

DevOps MCQ

1. What does WSL stand for in the context of Windows?

Answer: c. Windows Subsystem for Linux

Rationale: WSL, denoting Windows Subsystem for Linux, serves as a compatibility layer within Windows, enabling the native execution of Linux applications.

2. What is the primary objective of continuous integration (CI) in DevOps?

Answer: b. Regularly incorporating code changes

Rationale: The principal aim of continuous integration (CI) is to consistently integrate code modifications into a shared repository, ensuring that contributions from various developers are frequently integrated and tested.

3. Within the Linux command line, what's the function of the cd command?

Answer: b. Modifying the current working directory

Rationale: The "cd" command, when utilized in the Linux command line, is employed to alter the present working directory, facilitating navigation within the file system.

4. Which of the options isn't categorized as a Linux distribution?

Answer: c. Docker

Rationale: Docker does not fall under the category of Linux distributions; instead, it stands as a platform designed for containerization and application deployment. Linux distributions comprise operating systems such as Ubuntu, CentOS, Debian, among others.

5. In the context of DevOps and containerization, what is Docker's primary use?

Answer: c. Packaging and deploying applications in containers

Rationale: Docker is predominantly employed for packaging applications and their dependencies into containers, streamlining the deployment, management, and scalability of applications within a consistent and isolated environment.

6. What is the primary function of Azure DevOps?

Answer: b. Facilitating software development and delivery

Rationale: Azure DevOps, provided by Microsoft, encompasses a suite of DevOps tools and services, primarily oriented toward supporting the complete software development life cycle, which includes planning, coding, building, testing, and delivery.

7. Which components are integral to Azure DevOps?

Answer: c. Azure Boards and Azure Pipelines

Rationale: Azure DevOps comprises multiple components, with Azure Boards for work item tracking and Azure Pipelines for continuous integration and continuous delivery (CI/CD) being two pivotal elements.

8. How does Azure DevOps contribute to version control in software development?

Answer: b. Monitoring changes in source code and overseeing version management.

Rationale: Azure DevOps provides version control tools, such as Azure Repos, which are instrumental in tracking source code changes, managing version history, and promoting collaborative development among team members.

9. What is the primary role of the root user in Linux?

Answer: c. Carrying out administrative tasks with superuser privileges

Rationale: The root user in Linux is vested with superuser privileges and is entrusted with responsibilities pertaining to administrative tasks, system management, and system-wide alterations.

10. In the realm of Azure DevOps, which component is utilized for defining, constructing, testing, and deploying applications?

Answer: c. Azure Pipelines

Rationale: In the context of Azure DevOps, Azure Pipelines takes on a central role, being employed to define, construct, test, and deploy applications within a continuous integration and continuous delivery (CI/CD) pipeline, rendering it an indispensable component for software development and deployment in Azure DevOps.

DevOps Labs

Lab 1: File and Directory Management

```
kamalesh@LAPTOP-S2JDT2LN x + v
kamalesh@LAPTOP-S2JDT2LN:~$ mkdir lab1
kamalesh@LAPTOP-S2JDT2LN:~$ cd lab1
kamalesh@LAPTOP-S2JDT2LN:~/lab1$ cat > sample.txt
some content
kamalesh@LAPTOP-S2JDT2LN:~/lab1$ ls
sample.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab1$ cp sample.txt sample_copy.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab1$ ls
sample.txt  sample_copy.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab1$ mv sample_copy.txt new_sample.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab1$ ls
new_sample.txt  sample.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab1$
```

Lab 2: Permissions and Ownership

```
kamalesh@LAPTOP-S2JDT2LN x + v
kamalesh@LAPTOP-S2JDT2LN:~$ mkdir lab2
kamalesh@LAPTOP-S2JDT2LN:~$ cd lab2
kamalesh@LAPTOP-S2JDT2LN:~/lab2$ touch secret.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab2$ chmod 600 secret.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab2$ ls -l
total 0
-rw----- 1 kamalesh kamalesh 0 Oct 23 14:42 secret.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab2$ sudo useradd levi
[sudo] password for kamalesh:
Sorry, try again.
[sudo] password for kamalesh:
Sorry, try again.
[sudo] password for kamalesh:
kamalesh@LAPTOP-S2JDT2LN:~/lab2$ whoami
kamalesh
kamalesh@LAPTOP-S2JDT2LN:~/lab2$ sudo chown levi secret.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab2$ ls -l
total 0
-rw----- 1 levi kamalesh 0 Oct 23 14:42 secret.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab2$ ls -n
total 0
-rw----- 1 1001 1000 0 Oct 23 14:42 secret.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab2$
```

