

# Shell – Final Case Study Assessment

## **Submitted by**

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## **Scenario**

Streamline Solutions Inc. - Optimizing Software Deployment

## **Problem Statement**

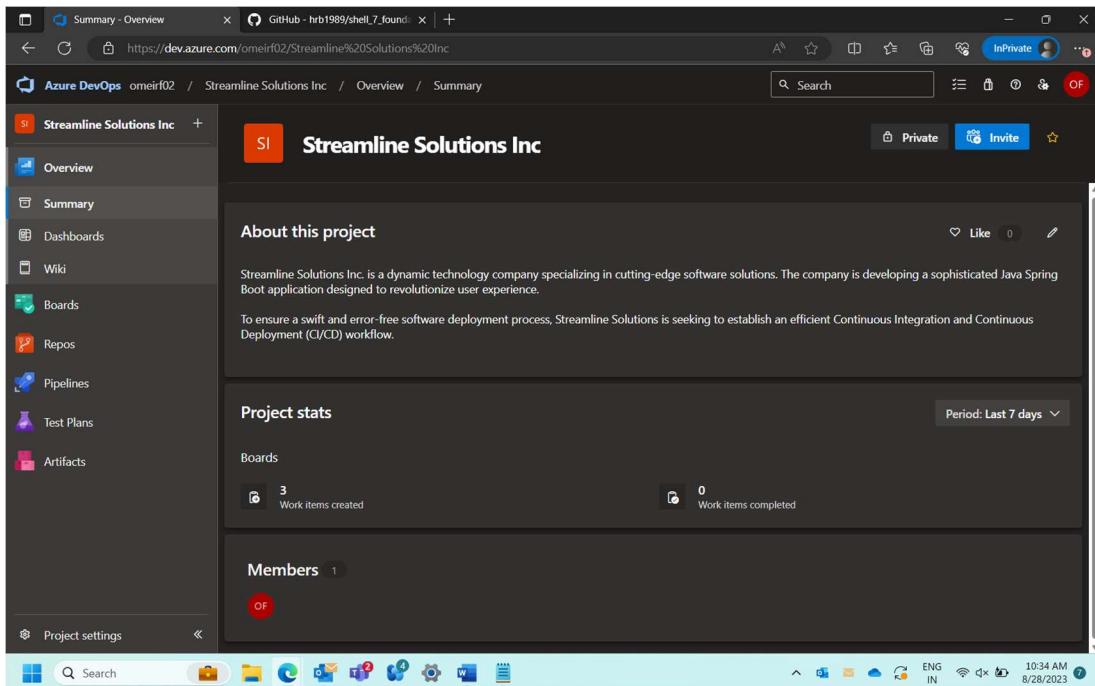
Implementing a Seamless CI/CD Workflow for a Spring Boot Application using Azure Boards, Azure, Git, Maven, Docker, GitHub, GitHub Actions

## **Background**

Streamline Solutions Inc. is a dynamic technology company specializing in cutting-edge software solutions. The company is developing a sophisticated Java Spring Boot application designed to revolutionize user experience. To ensure a swift and error-free software deployment process, Streamline Solutions is seeking to establish an efficient Continuous Integration and Continuous Deployment (CI/CD) workflow.

## **Activities**

### **1. Create Project**



## 2. Create Epic

### User Management

The screenshot shows the Azure DevOps interface for creating a new work item. The left sidebar is visible with various project management options like Boards, Work items, Backlogs, and Sprints. The main area is titled 'User Management' under the 'Work Items' section. The work item type is 'Epic'. The details pane shows:

- State:** New
- Reason:** New
- Area:** Streamline Solutions Inc
- Iteration:** Streamline Solutions Inc\Iteration 1

The **Description** field contains the text: "Users should be able to sign up, sign in, and update their profiles". The **Planning** section includes fields for Priority (set to 2), Risk, and Effort. The **Deployment** section provides instructions on tracking releases. The **Development** section has a 'Add link' button. The **Related Work** section has a 'Add an existing work item as a parent' button. The bottom of the screen shows the Windows taskbar with icons for File Explorer, Task View, and other system tools.

## Appointment Management

The screenshot shows the Azure DevOps interface for a work item titled "34 Appointment Management". The left sidebar navigation includes Streamline Solutions Inc, Overview, Boards, Work items (selected), Boards, Backlogs, Sprints, Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, Artifacts, and Project settings. The main content area displays the work item details:

- EPIC 34**: Appointment Management
- Description**: As a user, I want to make an appointment for my pet at the Pet Clinic, see the details, and make updates if necessary.
- Planning**: Priority: 2, Risk: , Effort: , Business Value: , Time Criticality: , Start Date: , Target Date: .
- Deployment**: To track releases associated with this work item, go to Releases and turn on deployment status reporting for Boards in your pipeline's Options menu. Learn more about deployment status reporting.
- Development**: Add link, Link an Azure Repos commit, pull request or branch to see the status of your development. You can also create a branch to get started.
- Related Work**: Shows a list of related work items.

The browser address bar shows the URL: [https://dev.azure.com/omeirf02/Streamline%20Solutions%20Inc/\\_workitems/edit/34/](https://dev.azure.com/omeirf02/Streamline%20Solutions%20Inc/_workitems/edit/34/).

### 3. Create Product Backlog

The screenshot shows the Azure DevOps interface for the Backlogs page. The left sidebar navigation includes Streamline Solutions Inc, Overview, Boards, Work items (selected), Boards, Backlogs, Sprints, Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, Artifacts, and Project settings. The main content area displays the backlog:

- Streamline Solutions Inc Team**: Backlog, Analytics, New Work Item, View as Board, Column Options, ...
- Backlog**: Order, Work Item Type, Title, +, 1 User Story (Project Initialization and Scaffolding), 2 User Story (User Authentication), 3 User Story (Scheduling Appointments).
- Planning**: Drag and drop work items to include them in a sprint. Shows Iteration 1 (Planned Effort: -, 3 User Stories), Iteration 2 (No work scheduled yet), Iteration 3 (No work scheduled yet). A "New Sprint" button is available.

The browser address bar shows the URL: [https://dev.azure.com/omeirf02/Streamline%20Solutions%20Inc/\\_backlogs/backlog/Streamline%20Solutions%20Inc%20...](https://dev.azure.com/omeirf02/Streamline%20Solutions%20Inc/_backlogs/backlog/Streamline%20Solutions%20Inc%20...).

