St. Francis Institute of Technology, Mumbai-400 103
Department Of Information Technology

A.Y. 2023-2024
Class: TE-ITA/B, Semester: V

Subject: **DevOps Lab**

Experiment – 4: To understand Continuous Integration, install and configure Jenkins with Maven/Ant/Gradle to setup a build Job.

1. **Aim:** To understand Continuous Integration, install and configure Jenkins with Maven
2. **Objectives:** Aim of this experiment is that, the students will be able
   - To Integrate and deploy tools like Jenkins and Maven, which is used to build applications in DevOps environment
3. **Outcomes:** After study of this experiment, the students will be able
   - To understand the importance of Jenkins to Build and deploy Software Applications on server environment.
   - Learn about Jenkins (With Architecture)
   - To have introduction to Maven / Gradle / Ant
4. **Prerequisite:** Knowledge of software engineering concept of integration
5. **Requirements:** Jenkins, JDK, python, ANT, Personal Computer, Windows operating system, browser, Internet Connection, Microsoft Word.
6. **Pre-Experiment Exercise:**
   Brief Theory: Refer shared material
7. **Laboratory Exercise**
   A. **Procedure:**
      a. **Answer the following:**
         - What is Jenkins?
           Jenkins is an open-source automation server that helps streamline and automate various tasks related to software development and deployment. It provides a platform for continuous integration (CI) and continuous delivery (CD), allowing teams to automate the building, testing, and deployment of software applications. Jenkins is highly extensible through plugins, making it a popular choice for automating and managing various aspects of the software development lifecycle.
         - Why use Jenkins?
           Jenkins is used to:
           Automate Tasks: Streamline and automate repetitive tasks in software development and deployment, saving time and reducing manual errors.
           Continuous Integration: Enable continuous integration, allowing developers to integrate their code changes frequently, ensuring early bug detection.
           Continuous Delivery: Facilitate continuous delivery by automating the building, testing, and deployment of applications, making releases more reliable and efficient.
           Extensibility: Benefit from a vast ecosystem of plugins to customize and extend Jenkins to suit specific project needs.

           Open Source: Jenkins is open-source, making it cost-effective and accessible to a wide range of development teams.

      b. **Execute following (Refer the shared material) and attach screenshots:**
         - Install Jenkins
         - Configure Jenkins with Maven and ANT
         - Build 4 basic projects in Jenkins
8. **Post-Experiments Exercise**
   A. **Extended Theory:**
      Nil

B. Questions:

- What are the system requirements to install Jenkins?
- Give some important plugins in Jenkins.
- What is Maven and ANT?

C. Conclusion:

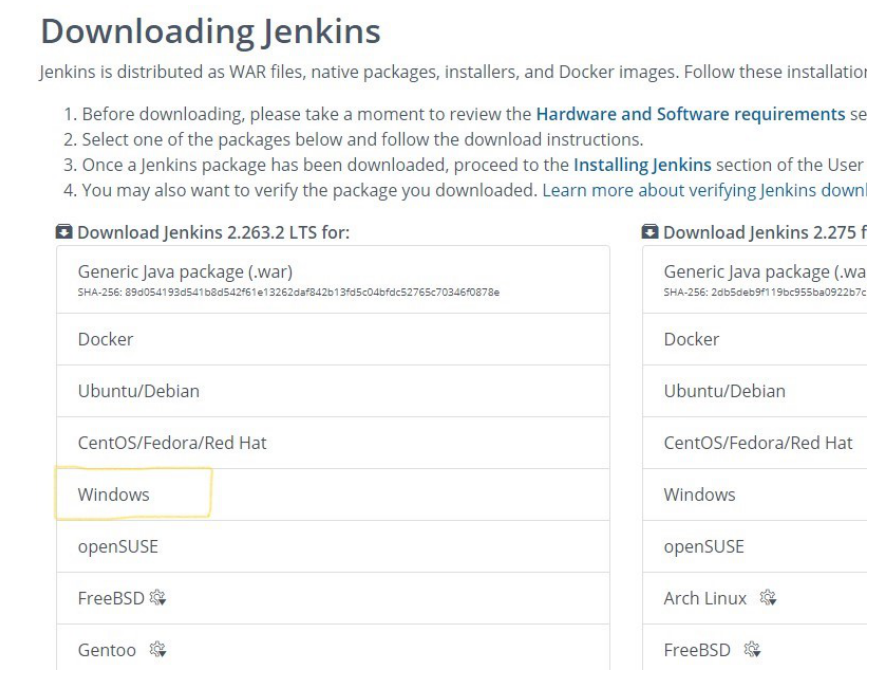
- Write what was performed in the experiment.
- Write the significance of the topic studied in the experiment.

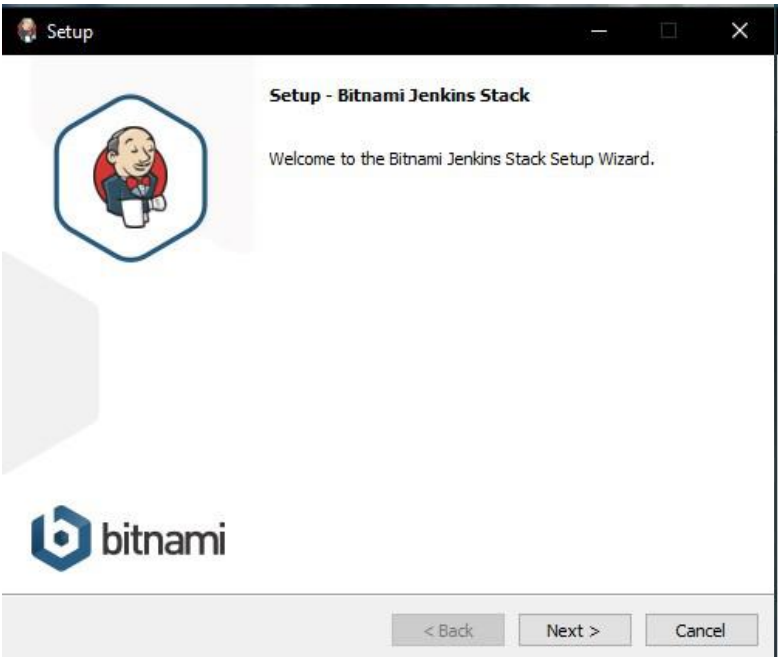
D. References:

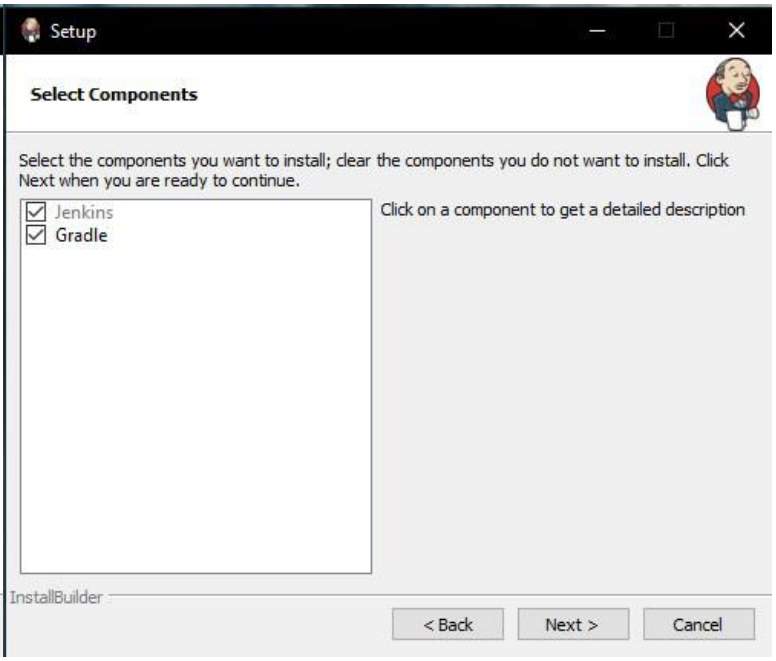
https://jenkins.io/doc/
https://www.cloudbees.com/jenkins/what-is-jenkins
https://vmokshagroup.com/blog/what-is-jenkins/
https://www.infoworld.com/article/3239666/what-is-jenkins-the-ci-server-explained.html
https://hackr.io/blog/jenkins-interview-questions
https://www.edureka.co/blog/interview-questions/jenkins-interview-questions/

