

**University of Sri Jayewardenepura M.Sc. in Computer Science**

**Second Semester Course Unit Examination – September 2025**

**CSC 554 2.0 Net-centric Computing and System Administration / CSC 527 2.0 Net-centric Computing**

**Time: Three (03) Hours**

This is an **open book practical** examination.

Make sure that **MySQL, Git, Docker, Jenkins, VS Code, JDK** 17/19/21, and **Maven** are installed.

**Complete** the following **tasks and prepare a report** by adding **screenshots** of your work.

Name the file as **<IndexNo>\_<Initials LastName>.docx** and **upload** it to the **LMS**.

1. **Task 1**: GIT, GIT Hub, and MySQL. **(20 marks)**
   1. Create a folder in your local machine and name it using your **index no**.
   2. Pull the git repository “*https://github.com/kasunkosala/NCC\_2025.git*”
   3. Fork it, create a branch, and name it using your index no (<***gscompxxx***>)
   4. Add your **name** and the **index no** as a **comment** to the Java file and **push** your changes **to the newly created branch**.
   5. Create a MySQL database, **name using your indexno**, and **import** the table and the data using the given SQL **backup file**.

# [04x05 Marks]

1. **Task 2**: Docker and Docker Hub. **(21 marks)**
   1. Create a repository in your Docker Hub name it using your index no.
   2. Create **Docker files**, a Docker **composer file** in suitable places in the pulled Git repository and **push the changes** to your forked repository.
   3. Build and push the docker images to the Docker Hub.

# [07x03 Marks]

1. **Task 3**: Jenkins. **(24 marks)**
   1. Create a pipeline in Jenkins with three stages.
   2. Pull the git repository that you forked before in the first stage.
   3. In the second stage, build Docker images.
   4. In the third stage, push the build Docker image to the Docker Hub.

# [06x04 Marks]

1. **Task 4**: Spring Boot. **(25 marks)**
   1. Create a Spring Boot project and name it using your IndexNo and Add the dependencies and extensions.
   2. Create a MySQL Database, restore the given backup database and establish the database connection in your Spring Boot project.
   3. Create an entity class name “item” with itemCode, itemName, unitPrice, updatedDate and implement all setters, getters, constructors, etc.
   4. Create the Rest Repository interface and the CRUD controller.

# [05x04 Marks]

1. **Task 5**: Postman. **(10 marks)**
   1. Test all four CRUD operations you implemented.

# [2.5x04 Marks]

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