LauzHack

CLOUD COMPUTING AND INFRASTRUCTURE

Jonas Scholz
Co-founder,
sliplane.io

Mariia Eremina
Software Engineer at
MIT

LauzHack

In numbers (Oct 2024)

~30 committee members

250 student hackathon (7x since 2016)

Online hackathons (2x since 2020)

Tech talks / workshops (>50x since 2018)

Mini-hackathons (4x since 2023)

Game Jams (1x since 2024)

Bootcamps (1x since 2024)

Nov - Dec

Sign-ups at
lu.ma/lauzhack-epfl

	Mon	Tue	Wed	Thu	Fri	Sat-Sun
Nov 18 - 24			Cloud Computing and Infrastructure (BC420, 18h)			
Nov 25 - Dec 1			BMS - Analytics & Forecasting (BC420, 18h)	Logitech - Introduction to Unity (BC420, 18h)		Lauzhack Hackathon BC Building
Dec 2 - 8						
Dec 9 - 15			Intro to Web Development with Python (BC420, 18h)			

10-Minute Survey: Help Identify Questions EPFL Students Ask

Scan Here

Machine Learning for Education (ML4ED)

Outline

1. Intro to Cloud
2. Research Computing Platform (RCP)
3. Terminal Basics
4. Quiz
5. New Sponsor for LauzHack 2024

Download Slides

Github: https://github.com/lauzhack/cloud-computing-workshop

Intro

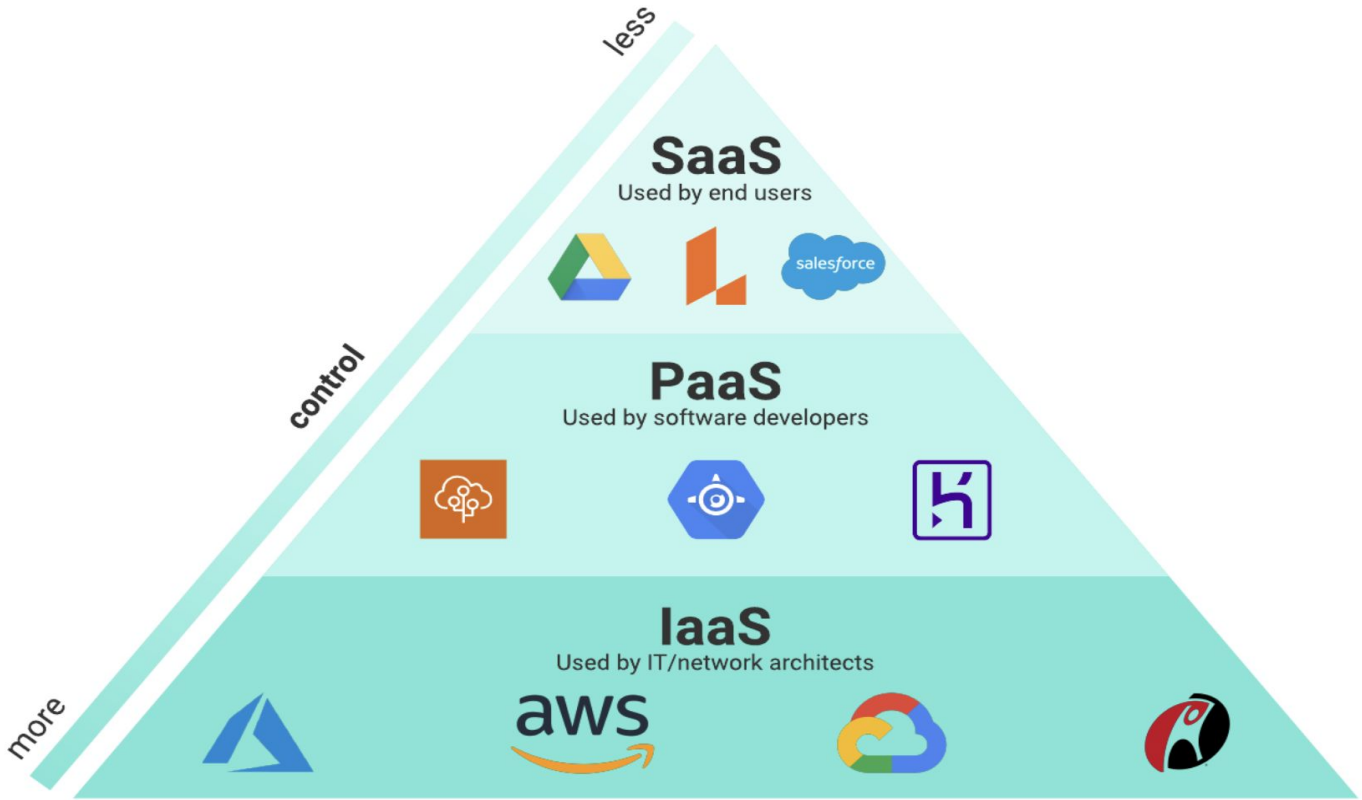
Where is all this data stored?