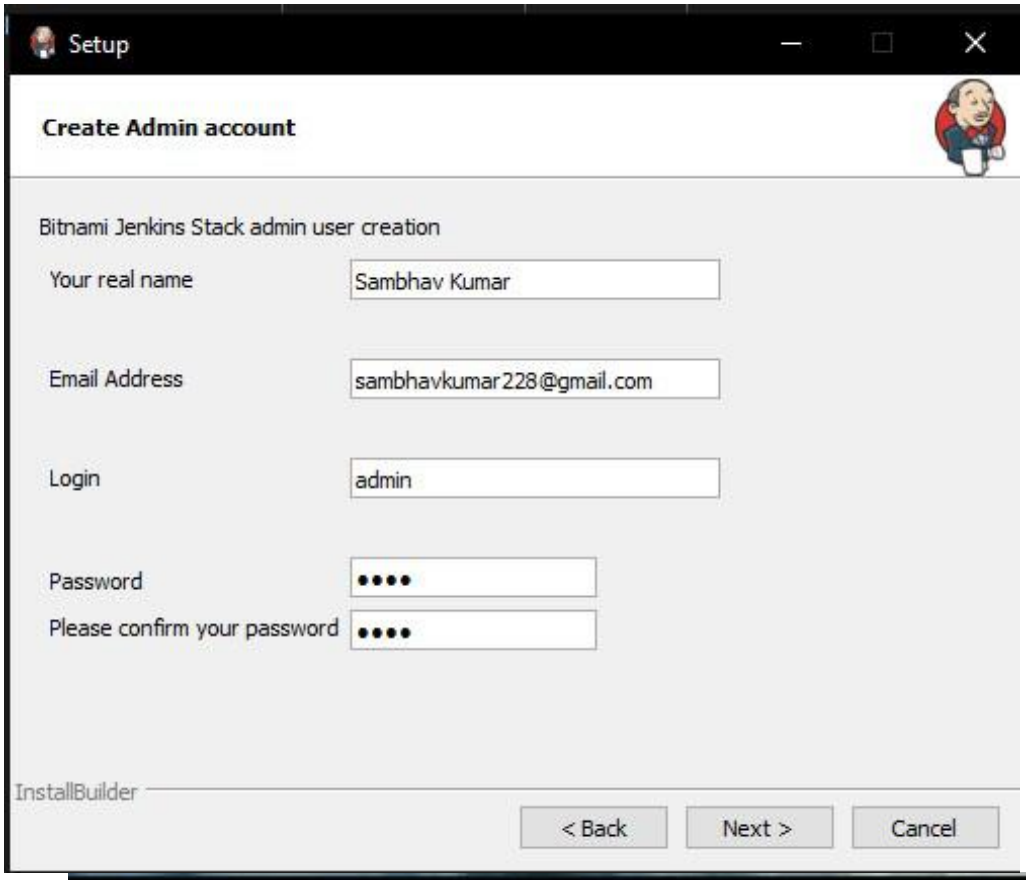
SS :-

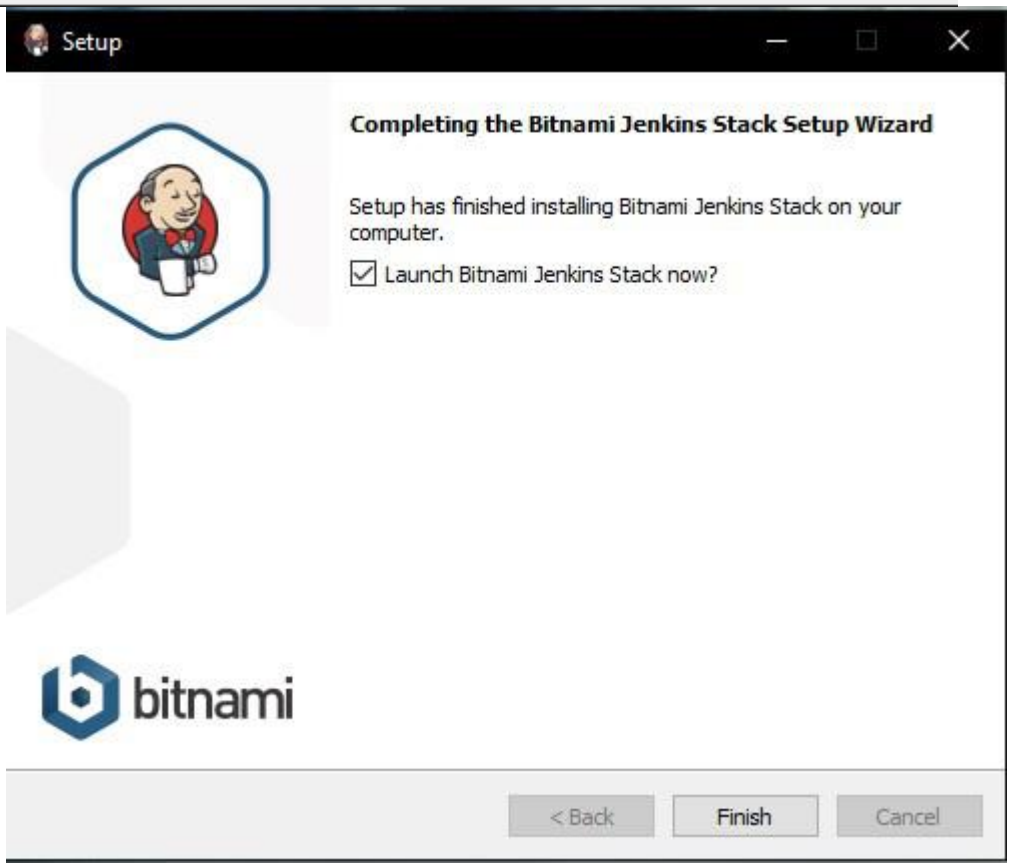
7b :- Install Jenkins:








Setup
Create Admin account
Bitnami Jenkins Stack admin user creation
Your real name
Sambhav Kumar
Email Address
sambhavkumar228@gmail.com
Login
admin
Password
Please confirm your password
InstallBuilder
< Back
Next >
Cancel


Setup
Completing the Bitnami Jenkins Stack Setup Wizard
Setup has finished installing Bitnami Jenkins Stack on your computer.
Launch Bitnami Jenkins Stack now?
bitnami
< Back
Finish
Cancel

bitnami

Awesome! Jenkins is now installed.

Access Jenkins

You just installed Jenkins using Bitnami - the fastest, easiest and most secure way to deploy your favorite app.

- Visit the Bitnami Jenkins documentation page for more information on managing your installation.
- Find answers to common questions or pose a new question on our community forum.

Thanks for using Bitnami!

Welcome to Jenkins!