Lab 3: Text Processing with Command Line Tools

```
kamalesh@LAPTOP-S2JDT2LN:~$ mkdir lab3
kamalesh@LAPTOP-S2JDT2LN:~$ cd lab3
kamalesh@LAPTOP-S2JDT2LN:~/lab3$ cat > sample.txt
People really die when they are forgotten
kamalesh@LAPTOP-S2JDT2LN:~/lab3$ grep die sample.txt
People really die when they are forgotten
kamalesh@LAPTOP-S2JDT2LN:~/lab3$ sed -i s/People/Humans/g sample.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab3$ grep Humans
kamalesh@LAPTOP-S2JDT2LN:~/lab3$ grep Humans sample.txt
Humans really die when they are forgotten
kamalesh@LAPTOP-S2JDT2LN:~/lab3$ wc sample.txt
 1  7 42 sample.txt
kamalesh@LAPTOP-S2JDT2LN:~/lab3$
```

Lab 4: Creating a Simple YAML File

```
kamalesh@LAPTOP-S2JDT2LN:~$ sudo apt-get install yamllint
Downloading pathspec-0.11.2-py3-none-any.whl (29 kB)
Installing collected packages: pathspec, yamllint
WARNING: The script yamllint is installed in '/home/kamalesh/.local/bin' which is not on PATH.
Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed pathspec-0.11.2 yamllint-1.32.0
kamalesh@LAPTOP-S2JDT2LN:~$ yamll$ sudo apt-get install yamllint
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  python3-pathspec
The following NEW packages will be installed:
  python3-pathspec yamllint
0 upgraded, 2 newly installed, 0 to remove and 96 not upgraded.
Need to get 65.7 kB of archives.
After this operation, 318 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu jammy/universe amd64 python3-pathspec all 0.9.0-1 [28.8 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy/universe amd64 yamllint all 1.26.3-1 [36.9 kB]
Fetched 65.7 kB in 2s (37.2 kB/s)
Selecting previously unselected package python3-pathspec.
(Reading database ... 31394 files and directories currently installed.)
Preparing to unpack .../python3-pathspec_0.9.0-1_all.deb ...
Unpacking python3-pathspec (0.9.0-1) ...
Selecting previously unselected package yamllint.
Preparing to unpack .../yamllint_1.26.3-1_all.deb ...
Unpacking yamllint (1.26.3-1) ...
Setting up python3-pathspec (0.9.0-1) ...
Setting up yamllint (1.26.3-1) ...
Processing triggers for man-db (2.10.2-1) ...
kamalesh@LAPTOP-S2JDT2LN:~/yamll$ yamllint config.yaml
config.yaml
 1:1 warning missing document start "---" (document-start)
 4:1 error too many blank lines (1 > 0) (empty-lines)
kamalesh@LAPTOP-S2JDT2LN:~/yamll$ vi config.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yamll$ yamllint config.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yamll$
```

