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Course Code: WA610G

Course Title: Developing Cloud Native Applications with IBM Liberty

### **Description:**

Liberty is a lightweight Java™ runtime that is built by using modular features. It is available as both open source and commercial offerings.

In this course, you learn how to use Liberty, Jakarta EE, and MicroProfile to build a RESTful microservice application. MicroProfile is an open-source specification that defines new standards and APIs to accelerate and simplify the creation of microservices. You also explore other features of Liberty and developing microservices applications.

In the hands-on exercises, you build a microservice application, containerize it, and then deploy it on Kubernetes.

### **Objectives:**

- Describe Liberty architecture
- Build a microservice application with Liberty and REST
- Use OpenAPI to document APIs
- Use Jakarta Persistence API (JPA) to persist data
- Secure and test a RESTful API
- Use MicroProfile to add health checks and monitoring capabilities to an application
- Build and test an application in a container
- Deploy a microservice application to Kubernetes

### **Prerequisites:**

Before taking this course, you should have:

- Experience using the Java programming language
- Working knowledge of the Linux operating system
- Familiarity with Kubernetes

### **Duration:**

16 Hrs

### **Topics:**

Lectures:

- Unit 1. IBM Liberty overview
- Unit 2. Introduction to Microservices, REST and MicroProfile
- Unit 3. Working with persistent data
- Unit 4. Securing RESTful APIs
- Unit 5. MicroProfile health checks and monitoring

- Unit 6. Working with containers
- Unit 7. Working with Kubernetes

Lab exercises:

- Exercise 1. Build an application with Liberty
- Exercise 2. Document APIs with OpenAPI
- Exercise 3. Configure the microservice
- Exercise 4. Persist system data by using the Jakarta Persistence API (JPA)
- Exercise 5. Secure and test RESTful APIs
- Exercise 6. Write a RESTful client interface
- Exercise 7. Add health checks and metrics to an application
- Exercise 8. Build and test an application in a container
- Exercise 9. Deploy a microservice to Kubernetes

### **Audience:**

The primary audience for this course is the Application Developer.