Username

Password

Sign in

Keep me signed in

Getting Started

Getting Started

Folders	OWASP Markup Formatter	Build Timeout	Credentials Binding	** Trilead API
Timestamper	Workspace Cleanup	Ant	Gradle	
Pipeline	GitHub Branch Source	Pipeline: GitHub Groovy Libraries	Pipeline: Stage View	
Git	Subversion	SSH Build Agents	Matrix Authorization Strategy	
PAM Authentication	LDAP	Email Extension	Mailer	

** - required depende

Jenkins 2.204.1

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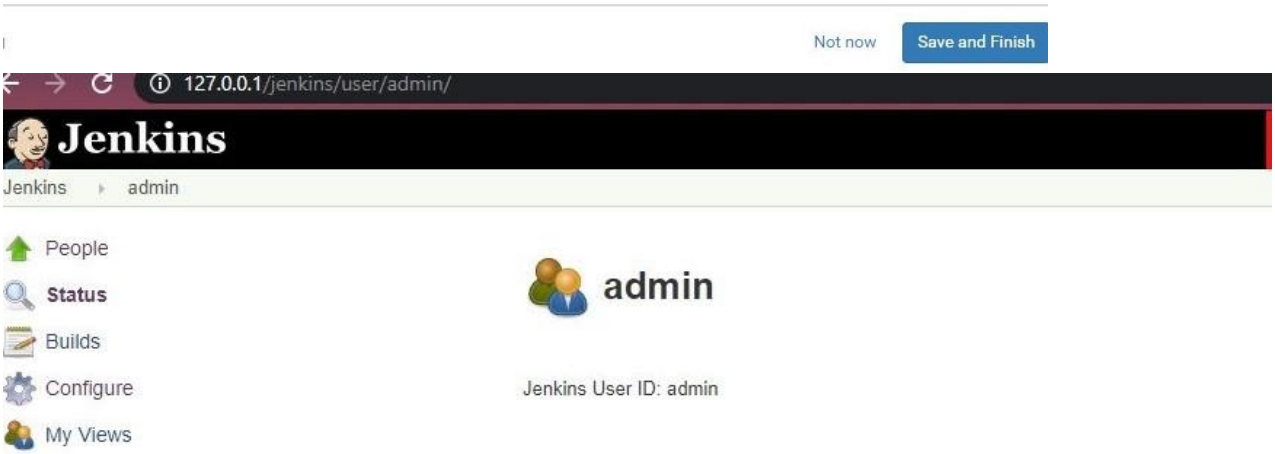
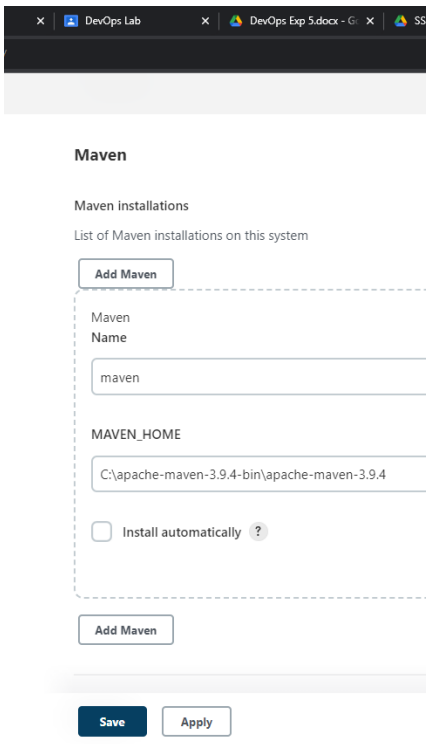
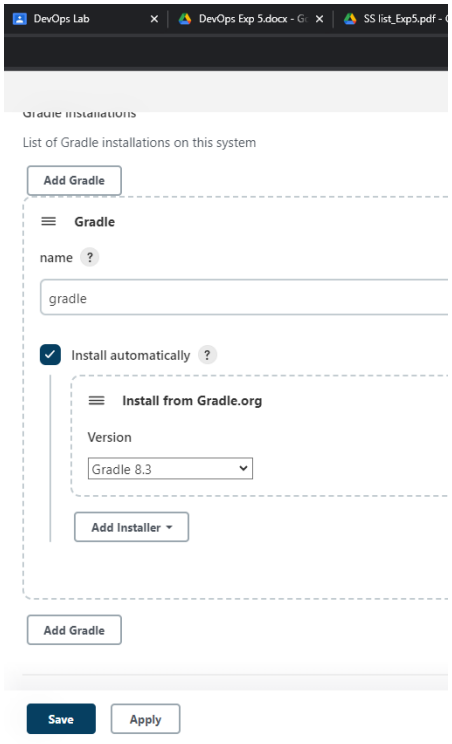
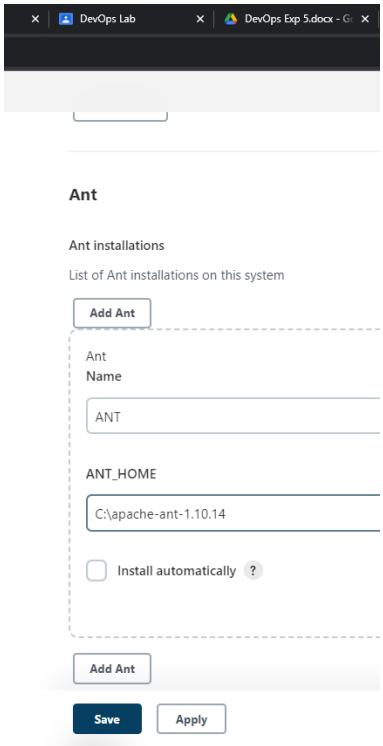


Configure Jenkins with Maven/Ant/Gradle – Global tool configuration, manage plugins