## 4. Create Sprint Backlog

The screenshot shows the Azure DevOps Boards Taskboard interface. On the left, the navigation bar is visible with 'Streamline Solutions Inc' selected. Under 'Boards', 'Sprints' is currently active. The main area displays a grid of user stories:

	New	Active	Resolved	Closed
35 Project Initialization and Scaffolding	Unassigned State: New			
36 User Authentication	Unassigned State: New	38 As a registered user, I want to be able to log in to the application Unassigned State: New	37 As a user, I want to be able to sign up with email/phone number and Omer Fawaz State: Active	
39 Scheduling Appointments	Unassigned State: New	40 As a registered user, I want to be able to schedule an appointment with a vet on a Unassigned State: New		

## 5. Create User Stories

The screenshot shows the Azure DevOps Work items page for a specific user story. The URL is https://dev.azure.com/omeirf02/Streamline%20Solutions%20Inc/\_workitems/edit/35. The left sidebar shows 'Work items' is selected. The main content area displays the details for 'USER STORY 35' titled 'Project Initialization and Scaffolding':

Description	Planning	Deployment
Click to add Description	Story Points Priority Risk	To track releases associated with this work item, go to Releases and turn on deployment status reporting for Boards in your pipeline's Options menu. Learn more about deployment status reporting.
Acceptance Criteria		
Click to add Acceptance Criteria		
Discussion	Add a comment. Use # to link a work item, ! to link a pull request, or @ to mention a person.	Development
		+ Add link Link an Azure Repos commit, pull request or branch to see the status of your development. You can also create a branch to get started.

The screenshot shows the Azure DevOps interface for a work item titled "User Story 36: User Signup". The left sidebar is open, showing "Streamline Solutions Inc" selected under "Work items". The main content area displays the work item details:

- Description:** Click to add Description
- Acceptance Criteria:** Click to add Acceptance Criteria
- Discussion:** Add a comment. Use # to link a work item, ! to link a pull request, or @ to mention a person.
- Planning:** Story Points, Priority (2), Risk
- Classification:** Value area (Business)
- Deployment:** To track releases associated with this work item, go to Releases and turn on deployment status reporting for Boards in your pipeline's Options menu. Learn more about deployment status reporting.
- Development:** + Add link. Link an Azure Repos commit, pull request or branch to see the status of your development. You can also create a branch to get started.

The status bar at the bottom shows the date and time as 11:52 AM 8/28/2023.

## 6. Create Tasks

The screenshot shows the Azure DevOps interface for a work item titled "Task 37: As a user, I want to be able to sign up with email/phone number and password/OTP". The left sidebar is open, showing "Streamline Solutions Inc" selected under "Work items". The main content area displays the work item details:

- Description:** Click to add Description
- Discussion:** Add a comment. Use # to link a work item, ! to link a pull request, or @ to mention a person.
- Planning:** Priority (2), Activity
- Effort (Hours):** Original Estimate, Remaining, Completed
- Implementation:** Estimated in Build
- Deployment:** To track releases associated with this work item, go to Releases and turn on deployment status reporting for Boards in your pipeline's Options menu. Learn more about deployment status reporting.
- Development:** + Add link. Link an Azure Repos commit, pull request or branch to see the status of your development. You can also create a branch to get started.

A tooltip for the "Save" button is visible, showing the keyboard shortcut **(Ctrl+S)**. The status bar at the bottom shows the date and time as 11:53 AM 8/28/2023.

The screenshot shows the Azure DevOps Work items interface. On the left, a sidebar lists Streamline Solutions Inc. work items: Overview, Boards, Work items (selected), Boards, Backlogs, Sprints, Queries, Delivery Plans, Analytics views, Repos, Pipelines, Test Plans, Artifacts, and Project settings. The main area displays a work item titled "38 As a registered user, I want to be able to log in to the application". The work item details are as follows:

State	New	Area	Streamline Solutions Inc
Reason	New	Iteration	Streamline Solutions Inc\Iteration 1

**Description:** Click to add Description

**Planning:** Priority 2, Activity

**Effort (Hours):** Original Estimate, Remaining, Completed

**Implementation:** Interested in Build

**Deployment:** To track releases associated with this work item, go to Releases and turn on deployment status reporting for Boards in your pipeline's Options menu. Learn more about deployment status reporting.

**Development:** Add link, Link an Azure Repos commit, pull request or branch to see the status of your development. You can also create a branch to get started.

**Related Work:** Interested in Build

At the bottom right, the system status bar shows: ENG IN, 11:53 AM, 8/28/2023, and a battery icon.

## 7. Create Test Cases

Streamline Solutions Inc Team

Board Analytics View as Backlog

New Active

+ New item

35 Project Initialization and Scaffolding State New

36 User Authentication State New  
0/2 4

Add Test ↗  
Go to website URL  
Go to login page  
Enter username and password  
Click on login button

39 Scheduling Appointments State New  
0/1

## 8. Create Defects

The screenshot shows the Azure DevOps interface for creating a work item. The URL in the browser is [https://dev.azure.com/omeirf02/Streamline%20Solutions%20Inc/\\_workitems/create/Issue](https://dev.azure.com/omeirf02/Streamline%20Solutions%20Inc/_workitems/create/Issue). The left sidebar is titled "Streamline Solutions Inc" and includes links for Overview, Boards, Work items, Repos, Pipelines, Test Plans, Artifacts, and Project settings. The main area is titled "Work Items" and shows a "NEW ISSUE" card with the title "Photos of pets not available in Database". The card details are as follows:

State	Reason	Area	Iteration
Active	New	Streamline Solutions Inc	Streamline Solutions Inc\Iteration 1

The "Description" section contains the placeholder text "Click to add Description". The "Planning" section shows "Stack Rank" and "Priority" set to 2. The "Deployment" section has a note about tracking releases. The "Development" section has a link to "Add link". The "Related Work" section has a link to "Add an existing work item as a parent". The bottom of the screen shows the Windows taskbar with various pinned icons.

## Creating VM

The screenshot shows the 'Create a virtual machine' wizard on the Microsoft Azure portal. The current step is 'Project details'. The user has selected 'RDDB' for the subscription and 'newrg' for the resource group. The 'Virtual machine name' is set to 'OmeirVM', 'Region' to '(US) East US', 'Availability options' to 'Availability zone', and 'Availability zone' to 'Zones 1'. A note indicates that selecting multiple zones will create one VM per zone. Navigation buttons at the bottom include 'Review + create', '< Previous', and 'Next : Disks >'. The status bar at the bottom right shows the date and time as 8/28/2023 11:12 AM.

The screenshot shows the 'Create a virtual machine' wizard on the Microsoft Azure portal, currently on the 'Networking' tab. The user has selected 'indu-vnet' for the virtual network, 'default (10.0.0.0/24)' for the subnet, and '(new) OmeirVM-ip' for the public IP. Under 'NIC network security group', 'Basic' is selected. Under 'Public inbound ports', 'Allow selected ports' is selected. Navigation buttons at the bottom include 'Review + create', '< Previous', and 'Next : Management >'. The status bar at the bottom right shows the date and time as 8/28/2023 11:13 AM.

Create a virtual machine - Microsoft Azure

https://portal.azure.com/#create/Microsoft.VirtualMachine-ARM

Microsoft Azure

Search resources, services, and docs (G+)

InPrivate (2) RAVINSOFTTECH (RAVINSOFTTECH)

Home > Virtual machines >

## Create a virtual machine

Validation passed

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Cost given below is an estimate and not the final price. Please use [Pricing calculator](#) for all your pricing needs.