Lab 5: Working with Lists in YAML

```
kamalesh@LAPTOP-S2JDT2LN x + v
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ touch fruits.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ vi fruits.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ cat fruits.yaml
favorite_fruits:
- Apple
- Banana
- Orange
- Strawberry
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ yamllint fruits.yaml
fruits.yaml
1:1 warning missing document start "---" (document-start)

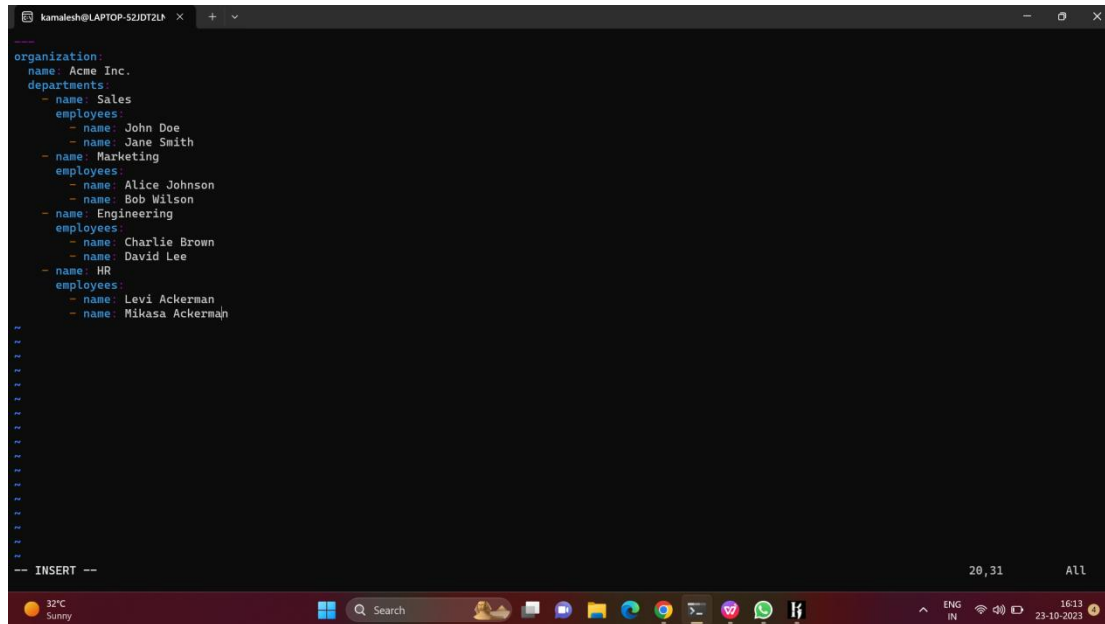
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ vi fruits.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ yamllint fruits.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yaml$
```

Lab 6: Nested Structures in YAML

1) Creating nested list

```
kamalesh@LAPTOP-S2JDT2LN x + v
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ touch data.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ vi data.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ cat data.yaml
---
organization:
  name: Acme Inc.
  departments:
    - name: Sales
      employees:
        - name: John Doe
        - name: Jane Smith
    - name: Marketing
      employees:
        - name: Alice Johnson
        - name: Bob Wilson
    - name: Engineering
      employees:
        - name: Charlie Brown
        - name: David Lee
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ yamllint data.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yaml$
```