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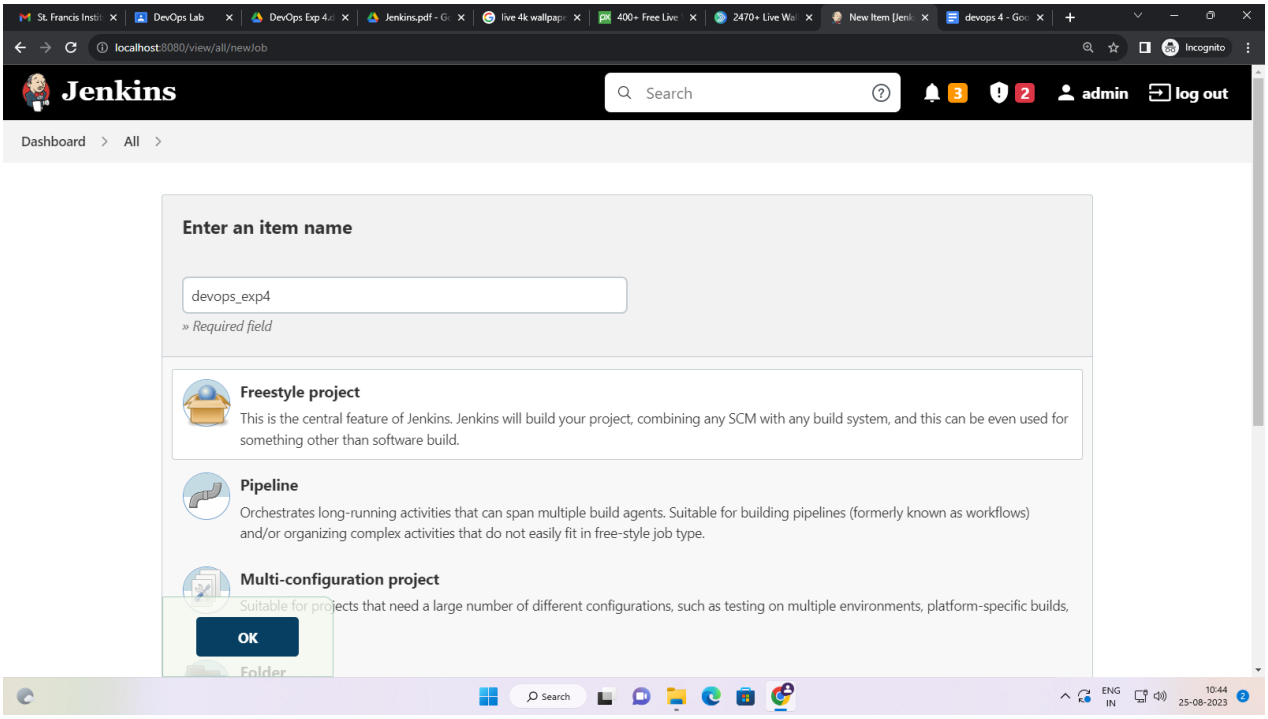
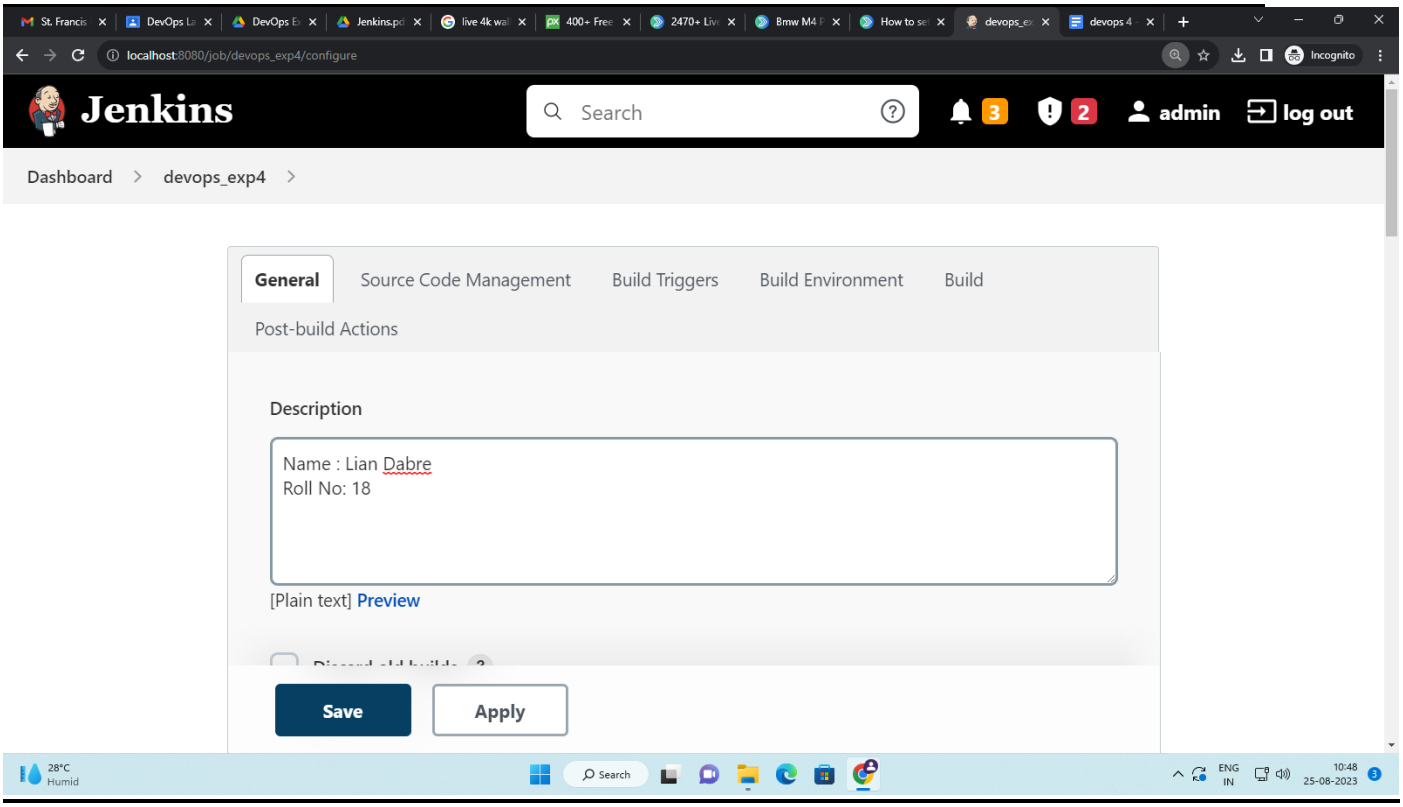
• Build jobs in Jenkins

1. Freestyle project (Simple Windows batch command) – echo





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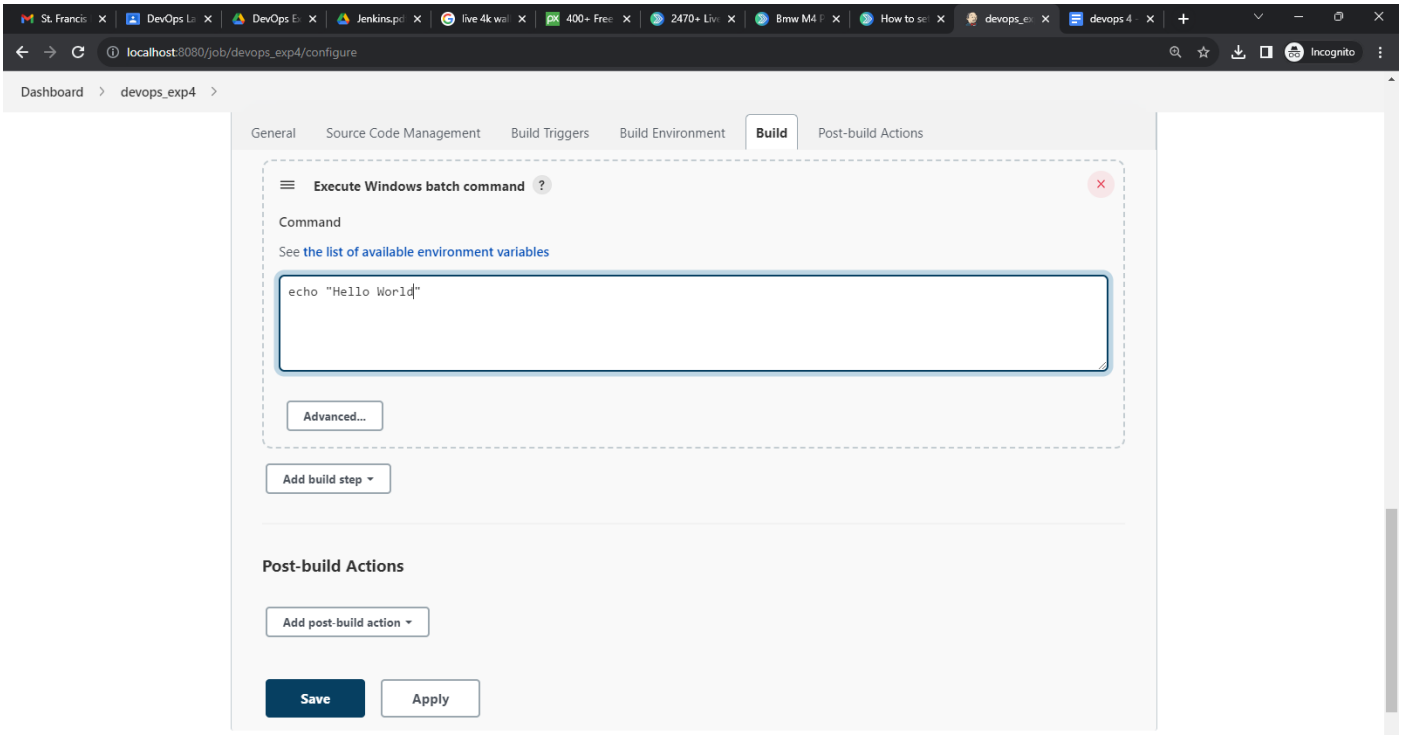