### Price

1 X Standard B2s  
by Microsoft  
[Terms of use](#) | [Privacy policy](#)

Subscription credits apply ⓘ

**3.2670 INR/hr**

[Pricing for other VM sizes](#)

### TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

Name

part31 undefined

Create

< Previous

Next >

Download a template for automation

Give feedback

Errors - Microsoft Azure

https://portal.azure.com/#view/HubsExtension/DeploymentDetailsBlade/~/overview/id/%2Fsubscriptions%2F3f75ed9e-e814-c15-a708-a5f09854b6ac/resourceGroups/newrg/providers/Microsoft.Compute/virtualMachines/OmeirVM

Microsoft Azure

Search resources, services, and docs (G+)

InPrivate (2) RAVINSOFTTECH (RAVINSOFTTECH)

Home >

## CreateVm-canonical.0001-com-ubuntu-server-focal-2-202308281

Deployment

Overview Inputs Outputs Template

Deployment failed

Deployment name: CreateVm-canonical.0001-com-ubuntu-server-focal-2-202308281 Status: Failed Subscriptions: RDBD Resource group: newrg

Deployment details

Resource	Type	Status
OmeirVM	Microsoft.Compute/virtualMachines	Conflict
omeirvm621_z1	Microsoft.Network/networkInterfaces	Created
OmeirVM-nsg	Microsoft.Network/networkSecurityGroups	OK
OmeirVM-ip	Microsoft.Network/publicIPAddresses	OK

Give feedback

Tell us about your experience with deployment

Errors

Summary Raw Error

ERROR DETAILS

The resource write operation failed to complete successfully, because it reached terminal provisioning state 'Failed'. (Code: ResourceDeploymentFailure, Target: /subscriptions/3f75ed9e-e814-c15-a708-a5f09854b6ac/resourceGroups/newrg/providers/Microsoft.Compute/virtualMachines/OmeirVM)

WAS THIS HELPFUL? ⤵ ⤶

Troubleshooting Options

[Common Azure deployment errors](#) [Check Usage + Quota](#) [New Support Request](#)

Microsoft Azure | InPrivate (2) RAVINSOFTTECH (RAVINSOFTTECH)

Home > CreateVm-canonical.0001-com-ubuntu-server-focal-2-20230828111923 | Overview >

### OmeirVM-shell

Virtual machine

Search

Connect Start Stop Capture Delete Refresh Open in mobile Feedback CLI / PS

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Networking

Connect

Disks

Size

Microsoft Defender for Cloud

Advisor recommendations

Extensions + applications

Availability + scaling

Configuration

Identity

Properties

Essentials

Resource group (move)  
[newrg](#)

Status  
Running

Location  
East US 2 (Zone 1)

Subscription (move)  
[RDBD](#)

Subscription ID  
3f75ed9e-ee81-4c15-a708-a5f09854b6ac

Availability zone  
1

Health state  
-

Tags (edit)  
[Add tags](#)

Operating system  
Linux (ubuntu 20.04)

VM availability status  
Available

Size  
Standard B2s (2 vcpus, 4 GiB memory)

Public IP address  
20.109.10.193

Virtual network/subnet  
[indu-vnet/default](#)

DNS name  
[Not configured](#)

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine

Computer name: OmeirVM-shell

Operating system: Linux (ubuntu 20.04)

Networking

Public IP address: 20.109.10.193 ( Network interface: omeirvm-shell899\_z1 )

11:22 AM 8/28/2023

WebSSH Client

https://ssheasy.com

20.109.10.193 22 Bypass proxy

omeir ..... Select key file

Private Key

Connect

Help Us Improve - Please give us feedback

SSH to your machine from anywhere with the SSH client running directly in your browser.

WebSSH is SSH/SFTP client built on golang's SSH and SFTP library, compiled to Web Assembly to allow you to connect to your machine directly from your browser.

No credentials or other plain text information is shared with our servers. Our servers only tunneling the packets from your browser to the machine you connect. They see only the same information that is visible for any router or other computer on the network when you use OpenSSH or other command line client.

Just fill out the connection information and click connect to initiate the SSH session, once the remote host answers a prompt will show you the fingerprint of the server key and you can decide whether you want to continue with the connection. After successfully connecting you can just type your command into this Xterm.js console or browse/manage your files in the file manager opens below the console.

