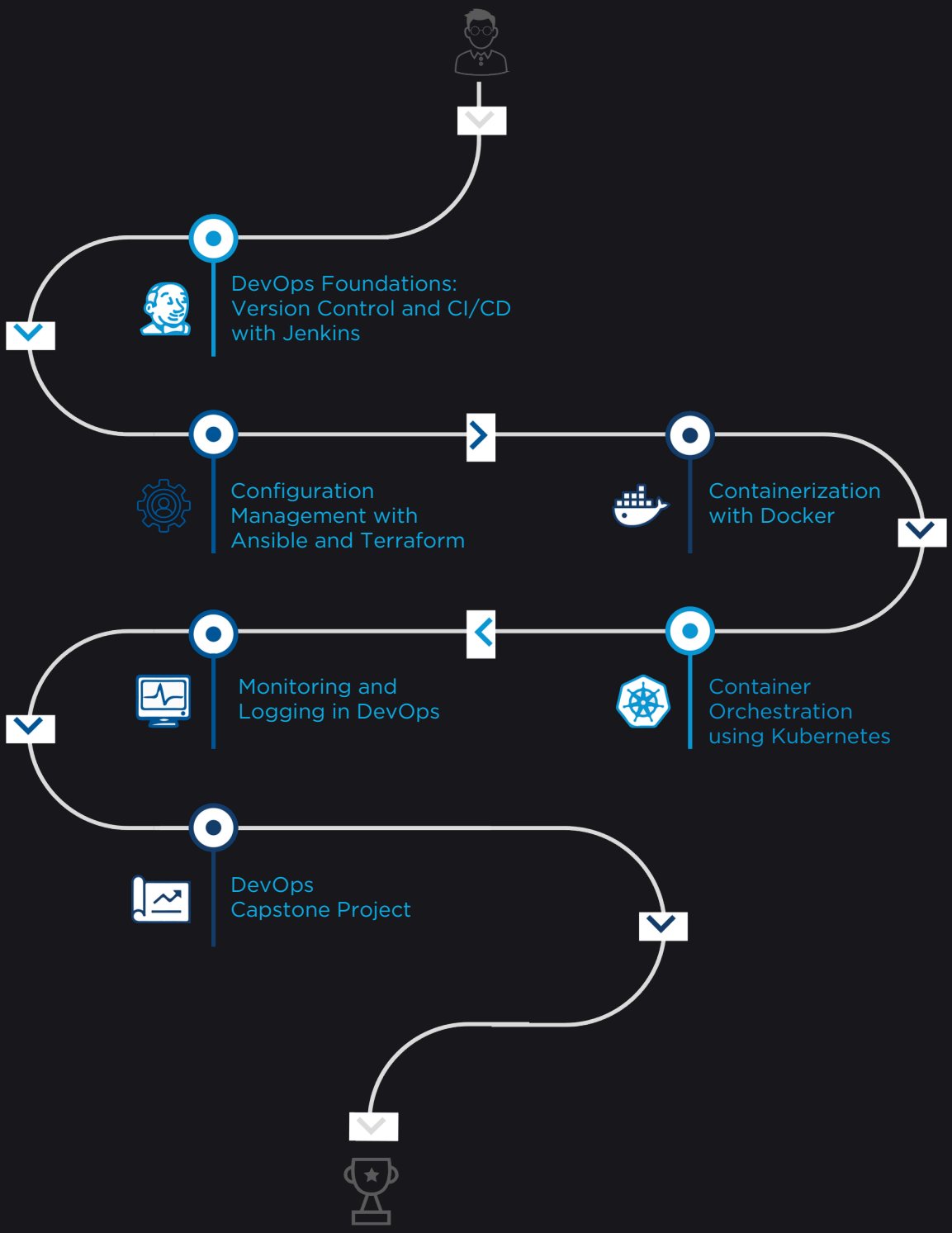
Learning Path Visualization

Core Topics



Electives

- Module 1 - Linux Training
- Module 2 - A Walkthrough of DevOps using Google Cloud
- Module 3 - Microsoft Azure Fundamentals (AZ 900)
- Module 4 - Microsoft Certified DevOps Engineer(AZ 400)
- Module 5 - Docker with IBM
- Module 6 - Kubernetes with IBM
- Module 7 - AWS Cloud Technical Essentials
- Module 8 - AWS Developer Associate
- Module 9 - Puppet Training Course
- Module 10 - Agile Scrum Master
- Module 11 - DevOps on AWS
- Module 12 - Microservices and Serverless for Application Developers with IBM