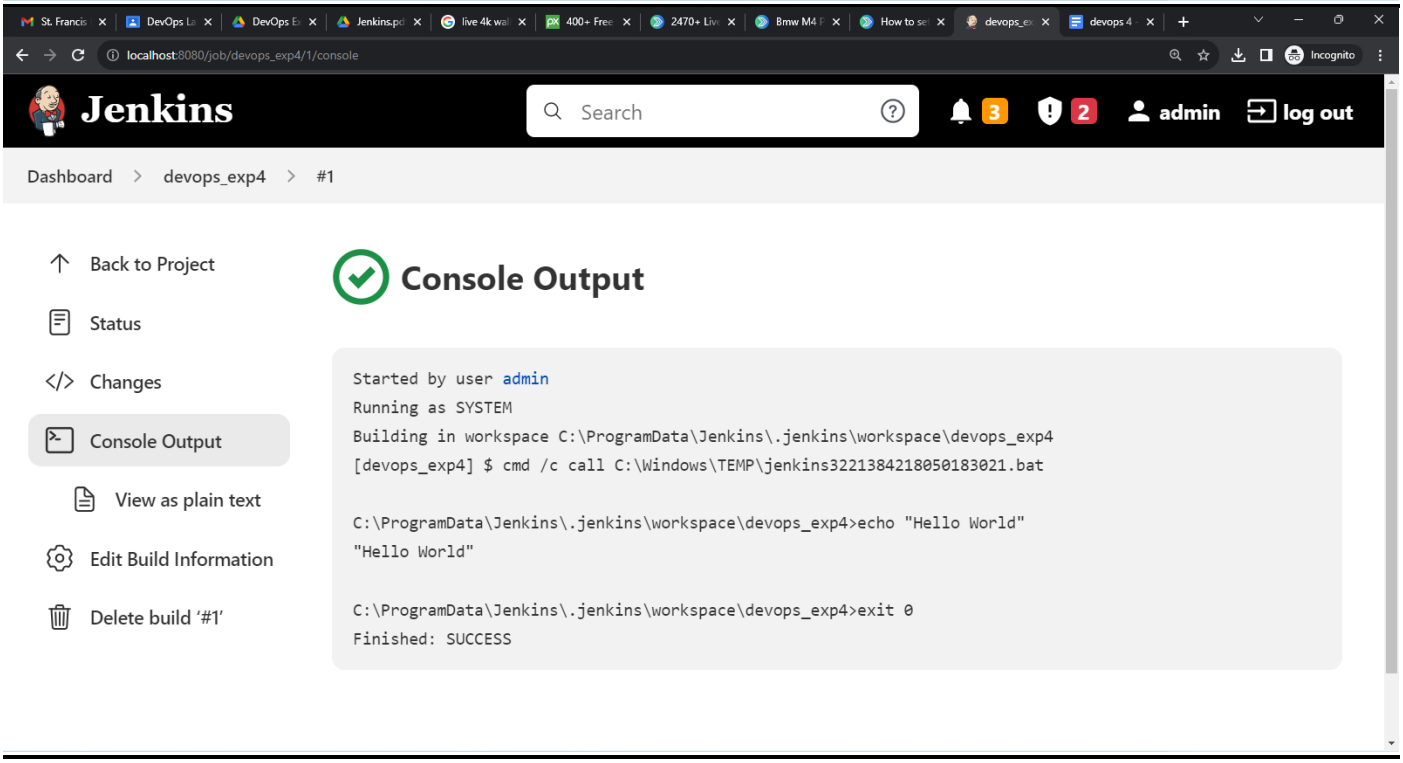

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2 Freestyle parameterized project (Windows batch command) –string, Boolean and choice parameters with echo

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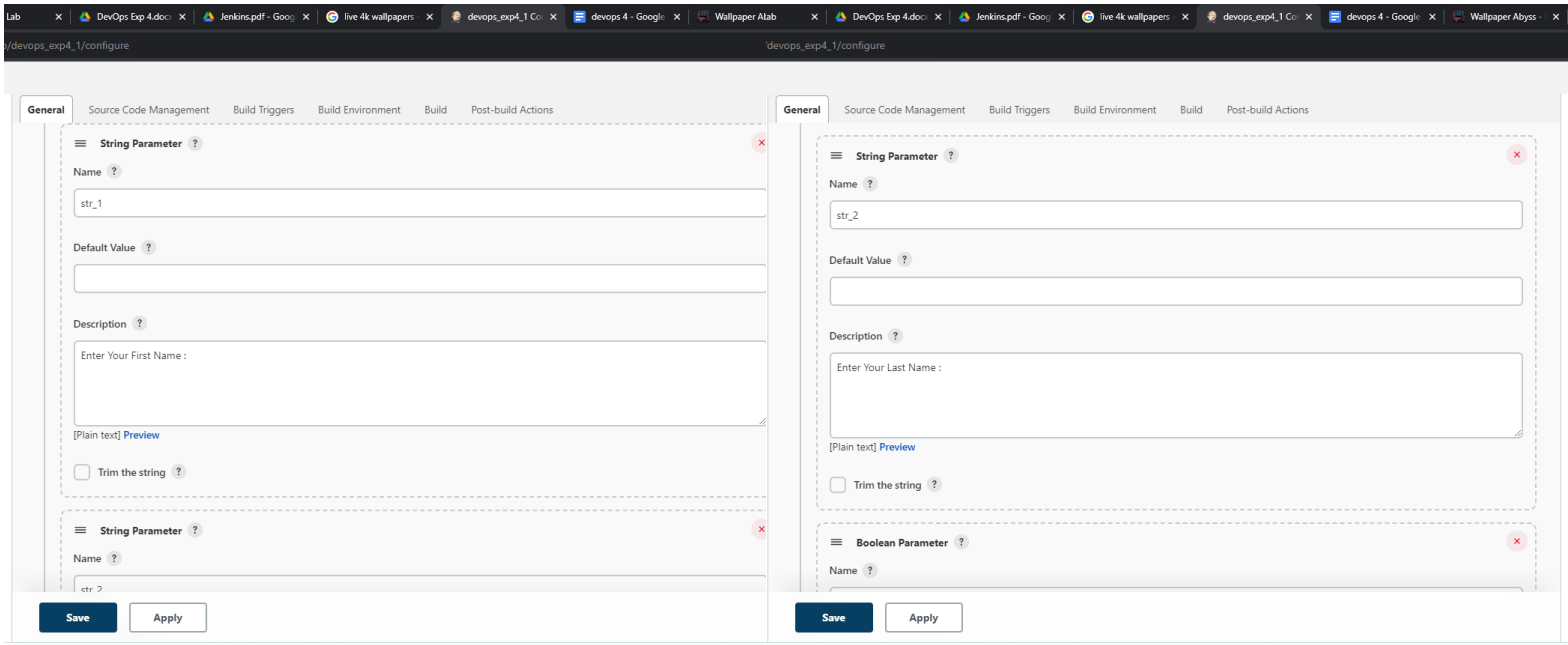