Source code available on GitHub: <https://github.com/hullarb/ssheasy>

Find Match Case Find Next Find Previous

Find

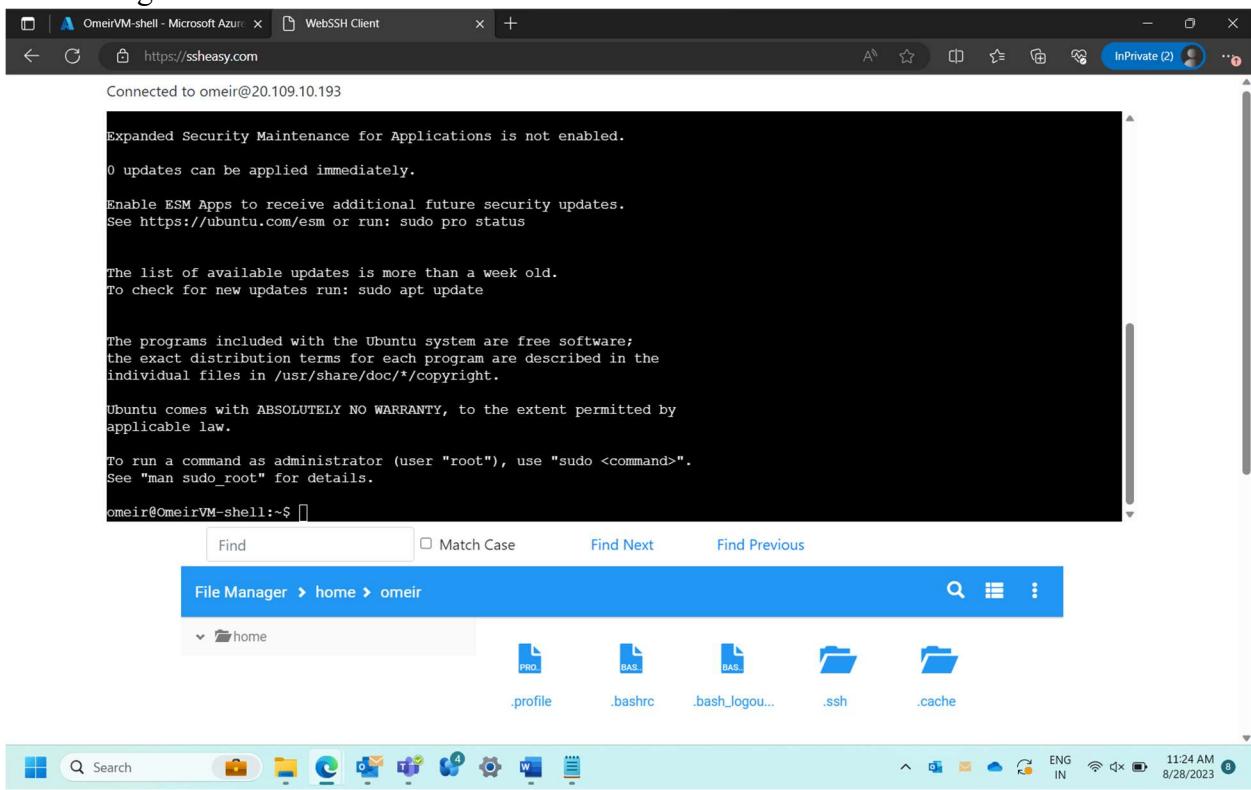
Match Case

Find Next

Find Previous

11:23 AM 8/28/2023

## Connecting to VM via SSH



Connected to omeir@20.109.10.193

```
Expanded Security Maintenance for Applications is not enabled.  
0 updates can be applied immediately.  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*copyright.  
  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
omeir@OmeirVM-shell:~$ 
```

Find  Match Case Find Next Find Previous

File Manager > home > omeir

home .profile .bashrc .bash\_logou... .ssh .cache



Connected to omeir@20.109.10.193

```
omeir@OmeirVM-shell:~$ git --version  
git version 2.25.1  
omeir@OmeirVM-shell:~$ maven --version  
  
Command 'maven' not found, did you mean:  
  
  command 'aven' from deb survex-aven (1.2.42-1build2)  
  
Try: sudo apt install <deb name>  
  
omeir@OmeirVM-shell:~$ sudo apt install maven  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
E: Unable to locate package maven  
omeir@OmeirVM-shell:~$ 
```

Connected to omeir@20.109.10.193

```
omeir@OmeirVM-shell:~$ sudo apt install maven
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package maven
omeir@OmeirVM-shell:~$ ^C
omeir@OmeirVM-shell:~$ sudo apt-get install software-properties-common
Reading package lists... Done
Building dependency tree
Reading state information... Done
software-properties-common is already the newest version (0.99.9.11).
software-properties-common set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
omeir@OmeirVM-shell:~$ sudo apt-add-repository universe
'universe' distribution component is already enabled for all sources.
omeir@OmeirVM-shell:~$ sudo apt-get update
Hit:1 http://azure.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://azure.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:4 http://azure.archive.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:5 http://azure.archive.ubuntu.com/ubuntu focal/universe amd64 Packages [8628 kB]
Get:6 http://azure.archive.ubuntu.com/ubuntu focal/universe Translation-en [5124 kB]
Get:7 http://azure.archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]
```

```
omeir@OmeirVM-shell:~$ sudo apt-get install maven
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
ca-certificates-java default-jre-headless fontconfig-config fonts-dejavu-core java-common libaopalliance-java
libapache-pom-java libatinject-jsr30-api-java libavahi-client3 libavahi-common-data libavahi-common3 libcdi-api-java
libcommons-cli-java libcommons-io-java libcommons-lang3-java libcommons-parent-java libcurls2 libfontconfig1
libgeronimo-annotation-1.3-spec-java libgeronimo-interceptor-3.0-spec-java libgraphite2-3 libguava-java libguice-java
libharfbuzz0b libhawtjni-runtime-java libjansi-java libjansi-native-java libjpeg-turbo8 libjpeg8 libjsr305-java
liblcms2-2 libmaven-parent-java libmaven-resolver-java libmaven-shared-utils-java libmaven3-core-java libpcsc-lite1
libplexus-cipher-java libplexus-classworlds-java libplexus-component-annotations-java libplexus-interpolation-java
libplexus-sec-dispatcher-java libplexus-util2-jar libsisu-inject-java libsisu-plexus-java libslf4j-jar
libwagon-file-java libwagon-http-shaded-java libwagon-provider-api-java openjdk-11-jre-headless
omeir@OmeirVM-shell:~$ maven --version
```

Command 'maven' not found, did you mean:

  command 'aven' from deb survex-aven (1.2.42-1build2)

Try: sudo apt install <deb name>

```
omeir@OmeirVM-shell:~$ mvn --version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 11.0.20, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "5.15.0-1042-azure", arch: "amd64", family: "unix"
omeir@OmeirVM-shell:~$ █
```

## Install Docker

```
sudo apt update  
sudo apt install apt-transport-https ca-certificates curl  
software-properties-common  
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo  
apt-key add -  
sudo add-apt-repository "deb [arch=amd64]  
https://download.docker.com/linux/ubuntu focal stable"  
apt-cache policy docker-ce  
sudo apt install docker-ce  
sudo systemctl status docker  
docker  
docker run hello-world
```

Connected to omeir@20.109.10.193

```
omeir@OmeirVM-shell:~$ sudo apt install apt-transport-https ca-certificates curl software-properties-common  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
ca-certificates is already the newest version (20230311ubuntu0.20.04.1).  
ca-certificates set to manually installed.  
curl is already the newest version (7.68.0-1ubuntu2.19).  
curl set to manually installed.  
The following additional packages will be installed:  
  python3-software-properties  
The following NEW packages will be installed:  
  apt-transport-https  
The following packages will be upgraded:  
  python3-software-properties software-properties-common  
2 upgraded, 1 newly installed, 0 to remove and 22 not upgraded.  
Need to get 33.8 kB of archives.  
After this operation, 162 kB of additional disk space will be used.  
Do you want to continue? [Y/n] █
```

```
Hit:1 http://azure.archive.ubuntu.com/ubuntu focal InRelease  
Get:2 http://azure.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]  
Get:3 http://azure.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]  
Get:4 http://azure.archive.ubuntu.com/ubuntu focal-security InRelease [114 kB]  
Get:5 https://download.docker.com/linux/ubuntu focal InRelease [57.7 kB]  
Get:6 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages [32.5 kB]  
Fetched 426 kB in 1s (812 kB/s)  
Reading package lists... Done  
omeir@OmeirVM-shell:~$ apt-cache policy docker-ce  
docker-ce:  
  Installed: (none)  
  Candidate: 5:24.0.5-1~ubuntu.20.04~focal  
  Version table:  
    5:24.0.5-1~ubuntu.20.04~focal 500  
      500 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages  
    5:24.0.4-1~ubuntu.20.04~focal 500  
      500 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages  
    5:24.0.3-1~ubuntu.20.04~focal 500  
      500 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages
```

```
omeir@OmeirVM-shell:~$ sudo apt install docker-ce  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following additional packages will be installed:  
  containerd.io docker-buildx-plugin docker-ce-cli docker-ce-rootless-extras docker-compose-plugin pigz slirp4netns  
Suggested packages:  
  aufs-tools cgroupfs-mount | cgroup-lite  
The following NEW packages will be installed:  
  containerd.io docker-buildx-plugin docker-ce docker-ce-rootless-extras docker-compose-plugin pigz  
  slirp4netns  
0 upgraded, 8 newly installed, 0 to remove and 22 not upgraded.  
Need to get 114 MB of archives.  
After this operation, 414 MB of additional disk space will be used.  
Do you want to continue? [Y/n] [
```

