

Arjun Bedi
Screenshot Submissions
Lab 4
Machine Learning Operations

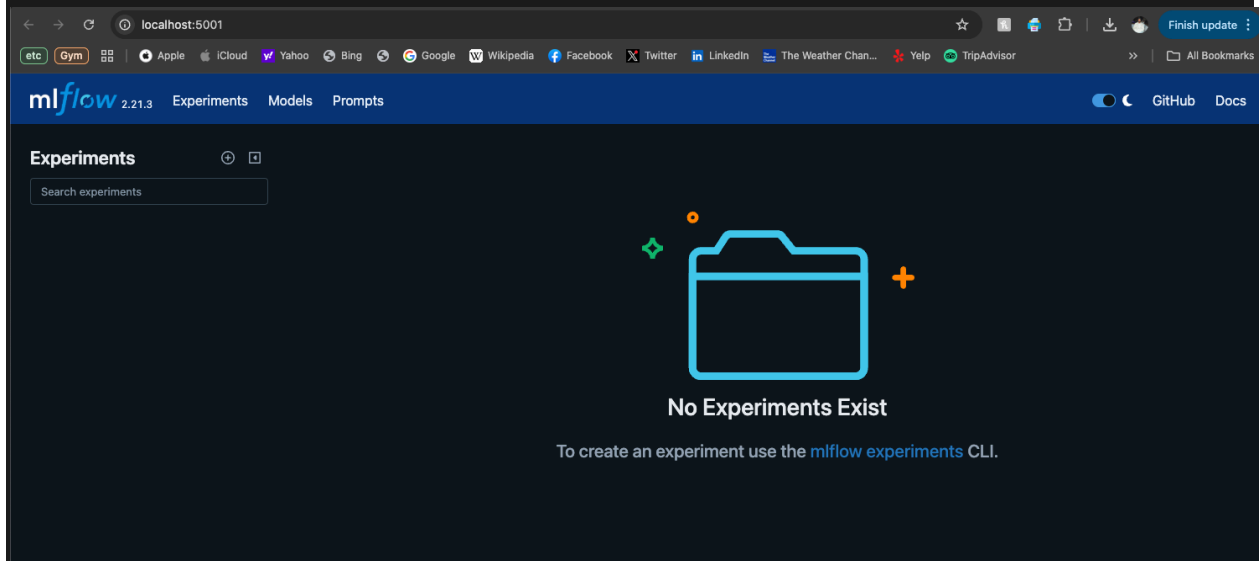
***NOTE** - I already had a port associated with 5000, so I decided to use 5001 for this lab