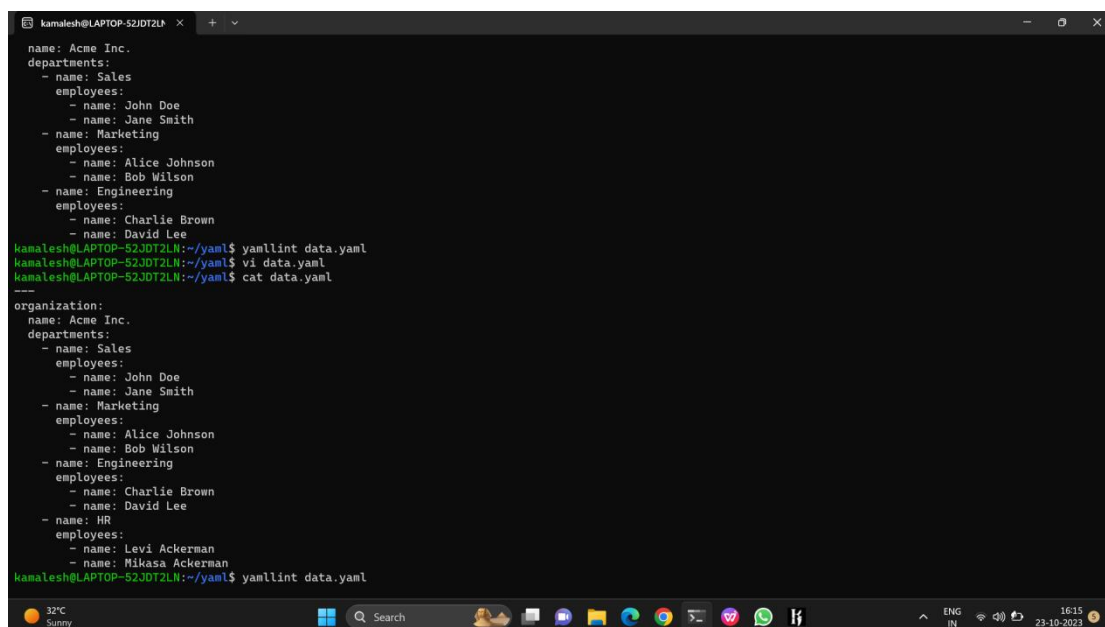
2) Adding new contents



A screenshot of a Visual Studio Code editor window. The title bar shows the user 'kamalesh@LAPTOP-S2JDT2LN'. The editor displays a YAML file with the following content:

```
organization:
  name: Acme Inc.
  departments:
    - name: Sales
      employees:
        - name: John Doe
        - name: Jane Smith
    - name: Marketing
      employees:
        - name: Alice Johnson
        - name: Bob Wilson
    - name: Engineering
      employees:
        - name: Charlie Brown
        - name: David Lee
    - name: HR
      employees:
        - name: Levi Ackerman
        - name: Mikasa Ackerman
```

The status bar at the bottom indicates '20, 31' and 'All'. The Windows taskbar is visible at the bottom with a temperature of 32°C and the date 23-10-2023.



A screenshot of the same Visual Studio Code editor window. The terminal at the bottom shows the following commands and output:

```
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ yamllint data.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ vi data.yaml
kamalesh@LAPTOP-S2JDT2LN:~/yaml$ cat data.yaml
```

The output of the 'cat' command shows the same YAML content as the first screenshot. The status bar now indicates '16:15' and '23-10-2023'.

3) Removing some contents

```

kamalesh@LAPTOP-S2JD72LH: ~
-- INSERT --

organization:
  name: Acme Inc.
  departments:
    - name: Sales
      employees:
        - name: John Doe
        - name: Jane Smith
    - name: Marketing
      employees:
        - name: Alice Johnson
        - name: Bob Wilson
    - name: HR
      employees:
        - name: Levi Ackerman
        - name: Mikasa Ackerman

```

```
kamlesh@LAPTOP-S2JDT2LN ~ %  
kamlesh@LAPTOP-S2JDT2LN:~/yaml$ vi data.yaml  
kamlesh@LAPTOP-S2JDT2LN:~/yaml$ cat data.yaml  
-----  
organization:  
  name: Acme Inc.  
  departments:  
    - name: Sales  
      employees:  
        - name: John Doe  
        - name: Jane Smith  
    - name: Marketing  
      employees:  
        - name: Alice Johnson  
        - name: Bob Wilson  
    - name: HR  
      employees:  
        - name: Levi Ackerman  
        - name: Mikasa Ackerman  
kamlesh@LAPTOP-S2JDT2LN:~/yaml$ vi data.yaml  
kamlesh@LAPTOP-S2JDT2LN:~/yaml$ cat data.yaml  
-----  
organization:  
  name: Acme Inc.  
  departments:  
    - name: Sales  
      employees:  
        - name: John Doe  
        - name: Jane Smith  
    - name: Marketing  
      employees:  
        - name: Alice Johnson  
        - name: Bob Wilson  
    - name: HR  
      employees:  
        - name: Levi Ackerman  
        - name: Mikasa Ackerman  
kamlesh@LAPTOP-S2JDT2LN:~/yaml$ yamlLint data.yaml  
kamlesh@LAPTOP-S2JDT2LN:~/yaml$
```

Lab 7: Create Classic Azure CI Pipeline for Angular Application

This screenshot shows the Azure DevOps web interface for a pipeline named 'DevOpsAssignAngular-CI'. The left sidebar contains navigation links for Overview, Boards, Repos, Pipelines, Environments, Releases, Library, Task groups, Deployment groups, Test Plans, Artifacts, and Project settings. The main area displays 'Jobs in run #19' with a list of tasks: Initialize job, Checkout DevOpsAngular..., npm install, npm build, npm test, Publish Pipeline Ar..., Post-job: Checkout De..., Finalize Job, and Report build status. The 'Report build status' job is selected, showing a log entry: '1 Set build status for commit 706f21.' The bottom status bar indicates 30°C Haze and the date 20-10-2023.