Connected to omeir@20.109.10.193

```
Processing triggers for systemd (245.4-4ubuntu3.22) ...  
omeir@OmeirVM-shell:~$ sudo systemctl status docker  
● docker.service - Docker Application Container Engine  
  Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)  
  Active: active (running) since Mon 2023-08-28 06:30:58 UTC; 16s ago  
TriggeredBy: ● docker.socket  
    Docs: https://docs.docker.com  
  Main PID: 17838 (dockerd)  
    Tasks: 9  
   Memory: 29.1M  
  CGroup: /system.slice/docker.service  
          └─17838 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock  
  
Aug 28 06:30:57 OmeirVM-shell systemd[1]: Starting Docker Application Container Engine...  
Aug 28 06:30:57 OmeirVM-shell dockerd[17838]: time="2023-08-28T06:30:57.378906031Z" level=info msg="Starting up"  
Aug 28 06:30:57 OmeirVM-shell dockerd[17838]: time="2023-08-28T06:30:57.379624242Z" level=info msg="detected 127.0.0.53 n  
Aug 28 06:30:57 OmeirVM-shell dockerd[17838]: time="2023-08-28T06:30:57.771842771Z" level=info msg="Loading containers: s  
Aug 28 06:30:58 OmeirVM-shell dockerd[17838]: time="2023-08-28T06:30:58.379341801Z" level=info msg="Loading containers: d  
Aug 28 06:30:58 OmeirVM-shell dockerd[17838]: time="2023-08-28T06:30:58.426519202Z" level=warning msg="Not using native d  
Aug 28 06:30:58 OmeirVM-shell dockerd[17838]: time="2023-08-28T06:30:58.426762505Z" level=info msg="Docker daemon" commits  
Aug 28 06:30:58 OmeirVM-shell dockerd[17838]: time="2023-08-28T06:30:58.426877107Z" level=info msg="Daemon has completed i  
Aug 28 06:30:58 OmeirVM-shell dockerd[17838]: time="2023-08-28T06:30:58.524139153Z" level=info msg="API listen on /run/do  
Aug 28 06:30:58 OmeirVM-shell systemd[1]: Started Docker Application Container Engine.  
lines 1-21/21 (END)
```

---

Connected to omeir@20.109.10.193

```
omeir@OmeirVM-shell:~$ docker
Usage: docker [OPTIONS] COMMAND
      A self-sufficient runtime for containers

Common Commands:
  run            Create and run a new container from an image
  exec           Execute a command in a running container
  ps             List containers
  build          Build an image from a Dockerfile
  pull           Download an image from a registry
  push           Upload an image to a registry
  images         List images
  login          Log in to a registry
  logout         Log out from a registry
  search         Search Docker Hub for images
  version        Show the Docker version information
  info           Display system-wide information

Management Commands:
  builder        Manage builds
  buildx*        Docker Buildx (Docker Inc., v0.11.2)
```

Connected to omeir@20.109.10.193

```
omeir@OmeirVM-shell:~$ docker run hello-world
docker: permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post "http://var%2Frun%2Fdocker.sock/v1.24/containers/create": dial unix /var/run/docker.sock: connect: permission denied.
See 'docker run --help'.
omeir@OmeirVM-shell:~$ sudo !!
sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
719385e32844: Pull complete
Digest: sha256:dcba6daec718f547568c562956fa47e1b03673dd010fe6ee58ca806767031d1c
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.
```

## Clone Repository

Connected to omeir@20.109.10.193

```
omeir@OmeirVM-shell:~$ git clone https://github.com/hrb1989/shell_7_foundation_Java_Spring.git
Cloning into 'shell_7_foundation_Java_Spring'...
remote: Enumerating objects: 150, done.
remote: Counting objects: 100% (10/10), done.
remote: Compressing objects: 100% (10/10), done.
remote: Total 150 (delta 1), reused 0 (delta 0), pack-reused 140
Receiving objects: 100% (150/150), 448.83 KiB | 29.92 MiB/s, done.
Resolving deltas: 100% (31/31), done.
omeir@OmeirVM-shell:~$ cd shell_7_foundation_Java_Spring/
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ █
```

## Installing Maven and Building App

```
mvn install -DskipTests
```

## Running App

```
java -jar target/spring-petclinic-3.1.0-SNAPSHOT.jar
```

Connected to omeir@20.109.10.193

```
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ ll target
total 57028
drwxrwxr-x 8 omeir omeir    4096 Aug 28 08:13 .
drwxrwxr-x 6 omeir omeir    4096 Aug 28 08:13 ../
-rw-rw-r-- 1 omeir omeir   11725 Aug 28 08:13 checkstyle-cachefile
-rw-rw-r-- 1 omeir omeir     283 Aug 28 08:13 checkstyle-checker.xml
-rw-rw-r-- 1 omeir omeir   11360 Aug 28 08:13 checkstyle-header.txt
-rw-rw-r-- 1 omeir omeir   12538 Aug 28 08:13 checkstyle-result.xml
-rw-rw-r-- 1 omeir omeir     459 Aug 28 08:13 checkstyle-suppressions.xml
drwxrwxr-x 8 omeir omeir   4096 Aug 28 08:13 classes/
drwxrwxr-x 3 omeir omeir   4096 Aug 28 08:13 generated-sources/
drwxrwxr-x 3 omeir omeir   4096 Aug 28 08:13 generated-test-sources/
drwxrwxr-x 2 omeir omeir   4096 Aug 28 08:13 maven-archiver/
drwxrwxr-x 3 omeir omeir   4096 Aug 28 08:13 maven-status/
-rw-rw-r-- 1 omeir omeir 57924564 May 10 07:42 spring-petclinic-3.1.0-SNAPSHOT.jar
-rw-rw-r-- 1 omeir omeir 388390 Aug 28 08:13 spring-petclinic-3.1.0-SNAPSHOT.jar.original
drwxrwxr-x 3 omeir omeir   4096 Aug 28 08:13 test-classes/
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ ll target /*.jar
ls: cannot access '/*.jar': No such file or directory
target:
total 57028
drwxrwxr-x 8 omeir omeir    4096 Aug 28 08:13 .
drwxrwxr-x 6 omeir omeir    4096 Aug 28 08:13 ../
-rw-rw-r-- 1 omeir omeir   11725 Aug 28 08:13 checkstyle-cachefile
```

