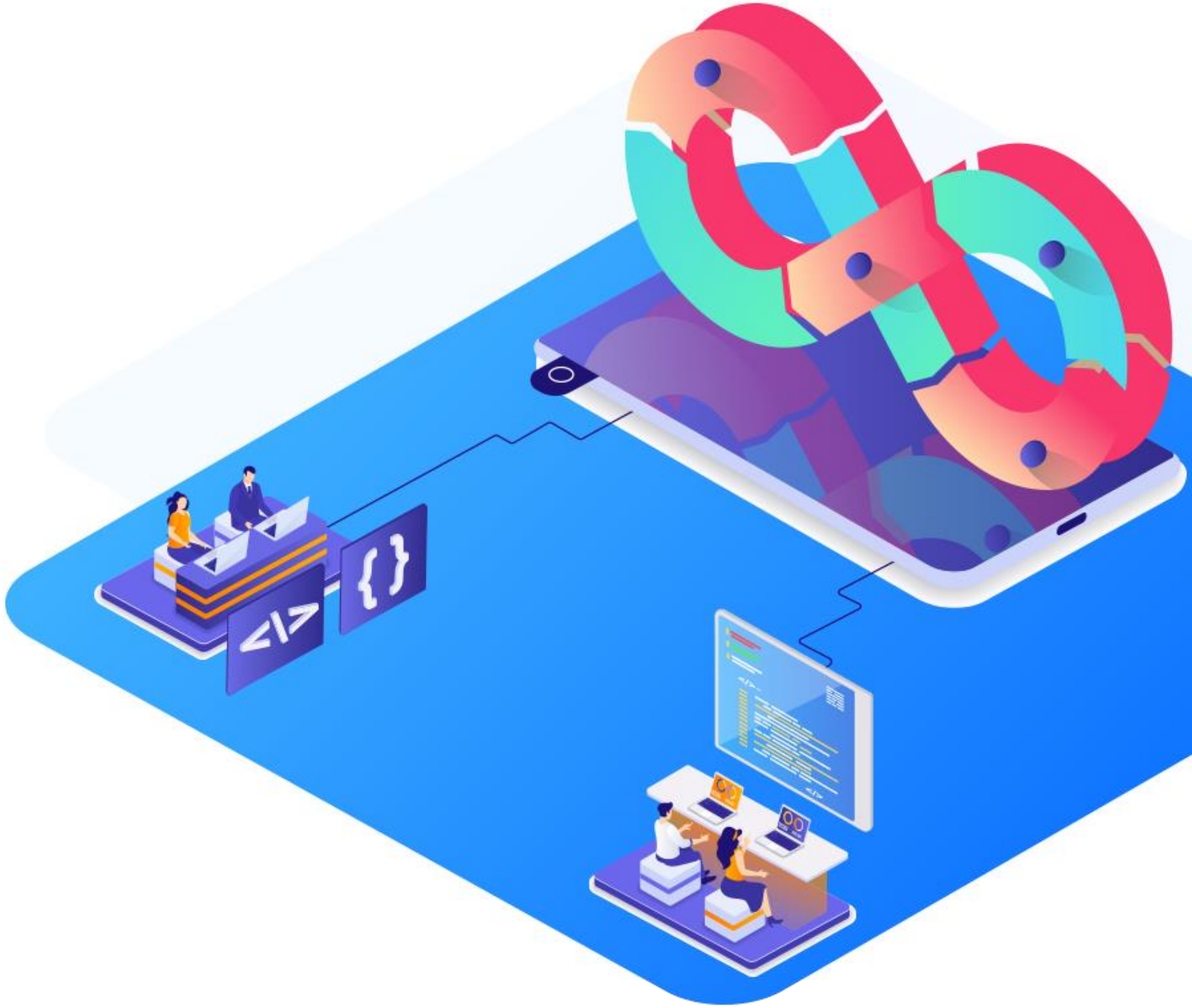
Monitoring and Logging



Course-End Project

Application Metrics Monitoring

Objective

To implement continuous monitoring of a Java application by collecting metrics with Prometheus and visualizing them in Grafana to automate feedback for faster issue detection and enhance build and monitoring processes

Problem Statement and Motivation

Real-time scenario:

A retail company offering a wide range of products, including electronics, clothing, and groceries, is transitioning to a DevOps architecture. The company aims to automate continuous monitoring across its various online platforms and physical stores.

To achieve this, they have adopted Prometheus, a metrics-based monitoring tool that collects data such as website response times, stock levels, and sales performance. The collected metrics are visualized in Grafana, enabling time-based dashboards for tracking trends and improving operational efficiency.

By integrating Prometheus and Grafana, the company seeks to provide continuous feedback to their operations and development teams, improving system reliability, enhancing customer experience, and reducing the time between identifying and resolving issues.