STEP 1 2 3 4 5 6

DevOps Foundations: Version Control and CI/CD with Jenkins

Upon completion of this module, you will:

- Understand the core principles, benefits, and challenges of adopting a DevOps approach
- Develop practical skills in leveraging DevOps tools and technologies, including Jenkins, GitHub Actions, and version control systems
- Explore the fundamental principles and best practices of DevSecOps for integrating security into the DevOps lifecycle

Course Curriculum

- Lesson 1: Introduction to DevOps
- Lesson 2: Basics of Version Control Systems with Git
- Lesson 3: Exploring Advanced Concepts in Git
- Lesson 4: CI/CD Pipeline with Jenkins
- Lesson 5: Jenkins Jobs and Plugins
- Lesson 6: Jenkins Build Tools and Build Triggers
- Lesson 7: Jenkins Integrations
- Lesson 8: Jenkins Pipeline
- Lesson 9: Jenkins Administration
- Lesson 10: CI/CD Pipeline with GitHub Actions

STEP 1 2 3 4 5 6

Configuration Management using Ansible and Terraform

Upon completion of this module, you will:

- Develop a comprehensive understanding of configuration management and Infrastructure as Code (IaC) concepts, enabling efficient orchestration and automation of complex IT environments.
- Master Ansible's features and benefits, compare it with Puppet and Chef and apply it in real-world scenarios.
- Gain expertise in Terraform's IT automation role, compare it with CloudFormation and Pulumi and harness its power for efficient infrastructure management.
- Acquire practical hands-on experience with Ansible and Terraform, ensuring proficiency in their usage for configuration management and infrastructure automation.

Course Curriculum

- Lesson 1: Getting Started with Configuration Management
- Lesson 2: Ansible Setup and Ad-hoc Commands
- Lesson 3: Yet Another Markup Language (YAML)
- Lesson 4: Ansible Inventories, Modules, and Plugins
- Lesson 5: Securing Ansible Environment with Vault, Roles, and DevSecOps
- Lesson 6: Terraform Fundamentals
- Lesson 7: Terraform Core Concepts
- Lesson 8: Infrastructure as Code Best Practice

STEP 1 2 **3** 4 5 6

Containerization with Docker

Upon completion of this module, you will:

- Gain a thorough understanding of Docker essentials, including its architecture, image management, and registry usage, laying the groundwork for proficient containerization.
- Develop proficiency in Docker networking principles and orchestration techniques using Swarm and Kubernetes, facilitating efficient management of containerized applications.
- Explore advanced Docker topics, including storage mechanisms, microservices architecture, and security best practices, ensuring robust and secure containerized environments.
- Implement Docker security best practices and deploy effective security measures within containerized environments, enhancing your skills in container security.

Course Curriculum

- Lesson 1: Docker Introduction
- Lesson 2: Image Management and Registry
- Lesson 3: Storage and Volumes
- Lesson 4: Orchestration
- Lesson 5: Networking
- Lesson 6: Security
- Lesson 7: Microservices Architecture
- Lesson 8: Docker Enterprise and Docker Kubernetes Service

STEP 1 2 3 **4** 5 6

Container Orchestration with Kubernetes

Upon completion of this module, you will:

- Develop a comprehensive understanding of Kubernetes fundamentals, including its architecture, container runtimes, and key components such as Kubelet, etc., which is crucial for effective container orchestration.
- Learn deployment strategies, workload scaling techniques, self-healing pod mechanisms, and application configuration management within Kubernetes, ensuring smooth deployment and efficient management of containerized applications.
- Explore Kubernetes networking models, services, load balancing strategies, and security measures like RBAC, secrets management, and network policies, enhancing your knowledge of networking and security in Kubernetes environments.