****take a snapshot of the output in the terminal****

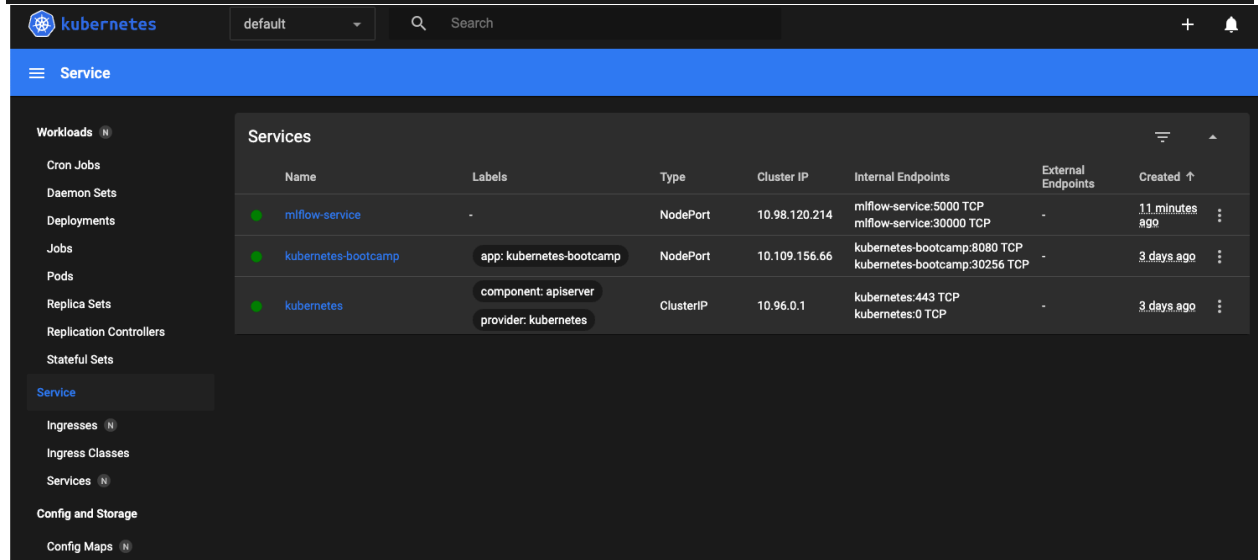
```
mlflow_test — exit — exit — zsh — 218x36
(mlops) arjunbedi cd ~/Documents/gradSchool/mod4/mlOps/mlOperations/labs/lab4/app/mlflow_test %
$ docker build -t mlflow-server .
[+] Building 62.3s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 338B
=> [internal] load metadata for docker.io/library/python:3.9-slim
=> [auth] library/python:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/3] FROM docker.io/library/python:3.9-slim@sha256:9aa5793609640ecea2f06451a0d6f379330880b413f954933289cf3b27a78567
=> => sha256:aa9e09c11dcc28ed1f853d17d5095a9ba250b731178a2d239b5abdbfb5c4788e 14.84MB / 14.84MB
=> => sha256:59024e03c371a36e3b8f43a806543c68509de3f7a7cccb45eb6d4176dcfed5ff 250B / 250B
=> => sha256:a7d9a0ac6293889b2e134861072f9099a06d78ca983d7172d7bb8b236008c7c3 3.33MB / 3.33MB
=> => sha256:16c9c4a8e9eef856231273efbb42a473740e8d50d74d35e6aedd04ff69fe161f 28.07MB / 28.07MB
=> => extracting sha256:16c9c4a8e9eef856231273efbb42a473740e8d50d74d35e6aedd04ff69fe161f
=> => extracting sha256:a7d9a0ac6293889b2e134861072f9099a06d78ca983d7172d7bb8b236008c7c3
=> => extracting sha256:aa9e09c11dcc28ed1f853d17d5095a9ba250b731178a2d239b5abdbfb5c4788e
=> => extracting sha256:59024e03c371a36e3b8f43a806543c68509de3f7a7cccb45eb6d4176dcfed5ff
=> [2/3] RUN pip install mlflow
=> [3/3] RUN mkdir /mlflow
=> exporting to image
=> => exporting layers
=> => exporting manifest sha256:8256c48dc6725b91ab46476408cfad230acd2ec5eac6893a1c9a5a577ea9c9ce
=> => exporting config sha256:1b8b9e16ab0ba7f28ddd341a2dd426c5a2fd8fb47868c61bcd0874df685bf325
=> => exporting attestation manifest sha256:7ecaa7a068d626dba40d783e5742c96a9ff868a2cd52f1e1c624df05d975b064
=> => exporting manifest list sha256:f2d136559f2d86509a09302f5f0355d9e579c3a25212c0a3f7f4b90079f50834
=> => naming to docker.io/library/mlflow-server:latest
=> => unpacking to docker.io/library/mlflow-server:latest

1 warning found (use docker --debug to expand):
- JSONArgsRecommended: JSON arguments recommended for CMD to prevent unintended behavior related to OS signals (line 13)
(mlops) arjunbedi cd ~/Documents/gradSchool/mod4/mlOps/mlOperations/labs/lab4/app/mlflow_test %
$
```

****take a snapshot of the mlflow server ui along with the address bar to show the URL****



****Take three snapshots of the minikube dashboard:
(1) Deployments; (2) Pods; (3) Services****



kubernetes

default

Search

+

Workloads > Pods

Workloads

Cron Jobs

Daemon Sets

Deployments

Jobs

Pods

Replica Sets

Replication Controllers

Stateful Sets

Service

Ingresses

Ingress Classes

Services

Config and Storage

Config Maps

Pods

Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Created ↑
<div><div></div><div>miflow-deployment-655dcb7867-kpqg8</div></div>	miflow-minikube	app: miflow pod-template-hash: 655dcb78c7	minikube	CrashLoopB	4	-	-	12 minutes ago
<div><div></div><div>kubernetes-bootcamp-9bc58d867-6x55g</div></div>	gcr.io/google-samples/kubernetes-bootcamp:v1	app: kubernetes-bo otcamp pod-template-hash: h: 9bc58d867	minikube	Running	1	-	-	3 days ago
<div><div></div><div>kubernetes-bootcamp-9bc58d867-x4x2s</div></div>	gcr.io/google-samples/kubernetes-bootcamp:v1	app: kubernetes-bo otcamp pod-template-hash: h: 9bc58d867	minikube	Running	1	-	-	3 days ago
<div><div></div><div>kubernetes-bootcamp-9bc58d867-7mm9p</div></div>	gcr.io/google-samples/kubernetes-bootcamp:v1	app: kubernetes-bo otcamp pod-template-hash: h: 9bc58d867	minikube	Running	1	-	-	3 days ago
<div><div></div><div>kubernetes-bootcamp-9bc58d867-q5rdq</div></div>	gcr.io/google-samples/kubernetes-bootcamp:v1	app: kubernetes-bo otcamp pod-template-hash: h: 9bc58d867	minikube	Running	1	-	-	3 days ago