Microsoft data center in Cheyenne, Wyoming
(Photo: Microsoft)

=

Global Network of computer clusters and servers

Cloud != signal technology
Cloud == System with services



Research Computing Platform

Research Computing Platform (RCP)

- EPFL internal compute infrastructure for researchers
  - Compute (tons of GPUs)
  - Storage (over 12.5PB, 150k copies of shrek movie could be stored)
  - File Transfers
  - Main offer: Container as a Service
- Exists since 2023
- Will provide compute to EPFL students @ LauzHack hackathon!

https://www.epfl.ch/research/facilities/rcp/

Download Slides

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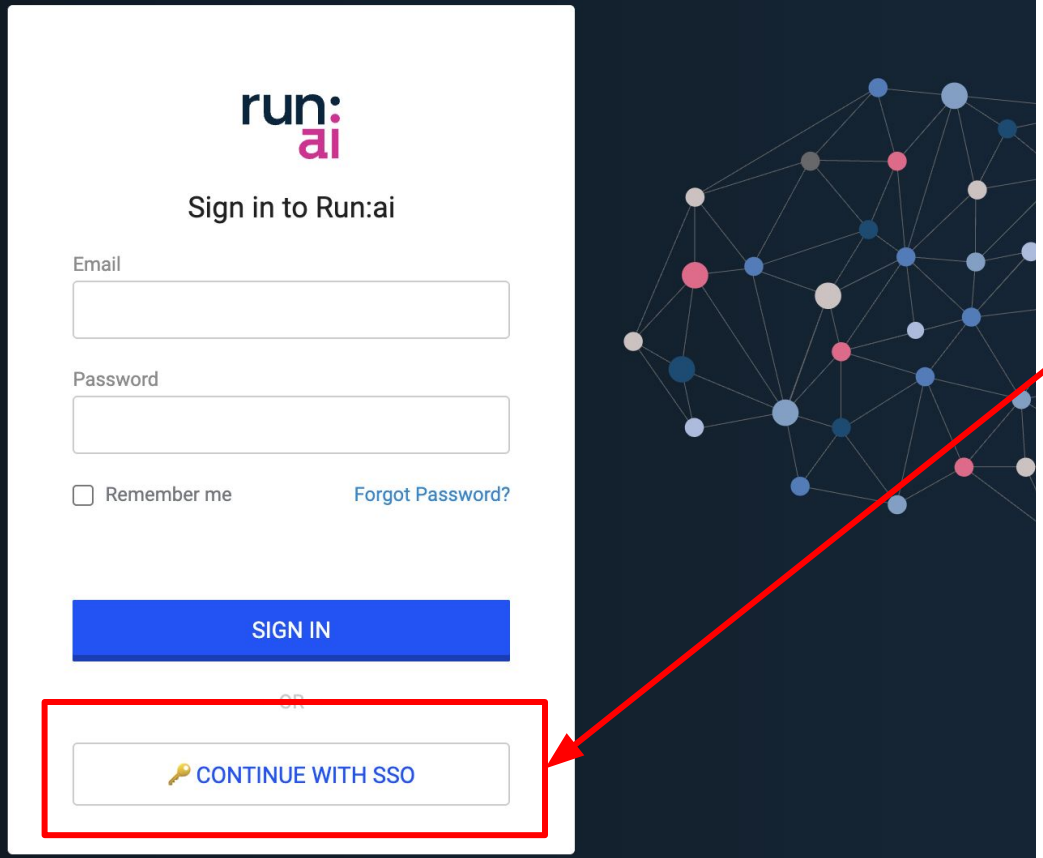


https://rcpepfl.run.ai/login

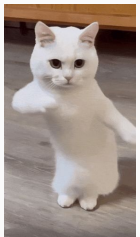
Login with your Gaspar Account!