Course Curriculum

- Lesson 1: Overview of Kubernetes
- Lesson 2: Core Components of Kubernetes
- Lesson 3: Kubernetes Cluster Fundamentals
- Lesson 4: Advanced Kubernetes Cluster Management
- Lesson 5: Workloads
- Lesson 6: Managing Applications in Kubernetes
- Lesson 7: Scheduling
- Lesson 8: Advanced Scheduling Techniques
- Lesson 9: Services, Load Balancing, and Network
- Lesson 10: Networking and Ingress Management
- Lesson 11: Storage

STEP 1 2 3 4 **5** 6

Monitoring and Logging in DevOps

Upon completion of this module, you will:

- Gain proficiency in DevOps monitoring essentials, including core concepts, setting up Prometheus for metric collection, and Grafana for visualization to ensure visibility and performance in DevOps environments.
- Master centralized logging with the ELK Stack, incorporating Elasticsearch, Logstash, and Kibana for efficient log management and analysis in DevOps workflows.
- Understand advanced log analytics, integrate logging with CI/CD pipelines, implement security measures, and leverage advanced analytics for actionable insights to improve monitoring and logging practices in DevOps workflows.

Course Curriculum

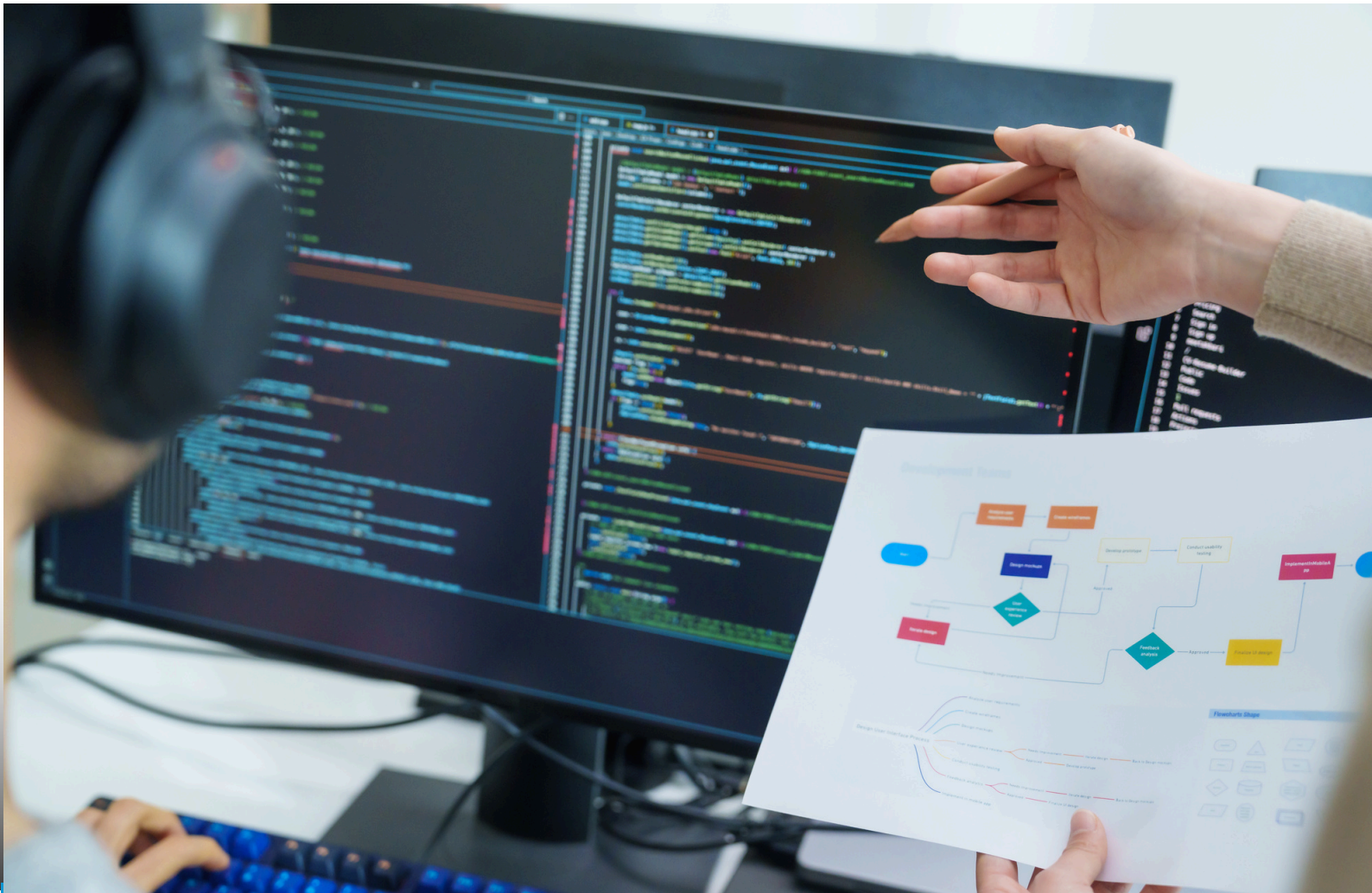
- Lesson 1: Introduction to Monitoring and Prometheus
- Lesson 2: Implementing Monitoring with Prometheus
- Lesson 3: Advanced Concepts of Prometheus in Monitoring
- Lesson 4: Visualization in Monitoring using Grafana
- Lesson 5: Logging in DevOps using Kibana