kubernetes

default

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+

Workloads > Deployments

Workloads

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Services

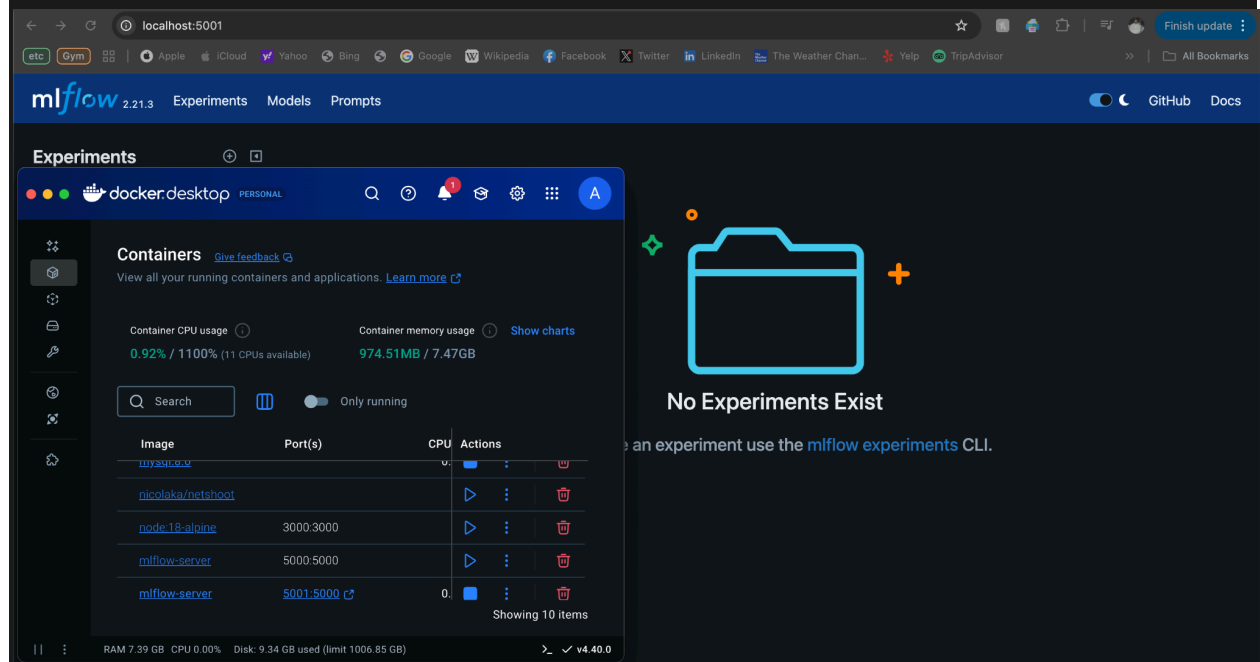
Config and Storage

Config Maps

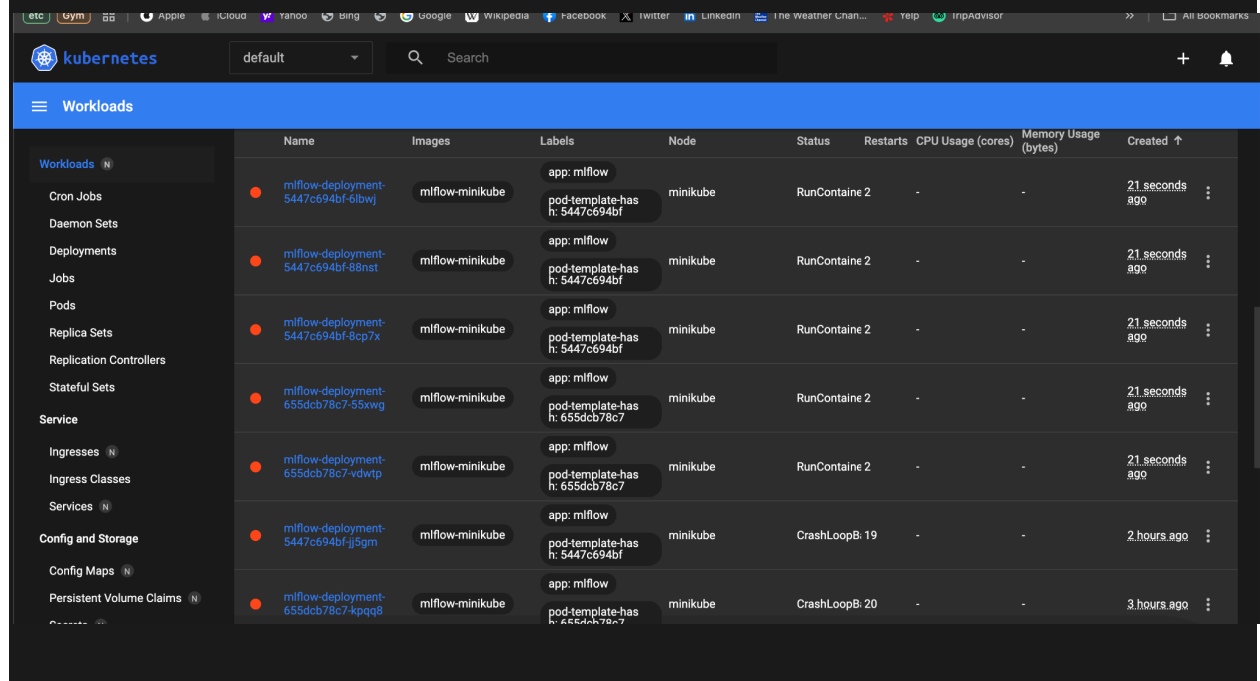
Deployments

Name	Images	Labels	Pods	Created ↑
<div><div></div><div>miflow-deployment</div></div>	miflow-minikube	-	1 / 1	12 minutes ago
<div><div></div><div>kubernetes-bootcamp</div></div>	gcr.io/google-samples/kubernetes-bootcamp:v1	app: kubernetes-bootcamp	4 / 4	3 days ago

****Take a snapshot of the UI with the address bar to show the URL.****



****take a snapshot of the dashboard Pods page showing that multiple pods were created****



****Take a snapshot of the mlflow server UI and the address bar to show that the experiment was logged in the minikube mlflow server****

The screenshot shows the MLflow 2.21.3 Experiments page for an experiment named 'experiment-demo'. The browser's address bar shows the URL: `127.0.0.1:5001/#/experiments/245167017811966844?searchFilter=&orderByKey=attributes.start_time&orderByAsc=false&startTime=ALL&lifecycleFilt...`. The MLflow header includes the version '2.21.3' and navigation links for 'Experiments', 'Models', and 'Prompts'. On the left, the 'Experiments' sidebar shows a search bar and a list of experiments, with 