Connected to omeir@20.109.10.193

```
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ ll target/*.jar
ls: cannot access '/*.jar': No such file or directory
target:
total 57028
drwxrwxr-x 8 omeir omeir    4096 Aug 28 08:13 .
drwxrwxr-x 6 omeir omeir    4096 Aug 28 08:13 ..
-rw-rw-r-- 1 omeir omeir   11725 Aug 28 08:13 checkstyle-cachefile
-rw-rw-r-- 1 omeir omeir     283 Aug 28 08:13 checkstyle-checker.xml
-rw-rw-r-- 1 omeir omeir   11360 Aug 28 08:13 checkstyle-header.txt
-rw-rw-r-- 1 omeir omeir  12538 Aug 28 08:13 checkstyle-result.xml
-rw-rw-r-- 1 omeir omeir     459 Aug 28 08:13 checkstyle-suppressions.xml
drwxrwxr-x 8 omeir omeir   4096 Aug 28 08:13 classes/
drwxrwxr-x 3 omeir omeir   4096 Aug 28 08:13 generated-sources/
drwxrwxr-x 3 omeir omeir   4096 Aug 28 08:13 generated-test-sources/
drwxrwxr-x 2 omeir omeir   4096 Aug 28 08:13 maven-archiver/
drwxrwxr-x 3 omeir omeir   4096 Aug 28 08:13 maven-status/
-rw-rw-r-- 1 omeir omeir 57924564 May 10 07:42 spring-petclinic-3.1.0-SNAPSHOT.jar
-rw-rw-r-- 1 omeir omeir 388390 Aug 28 08:13 spring-petclinic-3.1.0-SNAPSHOT.jar.original
drwxrwxr-x 3 omeir omeir   4096 Aug 28 08:13 test-classes/
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ java -jar target/
classes/                                maven-archiver/                  test-classes/
generated-sources/                      maven-status/                 spring-petclinic-3.1.0-SNAPSHOT.jar
generated-test-sources/                 spring-petclinic-3.1.0-SNAPSHOT.jar
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ java -jar target/spring-petclinic-3.1.0-SNAPSHOT.jar
```

Connected to omeir@20.109.10.193

## Add Feature (my name)

Connected to omeir@20.109.10.193

GNU nano 4.8

src/main/resources/banner.txt



---

Connected to omeir@20.109.10.193

```
on branch omeiirr/feat-add-name
nothing to commit, working tree clean
omeiirr@omeirVM-shell:~/shell_7_foundation_Java_Spring$ git push
fatal: The current branch omeiirr/feat-add-name has no upstream branch.
To push the current branch and set the remote as upstream, use

    git push --set-upstream origin omeiirr/feat-add-name

omeiirr@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ git push --set-upstream origin omeiirr/feat-add-name
Username for 'https://github.com': omeiirr
Password for 'https://omeiirr@github.com':
```

## Build Docker container

Connected to omeir@20.109.10.193

```
Spring: is a directory
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ sudo docker build -t shell-casestudy -f /home/omeir/shell_7_foundation_Java_Spring/Dockerfile .
[+] Building 0.4s (2/2) FINISHED
      => [internal] load build definition from Dockerfile
      => => transferring dockerfile: 183B
      => [internal] load .dockerignore
      => => transferring context: 2B
Dockerfile:4
-----
 2 |     EXPOSE 80
 3 |     ARG JAR=target/spring-petclinic-3.1.0-SNAPSHOT.jar
 4 | >>> COPY $JAR/app.jar
 5 |     ENTRYPOINT ["java", "-jar", "/app.jar"]
 6 |
-----
ERROR: failed to solve: dockerfile parse error on line 4: COPY requires at least two arguments, but only one was provided
estimation could not be determined
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ nano Dockerfile
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ sudo docker build -t shell-casestudy -f /home/omeir/shell_7_foundation_Java_Spring/Dockerfile .
[+] Building 22.3s (7/7) FINISHED
      => [internal] load build definition from Dockerfile
      => => transferring dockerfile: 184B
```

## Log in to Docker Hub

```
Connected to omeir@20.109.10.193
=> [2/2] COPY target/spring-petclinic-3.1.0-SNAPSHOT.jar /app.jar
=> exporting to image
=> => exporting layers
=> => writing image sha256:696f002935161c746b1ecbc6b75313716d77724be682e0158b892d53c64a6d7c
=> => naming to docker.io/library/shell-casestudy
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: omeiirr
Password:
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post "http://%2Fvar/run%2Fdocker.sock/v1.24/auth": dial unix /var/run/docker.sock: connect: permission denied
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ sudo !!
sudo docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: omeiirr
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$
```

## Push to Docker Hub

```
Connected to omeir@20.109.10.193
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ docker push shell-casestudy
Using default tag: latest
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post "http://%2Fvar/run%2Fdocker.sock/v1.24/images/shell-casestudy/push?tag=latest": dial unix /var/run/docker.sock: connect: permission denied
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ sudo !!
sudo docker push shell-casestudy
Using default tag: latest
The push refers to repository [docker.io/library/shell-casestudy]
1840446cc941: Preparing
6be690267e47: Preparing
13a34b6fff78: Preparing
9c1b6dd6c1e6: Preparing
denied: requested access to the resource is denied
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ docker ps
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar/run%2Fdocker.sock/v1.24/containers/json": dial unix /var/run/docker.sock: connect: permission denied
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
omeir@OmeirVM-shell:~/shell_7_foundation_Java_Spring$
```

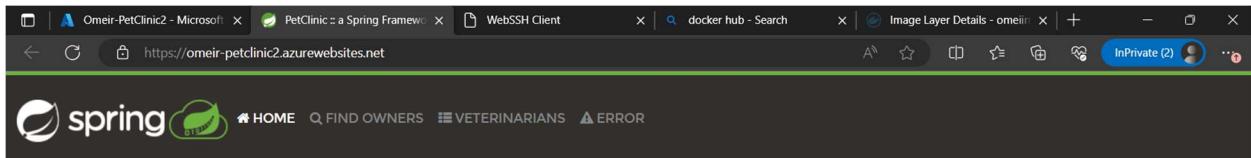
The screenshot shows the Docker Hub homepage with a purple header banner for DockerCon 2023. The main navigation bar includes 'Explore', 'Repositories', 'Organizations', 'Help', 'Upgrade' (button), and a user dropdown for 'omeiirr'. Below the navigation is a search bar with 'omeiirr' typed in, a 'Search by repository name' field, and a 'Create repository' button. The main content area displays the user's repository 'omeiirr / shell-casestudy', which contains an image pushed 'a few seconds ago'. The repository card shows 'Inactive', '0 stars', '0 forks', and 'Public' status.

## Create Web App

The screenshot shows the Microsoft Azure portal interface for creating a new web application. The top navigation bar includes tabs for 'Create Web App - Microsoft Azu', 'WebSSH Client', 'docker hub - Search', 'Repositories | Docker Hub', and 'InPrivate (2)'. The main title is 'Create Web App'. The 'Instance Details' section contains fields for 'Name' (PetClinic-Omeir), 'Publish' (Docker Container selected), 'Operating System' (Linux selected), and 'Region' (East US). A note indicates that the selected App Service Plan (ASP-newrg-9339) is not found in the chosen region. The 'Pricing plans' section shows a Linux Plan (East US) selected and a Premium V3 P1V3 pricing plan chosen. Navigation buttons at the bottom include 'Review + create' (highlighted in blue), '< Previous', and 'Next : Docker >'.