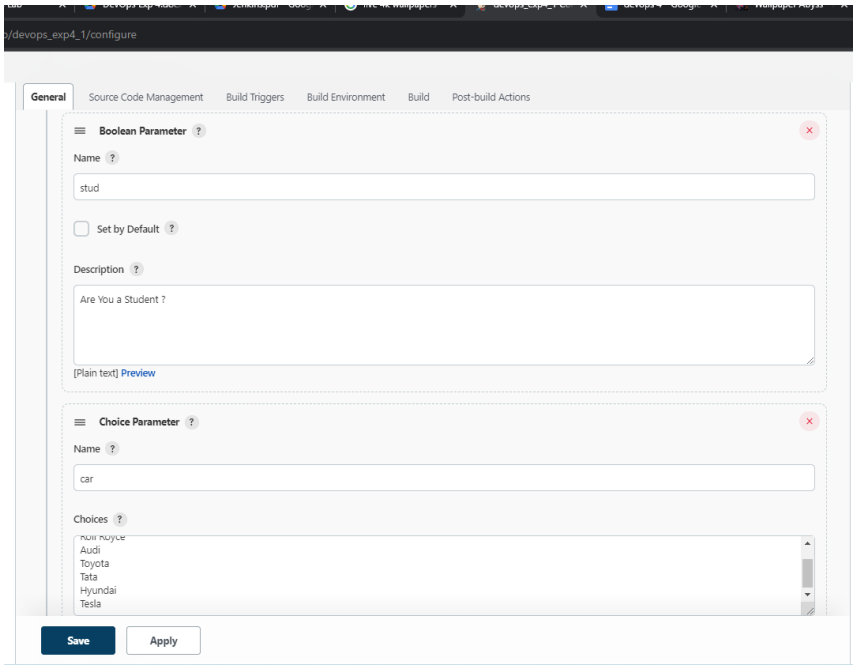

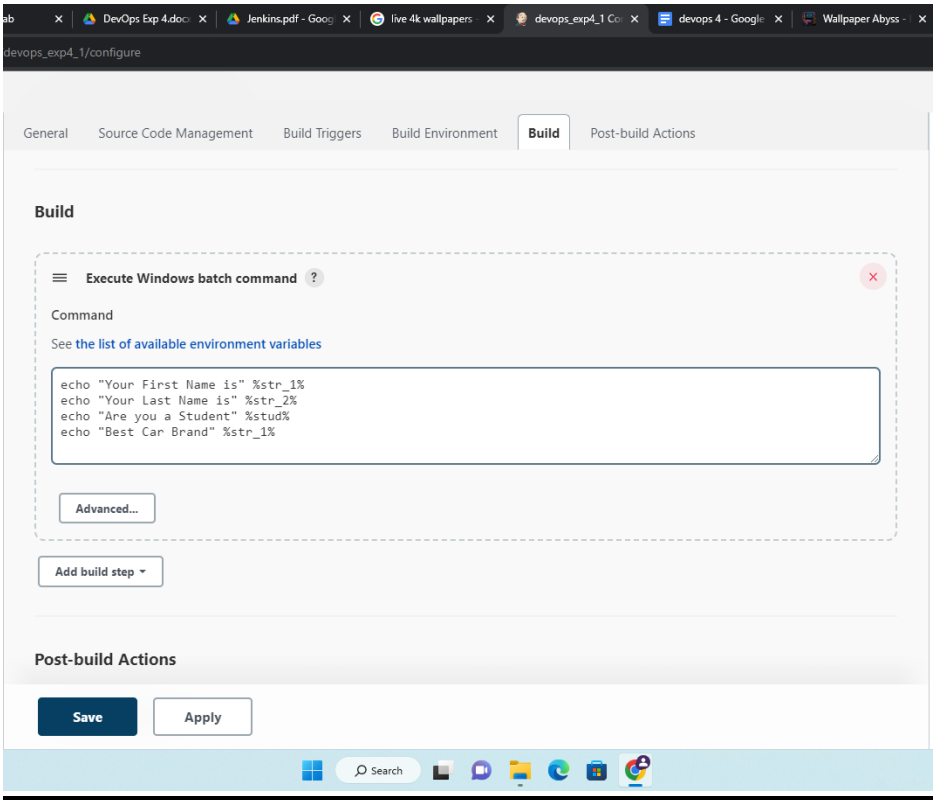

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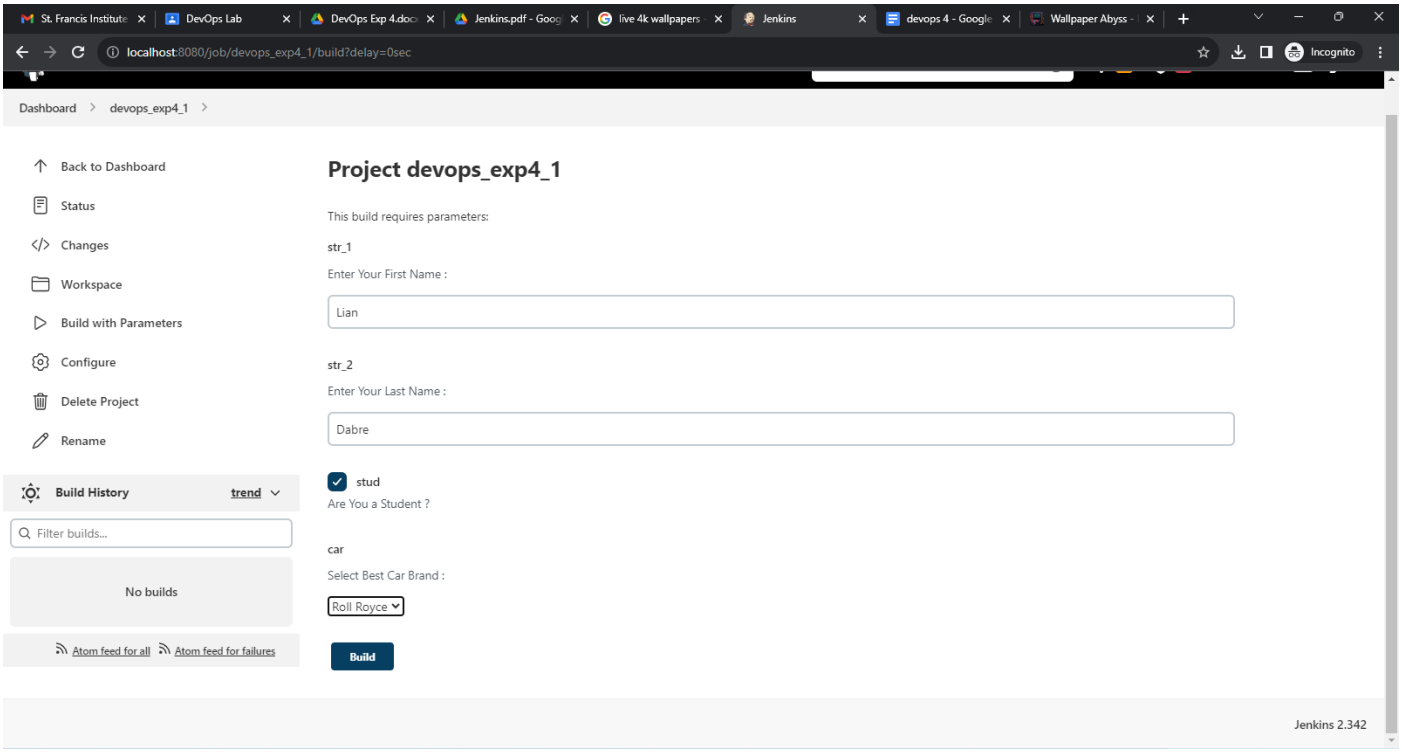