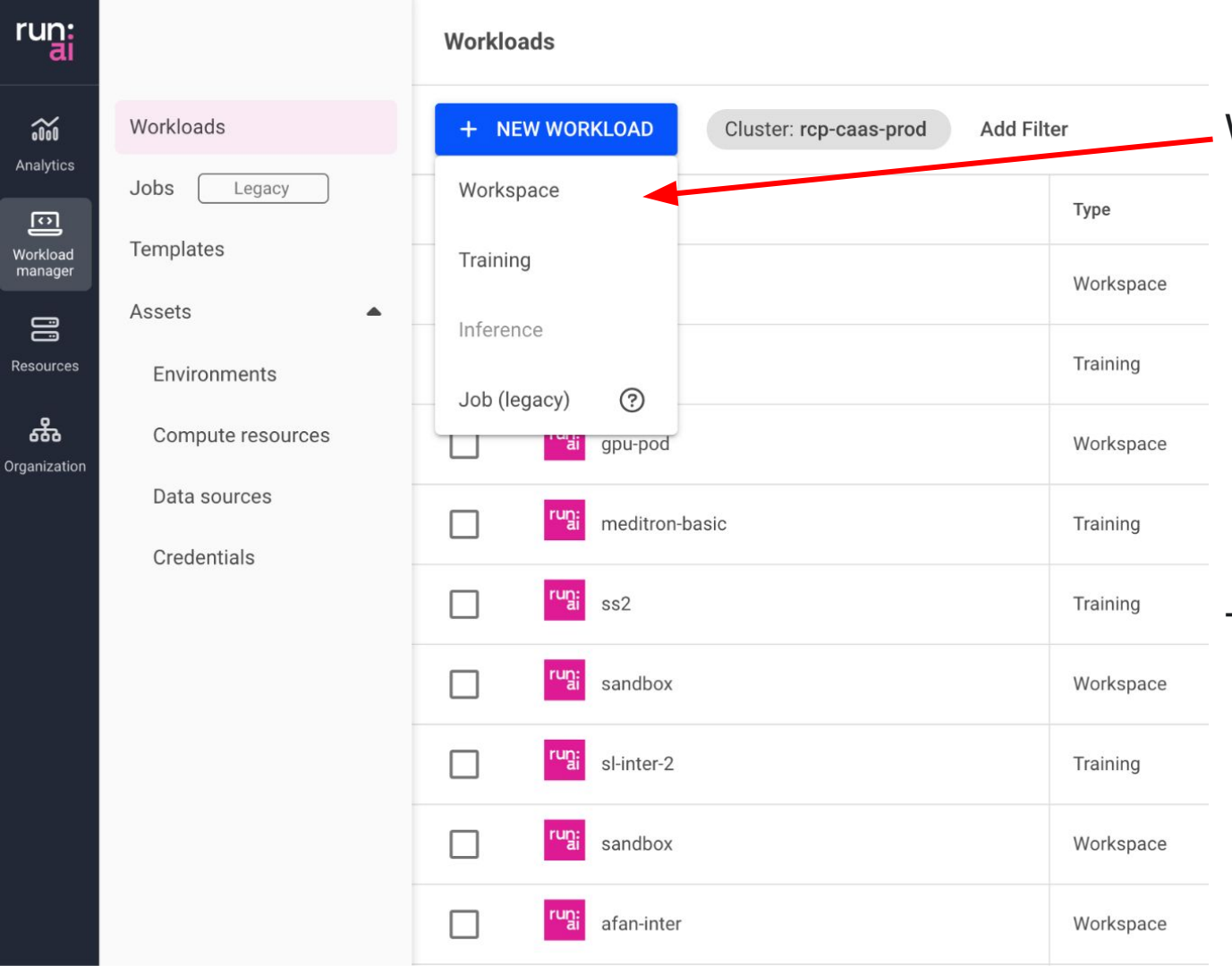
Analytics
Workload manager
Resources
Organization

Workloads
Jobs Legacy
Templates
Assets
Environments
Compute resources
Data sources
Credentials

+ NEW WORKLOAD | Cluster: rcp-caas-prod | Add Filter | SEARCH | COLUMNS | MORE | REFRESH | SHOW DE