'experiment-demo' selected. The main content area displays the 'experiment-demo' details, including tabs for 'Runs', 'Evaluation', 'Experimental', and 'Traces'. The 'Runs' tab is active, showing a table of runs with columns: Run Name, Created, Dataset, Duration, Source, and Models. The table lists 17 runs, all created 8 seconds ago, with durations ranging from 42ms to 186ms. The runs are named after various animals, such as 'gaudy-sloth-757', 'debonair-ray-985', 'aged-seal-808', 'wise-crow-384', 'clumsy-eel-356', 'auspicious-auk-787', 'carefree-frog-692', 'rumbling-panda-931', 'silent-hawk-418', 'overjoyed-steed-667', 'bright-moose-69', and 'trusting-wren-748'. The bottom of the page indicates '17 matching runs'.

Run Name	Created	Dataset	Duration	Source	Models
gaudy-sloth-757	8 seconds ago	-	147ms	ipykern...	-
debonair-ray-985	8 seconds ago	-	133ms	ipykern...	-
aged-seal-808	8 seconds ago	-	92ms	ipykern...	-
wise-crow-384	8 seconds ago	-	83ms	ipykern...	-
clumsy-eel-356	8 seconds ago	-	88ms	ipykern...	-
auspicious-auk-787	8 seconds ago	-	79ms	ipykern...	-
carefree-frog-692	8 seconds ago	-	59ms	ipykern...	-
rumbling-panda-931	8 seconds ago	-	51ms	ipykern...	-
silent-hawk-418	8 seconds ago	-	74ms	ipykern...	-
overjoyed-steed-667	8 seconds ago	-	42ms	ipykern...	-
bright-moose-69	9 seconds ago	-	85ms	ipykern...	-
trusting-wren-748	9 seconds ago	-	186ms	ipykern...	-