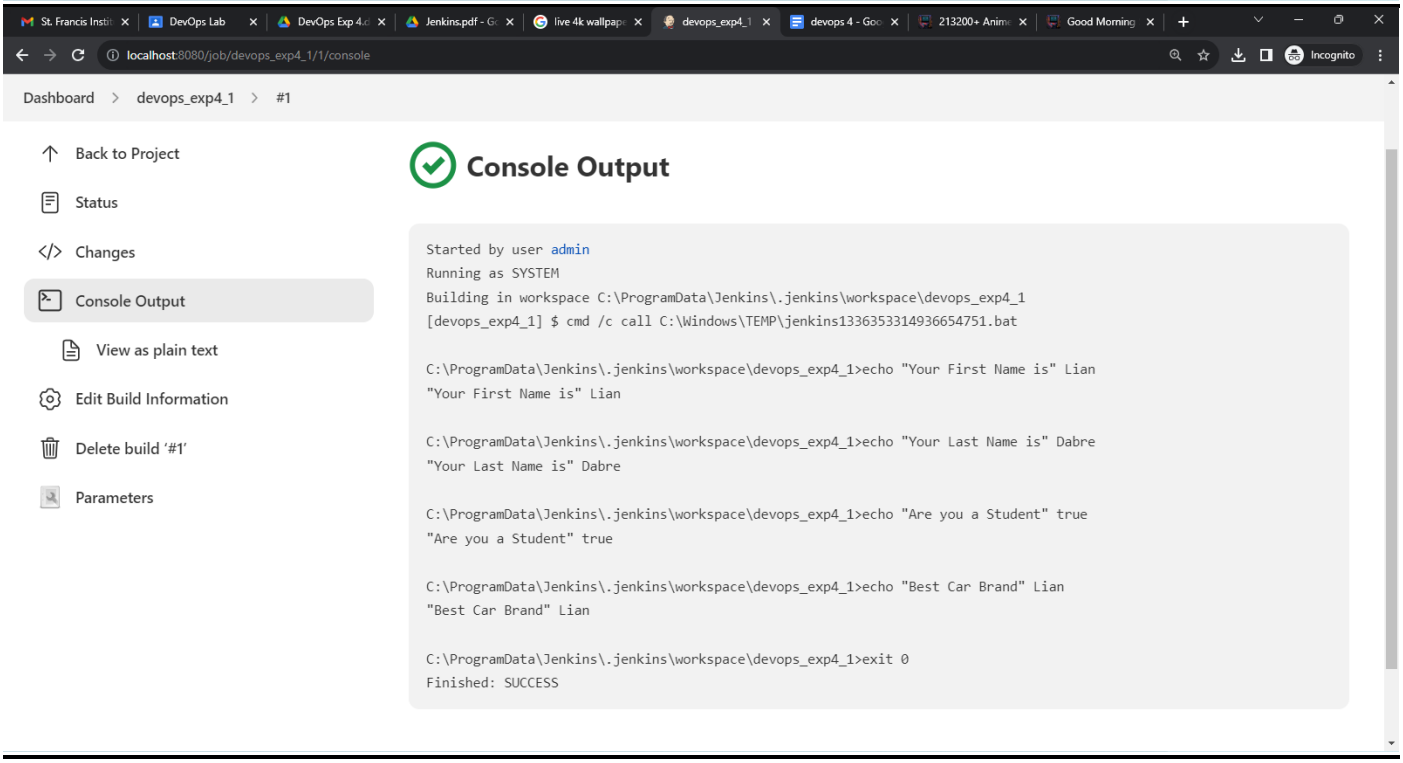

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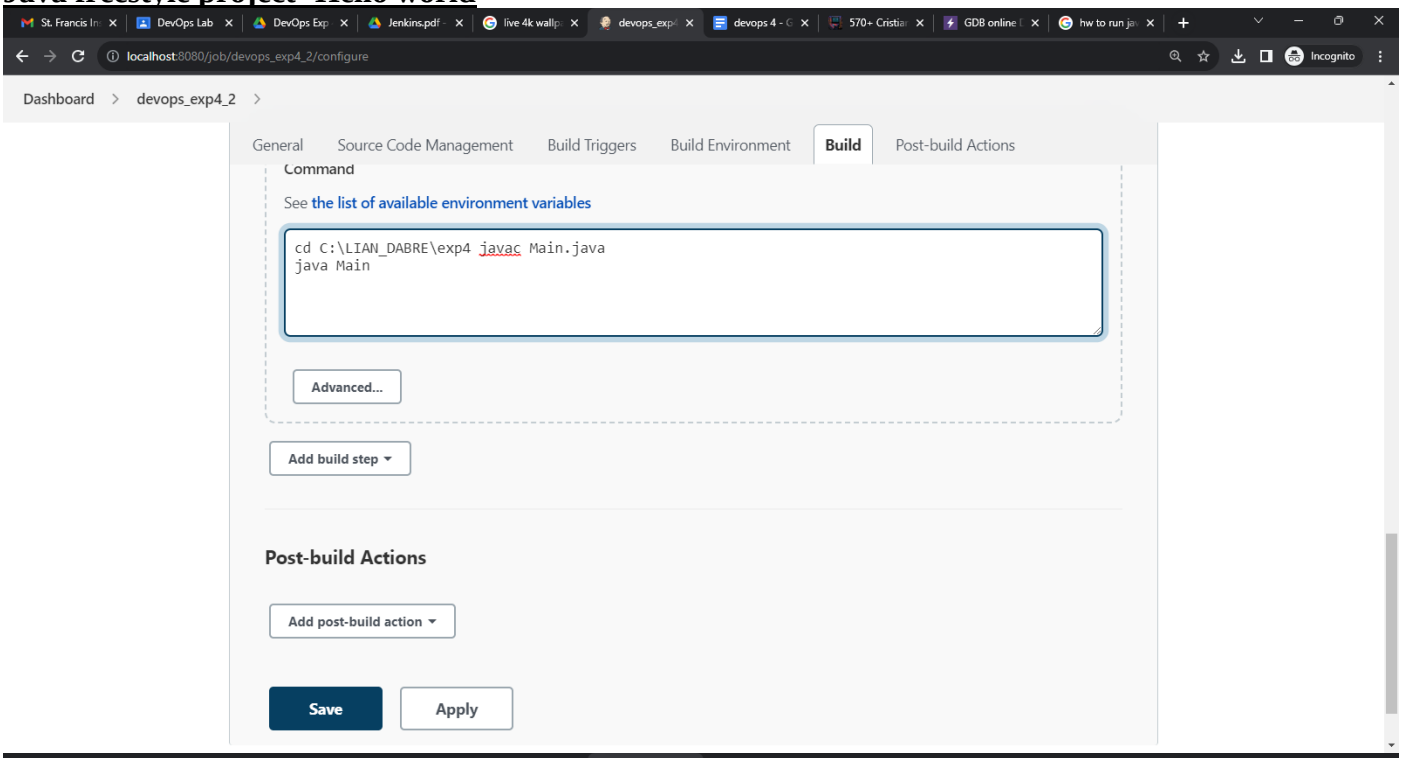
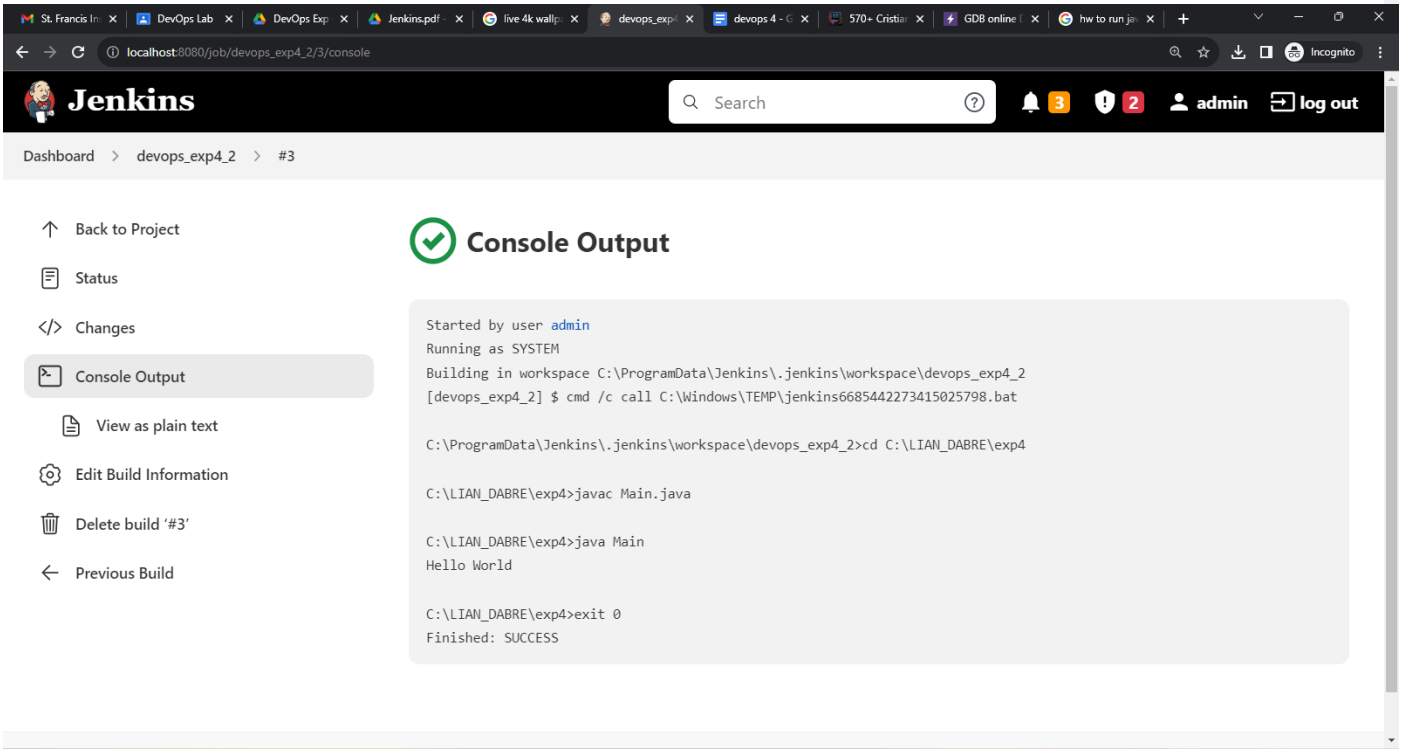
Java freestyle project -Hello world





