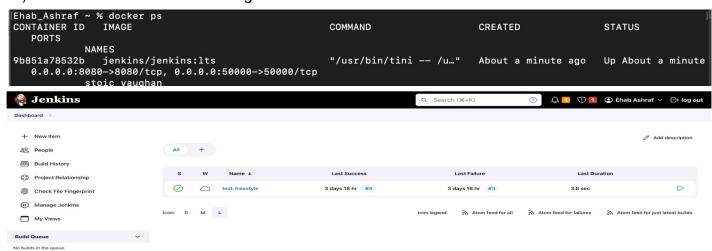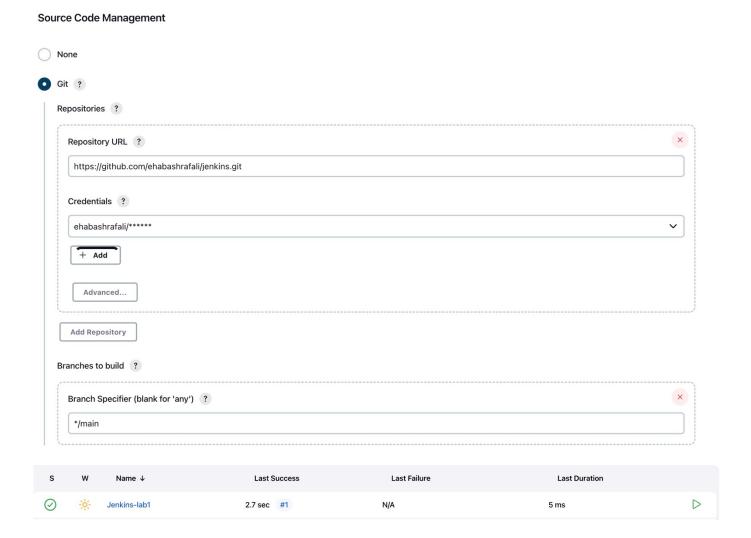01) What is Jenkins used for?

Jenkins is an open-source continuous integration continuous delivery and deployment (CI/CD) automation software DevOps tool written in Java. It is used to implement CI/CD workflows, called pipelines.

02) What is Jenkins agent? What is Jenkins executor (Build Executor)?
- A Jenkins executor is one of the basic building blocks which allow a build to run on node/agent (e.g., build server). Think of an executor as a single "process ID", or as the basic unit of resource that Jenkins executes on your machine to run a build.

- A Jenkins agent is typically a machine or container that connects to a Jenkins controller and executes tasks when directed by the controller. Artifact. An immutable file generated during a Build or Pipeline run which is archived onto the Jenkins Controller for later retrieval by users.

03) Explain Jenkins master-slave architecture?
a) Jenkins MasterYour main Jenkins server is the Master. The Master's job is to handle:
- Scheduling build jobs.
- Dispatching builds to the slaves for the actual execution.
- Monitor the slaves (possibly taking them online and offline as required).
- Recording and presenting the build results.
- A Master instance of Jenkins can also execute build jobs directly.

b) Jenkins SlaveA Slave is a Java executable that runs on a remote machine. Following are the characteristics of Jenkins Slaves:
- It hears requests from the Jenkins Master instance.
- Slaves can run on a variety of operating systems.
- The job of a Slave is to do as they are told to, which involves executing build jobs dispatched by the Master.
- You can configure a project to always run on a particular Slave machine or a particular type of Slave machine, or simply let Jenkins pick the next available Slave.

04) instal Jenkins with docker images

05) Create free style project and link it to private git repo containing any docker file then build an image from this docker file and push it to private docker repo

Source Code Management

○ None

● Git ?

 Repositories ?

  Repository URL ?   ✕

  `https://github.com/ehabashrafali/jenkins.git`

  Credentials ?

  `ehabashrafali/******`   ⌄

   ＋ Add

   Advanced…

 Add Repository

 Branches to build ?

  Branch Specifier (blank for 'any') ?   ✕

  `*/main`

S	W	Name ↓	Last Success	Last Failure	Last Duration	
✓	☀	Jenkins-lab1	2.7 sec #1	N/A	5 ms	▷

Build Steps

≡   **Execute shell** ?   ✕

Command

See the list of available environment variables

```
docker build -t opaa/ehabashraf:1 .
docker login -u opaa -p opaa0100@
docker push opaa/ehabashraf:1
```