STEP 1 2 3 4 5 6

Capstone Project

Upon completion of this module, you will:

- Demonstrate your ability to solve real-world scenarios through hands-on practice in capstone projects, effectively applying learned DevOps principles and tools.
- Develop proficiency in addressing industry-oriented problem statements, showcasing expertise in deploying DevOps practices to solve challenges encountered in professional settings.
- Showcase your knowledge and project achievements to employers, strengthen professional connections and enhance opportunities for career advancement in the DevOps field.



Electives

Linux Training

Mastertheimportant concepts of the Linux operating system from command line tools and utilities to concepts such as virtualization through this Linux Training Course.

A Walkthrough of DevOps using Google Cloud

Inthis course,youwilldelve into containerizationand learn how to leverage the power of Google Kubernetes Engine (GKE) to streamline your software development and deployment process.

Microsoft Azure Fundamentals (AZ 900)

This modulewillfamiliarizeyouwith themain principles ofcloud computing and how they are implemented on Microsoft Azure. This Azure course will get you up to speed on Azure services, security, privacy, compliance, trust, pricing, and support.

Microsoft Certified DevOps Engineer (AZ 400)

Inthiscourse,you'lllearn how toimplementDevOpsonAzure.You'll also develop security and compliance plans while configuring distributed computing architecture using Azure Service Fabric.

Docker with IBM

Learnhow touse containers for your applications. Create and run your first Docker container. Then, learn how to run containers in production and solve orchestration problems such as high availability, service discovery, and reconciliation.

Kubernetes with IBM

This courseintroducesthe core concepts of Containers and Kubernetes and explains how containers differ from virtual machines. It also covers the importance of containers in cloud computing and the emerging ecosystem of related technologies such as

Docker, Kubernetes, OpenShift, Istio and Knative.

AWS Cloud Technical Essentials

This AWS Technical Essentials Certification Training course will introduce you to the fundamentals of the Amazon Web Services (AWS) cloud platform and ensure that you are fully proficient in identifying AWS terminologies, concepts, benefits, and deployment options to meet your business requirements.

AWS Developer Associate

This AWS Developer Associate Certification enhances your proficiency with the Amazon Web Services (AWS) cloud platform for developing and deploying robust applications. Learn to implement cloud security best practices and understand what it takes to become an AWS developer associate.

Puppet Training Course

Doyou want to automateyourIT infrastructure? Hiticx's Puppet Training Course enables you to do that and much more, like making your software and the systems it runs on more scalable.

Agile Scrum Master

The ASM certification is your gateway to learning the most popular Agile project management methodology. This Scrum Master certification positions you to become a champion of Agile adoption in your organization and maximize results.

DevOps on AWS

Hiticx's DevOpsonAWS course is structured to build your understanding of both technologies using advanced skills in CodeBuild, CodeDeploy, and CodePipeline to automate continuous delivery and integration for your application.

Microservices and Serverless for Application Developers with

Understandthedifferences between monolithicandmicroservices architectures. Developand deploy microservices using Docker containers and serverless tools, such as IBM Code Engine. Create, document, and test REST APIs with tools like SwaggerUI, cURL, and Postman.

Capstone Projects

- **ASI Insurance**
  Create a microservice application architecture for an insurance company through a DevOps pipeline and deployment on Docker.
- **OrbitBank**
  Deploy a banking application on a Kubernetes cluster from Docker Hub to help private banking clients manage their accounting activities.
- **Hotel-Side Hospital**
  Create an automated provisioned infrastructure using Terraform, EKS cluster, EC2 instances, and Jenkins server.

Tools Covered

git
Maven
Terraform
Jenkins
ANSIBLE
docker
kubernetes
elasticsearch
Grafana
Prometheus
HELM
logstash
kibana

Classroom-Level Immersion: Delivered Digitally