Java freestyle project (parameterized) – 2 String parameter

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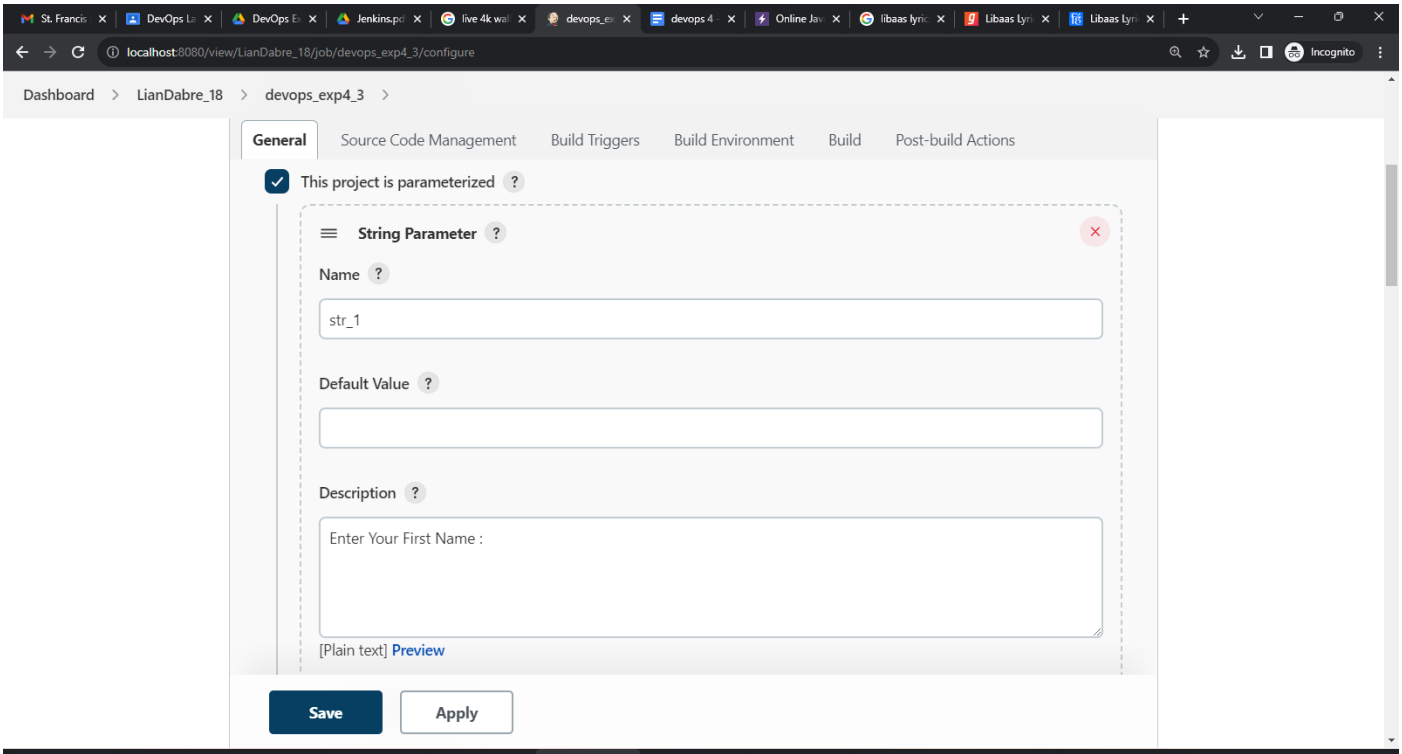

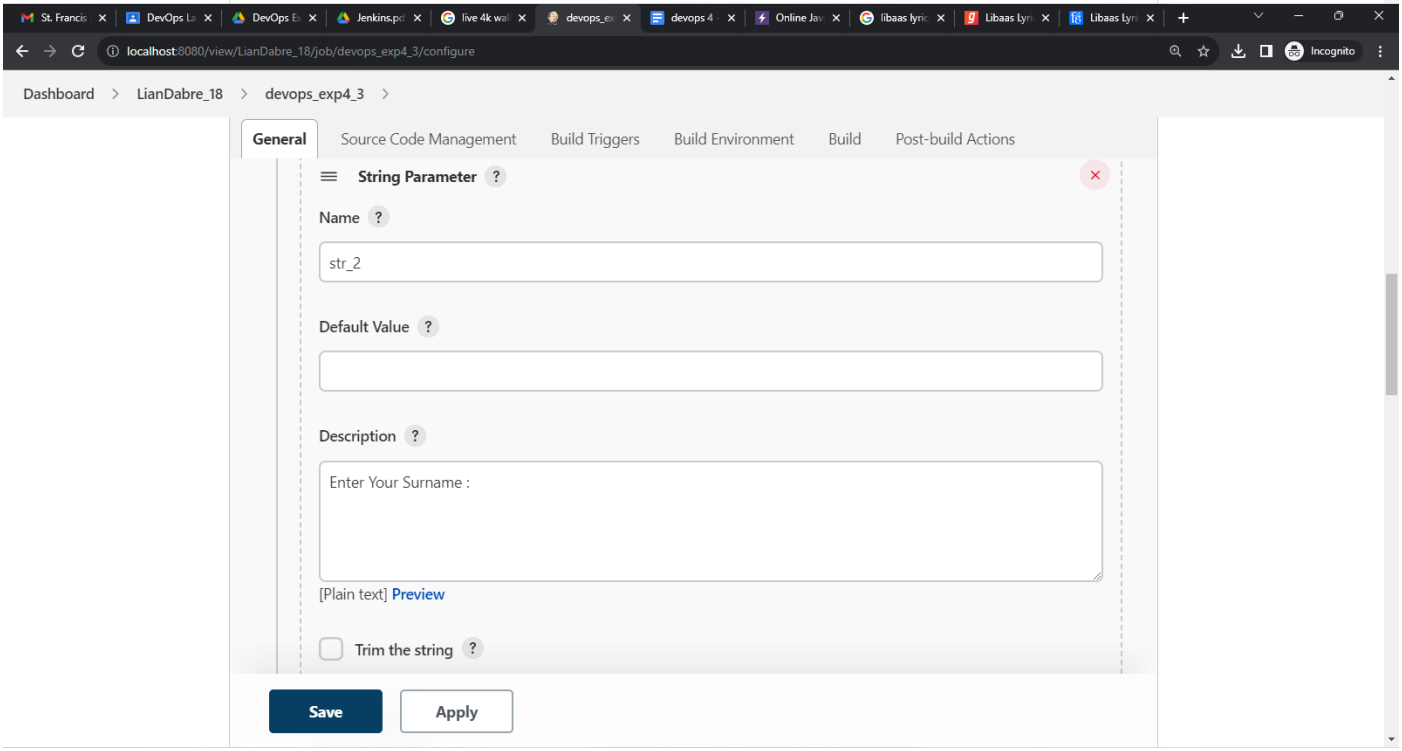

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