The screenshot shows the Microsoft Azure portal interface for the 'Omeir-PetClinic2' web app. The top navigation bar is identical to the previous screenshot. The main title is 'Omeir-PetClinic2' with a 'Web App' badge. The left sidebar lists navigation items: Overview (selected), Activity log, Access control (IAM), Tags, Diagnose and solve problems, Microsoft Defender for Cloud, Events (preview), Deployment (selected), Deployment slots, Deployment Center, Settings (selected), Configuration, Authentication, Application Insights, Identity, Backups, and Custom domains. The right panel displays the 'Summary' section with details: Session ID (4ead4f7d614447eca6d8187a9f77b4c6), Resource ID (Not available), Extension (WebsitesExtension), Content (AppsOverview.ReactView), and Error code (--). Below this is the 'Details' section, which shows an error message: 'Manual require of the following modules failed: ["@microsoft/azureportal-reactview/BladeLink"] : [Error: define for "@microsoft/azureportal-reactview/BladeLink" wasn't called because of a script error for "[https://portal.azure.com/Content/Dynamic/z-vtgZrO4DpLjs?retryAttempt=1.055155628359278]", trying Ajax call.]'. Navigation buttons at the bottom include 'Search' and various icons for file operations.

## Deployed web app



Welcome



 **spring**<sup>®</sup> by VMware Tanzu



## GitHub Actions

### Failed CI/CD Workflow

#### Workflow file for this run

.github/workflows/main.yml at 77fb1b9

```
1  name: Azure Web App Container Automated Deployment
2
3  on:
4    push:
5      branches:
6        - main
7        - automated-deployment
8
9  jobs:
10   build-and-deploy:
11     runs-on: ubuntu-latest
12
13   steps:
14     - name: Checkout code
15       uses: actions/checkout@v2
16
17     - name: Set up JDK 17
18       uses: actions/setup-java@v3
19       with:
20         java-version: '17'
21         distribution: 'temurin'
22         cache: maven
23
24     # - name: Skip TEST Maven
25     #   run: mvn install -Dmaven.test.skip=true
26
27     - name: Build with Maven
28       run: mvn -B package --file pom.xml
29
30     - name: Set up Docker
31       uses: azure/docker-login@v1
```

Streamline | Recycle Bin | how to bu | digitaloce | 20+ Mave | main.yml | Automati | set up auto | Create ma | + - X

https://github.com/omeiir/shell\_7\_foundation\_Java\_Spring/actions/runs/5998914320/job/16268049483 InPrivate (2)

Summary

Jobs

build-and-deploy

failed 1 minute ago in 1m 49s

Build with Maven

petclinic:

5779 **Error:**  
5780 **Error:** Please refer to /home/runner/work/shell\_7\_foundation\_Java\_Spring/shell\_7\_foundation\_Java\_Spring/target/surefire-reports for the individual test results.  
5781 **Error:** Please refer to dump files (if any exist) [date].dump, [date]-jvmRun[N].dump and [date].dumpstream.  
5782 **Error:** -> [Help 1]  
5783 **Error:**  
5784 **Error:** To see the full stack trace of the errors, re-run Maven with the -e switch.  
5785 **Error:** Re-run Maven using the -X switch to enable full debug logging.  
5786 **Error:**  
5787 **Error:** For more information about the errors and possible solutions, please read the following articles:  
5788 **Error:** [Help 1] <http://cwiki.apache.org/confluence/display/MAVEN/MojoFailureException>  
5789 **Error:** Process completed with exit code 1.

1m 44s

Search logs

Set up Docker 0s

Build Docker Image 0s

Login to Docker Hub 0s

Push Docker Image 0s

> Post Set up JDK 17 0s

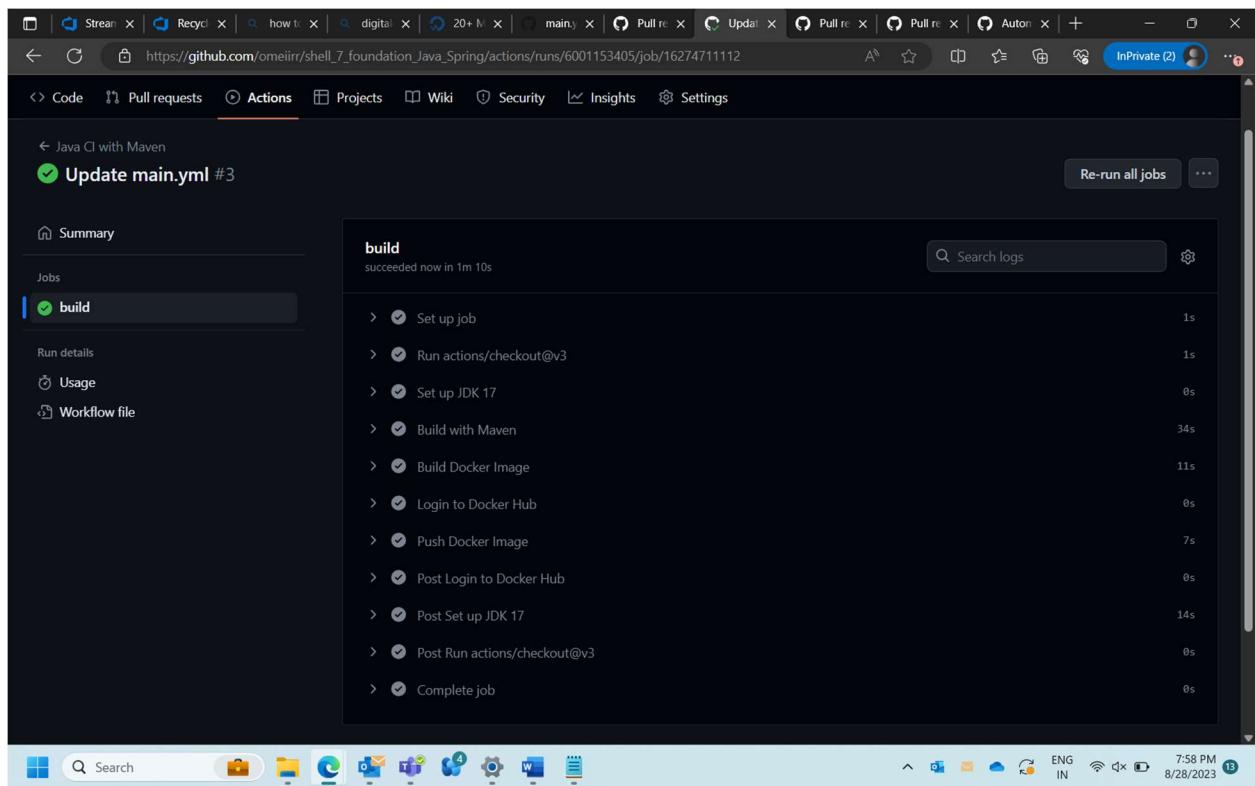
> Post Checkout code 0s

> Complete job 0s

Windows taskbar icons: Search, File Explorer, Task View, Taskbar settings, Start button, Cloud, Network, Battery, Volume, Date/Time (4:26 PM, 8/28/2023), Language (ENG IN), Signal strength, Battery level, and a battery icon.