This screenshot shows the Azure DevOps web interface for a pipeline run. The left sidebar is the same as the previous screenshot. The main area displays the summary for run '#19 • Set up CI with Azure Pipelines'. It includes a 'Run new' button and a note: 'This run is being retained as one of 3 recent runs by main (Branch)'. The 'Summary' tab is active, showing details about the run: 'Manually run by Kamalesh S', 'Repository and version: DevOpsAssignAngular.git', 'Time started and elapsed: Fri at 17:59', 'Related: 0 work items', and 'Tests and coverage: 1 published; 1 consumed'. A 'Jobs' table is also shown with the following data:

Name	Status	Duration
Agent job 1	Success	2m 42s

The bottom status bar indicates 32°C Sunny and the date 23-10-2023.

Lab 8: Create YAML Azure CI Pipeline for React Application

This screenshot shows the Azure DevOps Pipelines interface for a pipeline named 'DevOpsAssignReact'. The left sidebar contains navigation links for Overview, Boards, Repos, Pipelines, Environments, Releases, Library, Task groups, Deployment groups, Test Plans, Artifacts, and Project settings. The main area displays 'Jobs in run #20231020.1'. A table lists the jobs and their durations:

Job	Duration
Initialize job	5s
Checkout DevOpsAssign...	5s
Install Node.js	<1s
npm install and build	3m 3s
npm test	22s
PublishPipelineArti...	1m 14s
Post-job: Checkout De...	<1s
Finalize Job	<1s
Report build status	<1s

The 'Job' details panel on the right shows the following log:

```
1 Pool: Default
2 Queued: Today at 17:52 [manage_parallel_jobs]
3 Agent: LAPTOP-52J0T2LN
4 Started: Today at 17:52
5 Duration: 4m 54s
6
7 The agent request is already running or has already completed.
8 Job preparation parameters
9 artifact produced
10 Job live console data:
11 Starting: Job
12 Async Command Start: DetectDockerContainer
13 Async Command End: DetectDockerContainer
14 Async Command Start: DetectDockerContainer
15 Async Command End: DetectDockerContainer
16 Finishing: Job
```

This screenshot shows the Azure DevOps Pipelines interface for a pipeline named 'DevOpsAssignReact'. The left sidebar contains navigation links for Overview, Boards, Repos, Pipelines, Environments, Releases, Library, Task groups, Deployment groups, Test Plans, Artifacts, and Project settings. The main area displays the completed pipeline run '#20231020.1 • Set up CI with Azure Pipelines'. A message indicates: 'This run is being retained as one of 3 recent runs by master (Branch)'. The 'Summary' tab is selected, showing the following details:

