1. Introduction

1.1 Purpose

This document provides step-by-step instructions for building and deploying a Java-based project using Gradle as a build tool and GitHub as the deployment system.

1.2 Scope

The scope of this document covers the entire process from cloning the repository to deploying the project to GitHub.

2. Prerequisites

2.1 Software Dependencies

Ensure the following software is installed on your machine:

- Java JDK
- Gradle
- Git

2.2 GitHub Repository

Create a GitHub repository for your project and obtain the repository URL.

3. Build Process

3.1 Clone Repository

```
git clone <repository-url>
cd <project-directory>
```

3.2 Gradle Build

```
gradle clean build
```

3.3 Run Tests

```
gradle test
```

3.4 Create JAR File

```
gradle jar
```

The JAR file will be located in build/libs/.

4. Deployment to GitHub

4.1 GitHub Actions

Set up GitHub Actions by creating a .github/workflows/build.yml file.

4.2 Workflow Configuration

Edit the workflow configuration file according to your project's needs. This example assumes a simple Java project, and additional steps may be required for more complex projects.

4.3 Deployment Triggers

GitHub Actions will trigger the workflow on every push to the main branch. Adjust triggers in the workflow file to suit your requirements.

5. Troubleshooting

5.1 Build Issues

If the build fails, check the error messages and resolve any missing dependencies or configuration issues.

5.2 Deployment Issues

If deployment to GitHub fails, review the GitHub Actions logs for error details. Ensure that the workflow configuration is accurate and that necessary permissions are granted.