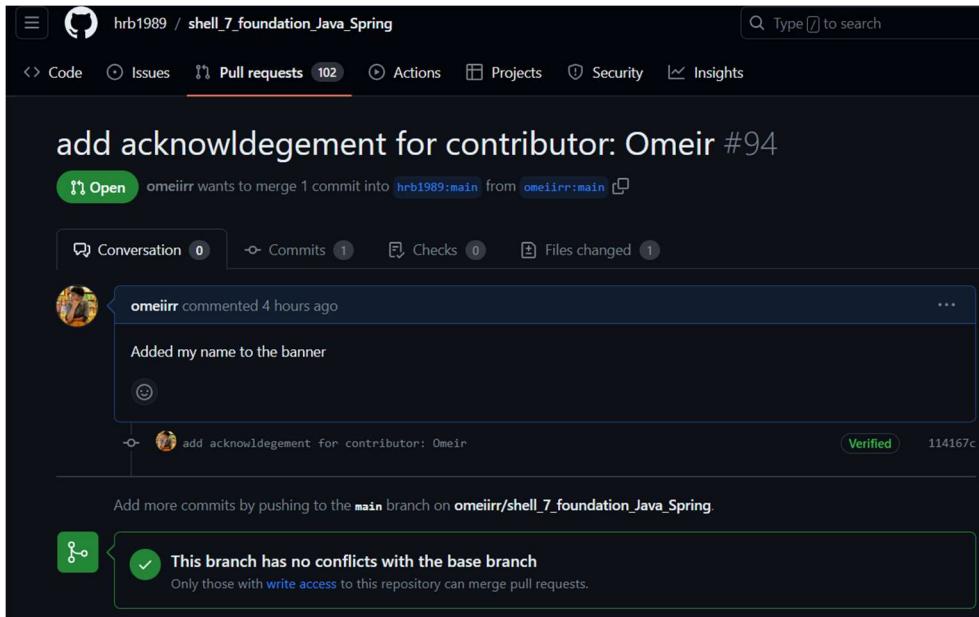
## Successful CI/CD Workflow

```
1  name: Java CI with Maven
2
3  on:
4    push:
5      branches: [ "main", "automated-deployment" ]
6    pull_request:
7      branches: [ "main" ]
8
9  jobs:
10   build:
11
12     runs-on: ubuntu-latest
13
14     steps:
15       - uses: actions/checkout@v3
16       - name: Set up JDK 17
17         uses: actions/setup-java@v3
18         with:
19           java-version: '17'
20           distribution: 'temurin'
21           cache: maven
22       - name: Build with Maven
23         run: mvn clean install -DskipTests --file pom.xml
24
25       - name: Build Docker Image
26         run: docker build -t omeiirr/shell-casestudy:latest .
27
28       - name: Login to Docker Hub
29         uses: docker/login-action@v1
30         with:
31           username: ${{ secrets.DOCKER_USERNAME }}
32           password: ${{ secrets.DOCKER_PASSWORD }}
33
34       - name: Push Docker Image
35         run: docker push omeiirr/shell-casestudy:latest
```



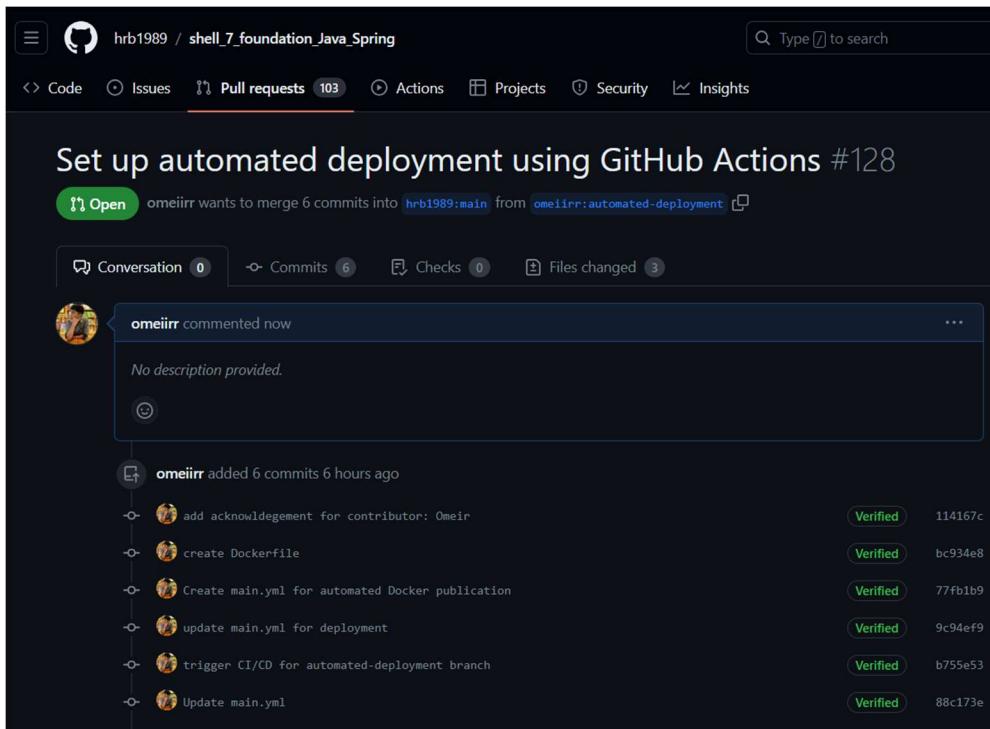
Raise PRs against the parent repository

PR 1:



A screenshot of a GitHub pull request page. The repository is hrb1989/shell\_7\_foundation\_Java\_Spring. The pull request is titled "add acknowledgement for contributor: Omeir #94". It shows one commit from omeiirr:main into hrb1989:main. The commit message is "Added my name to the banner". A comment from omeiirr says "Added my name to the banner". Below the commit, there is a note: "This branch has no conflicts with the base branch".

PR 2:



A screenshot of a GitHub pull request page. The repository is hrb1989/shell\_7\_foundation\_Java\_Spring. The pull request is titled "Set up automated deployment using GitHub Actions #128". It shows six commits from omeiirr:automated-deployment into hrb1989:main. The commits are: "add acknowledgement for contributor: Omeir", "create Dockerfile", "Create main.yml for automated Docker publication", "update main.yml for deployment", "trigger CI/CD for automated-deployment branch", and "Update main.yml". All commits are verified.

Regarding Task 11:

New look and feel of app unable to be reflected in the deployed app as the VM and web app were shut down on admin level. However, functionality is complete.