Triggered by: Kamalesh S

Repository and version: DevOpsAssignReact master 771ddb48

Time started and elapsed: Fri at 17:51, 5m 11s

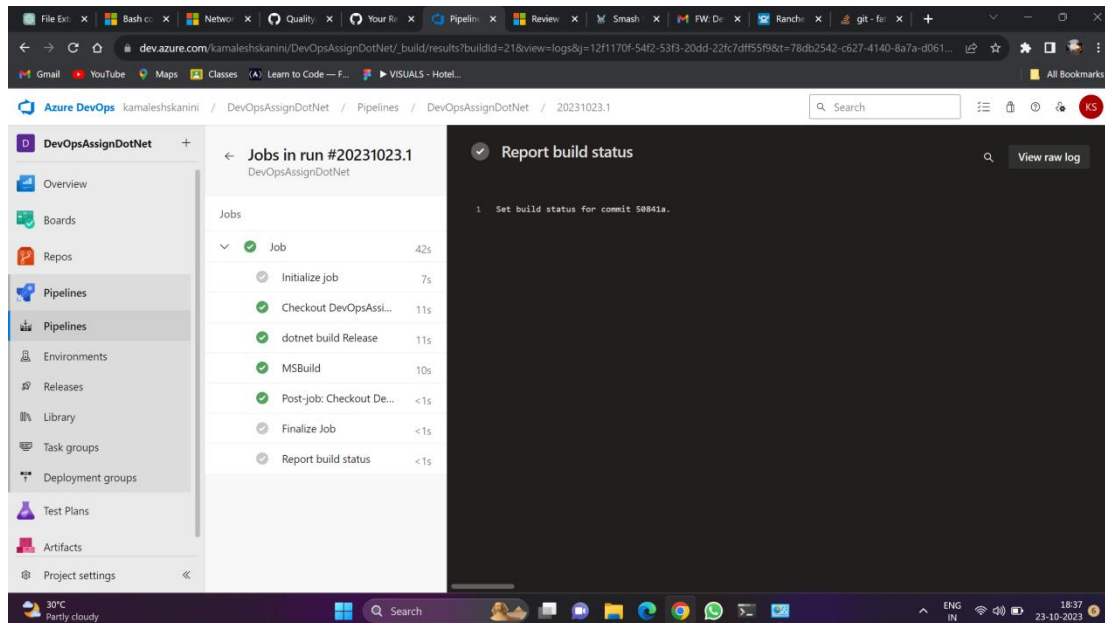
Related: 0 work items, 1 published

Tests and coverage: Get started

The 'Jobs' table shows the following details:

Name	Status	Duration
Job	Success	4m 54s

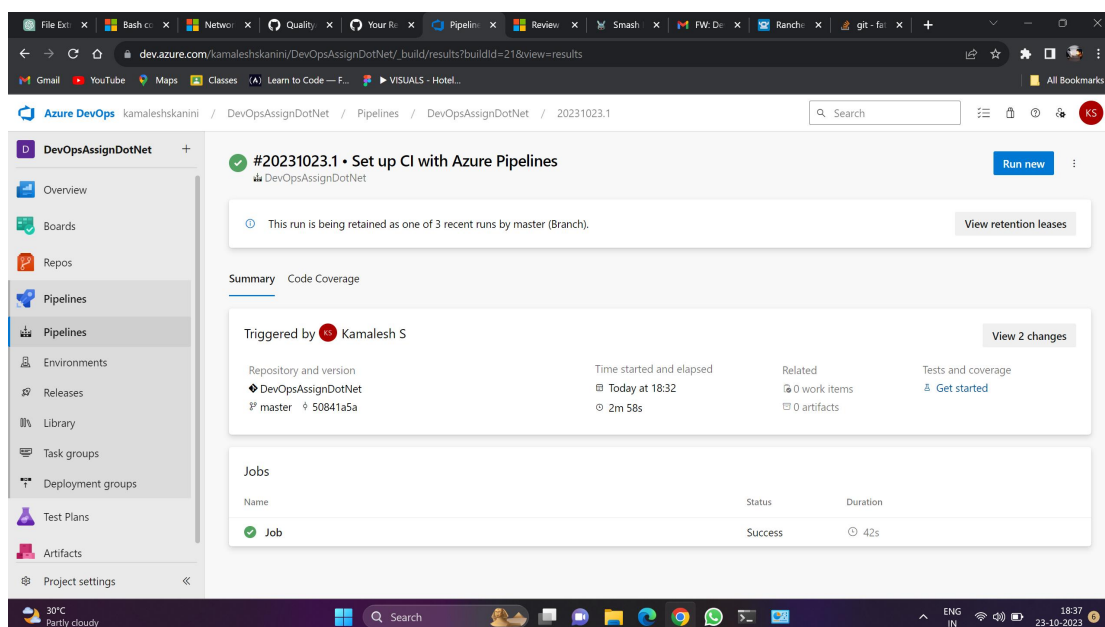
Lab 9: Create CI Pipeline for .NET Core Application with MS Unit Test



This screenshot shows the 'Jobs in run #20231023.1' page in Azure DevOps. The left sidebar contains navigation links for Overview, Boards, Repos, Pipelines, Environments, Releases, Library, Task groups, Deployment groups, Test Plans, Artifacts, and Project settings. The main content area displays a list of jobs and a detailed view of the 'Report build status' job.

Job	Duration
Job	42s
Initialize job	7s
Checkout DevOpsAssi...	11s
dotnet build Release	11s
MSBuild	10s
Post-job: Checkout De...	<1s
Finalize Job	<1s
Report build status	<1s

The 'Report build status' job details show a single step: 'Set build status for commit 50841a'.



This screenshot shows the overview page for pipeline #20231023.1, titled '#20231023.1 • Set up CI with Azure Pipelines'. The left sidebar is identical to the previous screenshot. The main content area provides a summary of the pipeline run.

Summary

Triggered by **Kamalesh S** (View 2 changes)

Repository and version	Time started and elapsed	Related	Tests and coverage
DevOpsAssignDotNet master 50841a5a	Today at 18:32 2m 58s	0 work items 0 artifacts	Get started

Jobs

Name	Status	Duration
Job	Success	42s