Industry Relevance

The following tools or skills used in this project serve specific purposes within the industry:

1. **Prometheus**: It is an open-source monitoring system for collecting and storing time-series data. It provides powerful querying and alerting features. Often used with Grafana, it excels in cloud-native environments like Kubernetes.

2. **Grafana**: It is an open-source platform for building real-time, interactive dashboards to visualize system metrics and logs. It supports various data sources and provides alerting and querying features. Grafana is highly customizable through plugins and role-based access controls.

3. **Java**: It is a popular programming language that works on different devices. It uses a system called the JVM to run programs on any platform. Java is often used to create apps for phones, websites, and large business systems.

Tasks

The following tasks outline the process of implementing application metrics monitoring with Prometheus and Grafana:

1. Log in to the lab to access the Linux terminal and install the Prometheus metric server

2. Configure Java application to publish custom metrics for API responses to the Prometheus collector

3. Configure Grafana visualization tool to visualize metrics

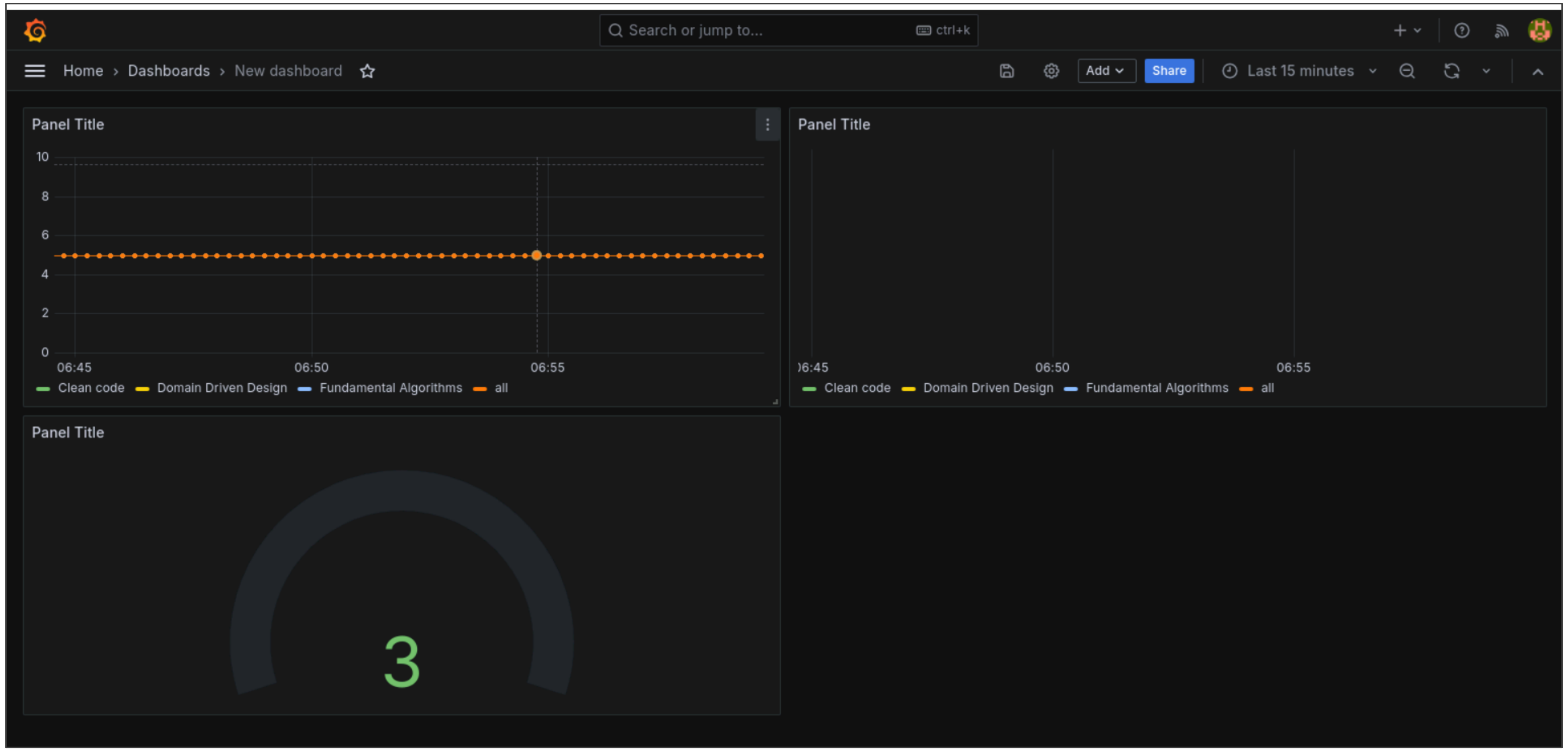
4. Create a metrics dashboard for API responses

Project References

- **Task 1**: Lesson 01
- **Task 2**: Lesson 03
- **Task 3**: Lesson 04
- **Task 4**: Lesson 04

Output Screenshots

Dashboard is displaying API metrics and a gauge:



Thank you