Workload	Type	Status	Project	Department	Node pool
muon-largebs1	Training	Running (2h-3m)	mlo-semenov	mlo	default
job-2cd028661b49	Workspace	Running (2h-7m)	lbni-zayardulabi	lbni	v100
sf-largebs1	Training	Running (2h-8m)	mlo-semenov	mlo	default
igpubig	Workspace	Running (2h-12m)	aimm-jwenckst	aimm	default
sandbox	Workspace	Running (2h-17m)	mlo-ccharmil	mlo	v100
yx-jupyter-pod1	Workspace	Running (2h-25m)	ivrl-yitxu	ivrl	default
sl-inter-3	Training	Running (2h-28m)	cvlab-shuli	cvlab	default



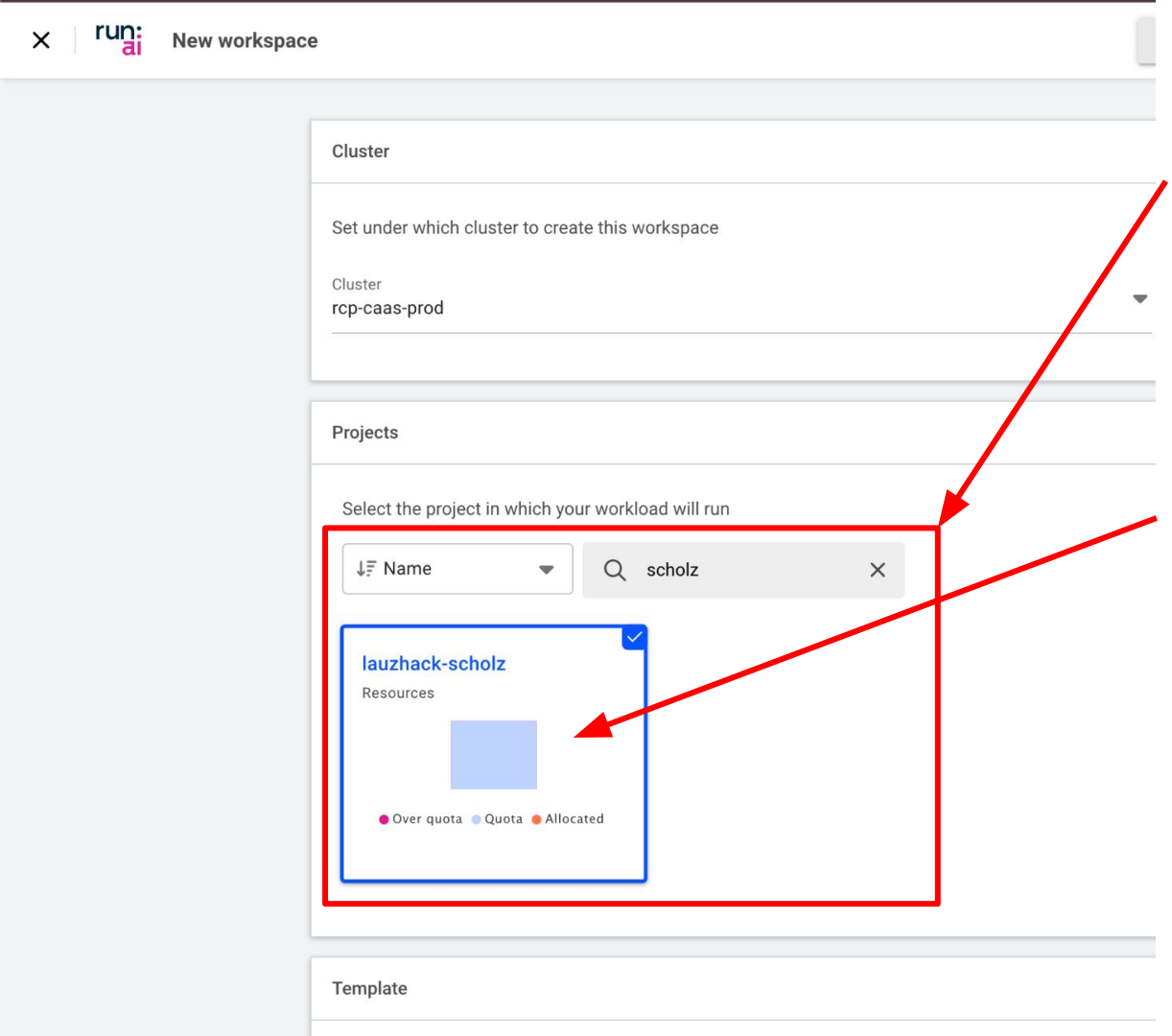


Workspace = Interactive J

- Non-preemptible
- High prio
- Max 12 hours in a rov
- Jupyter Notebooks, VSCode server

Training:

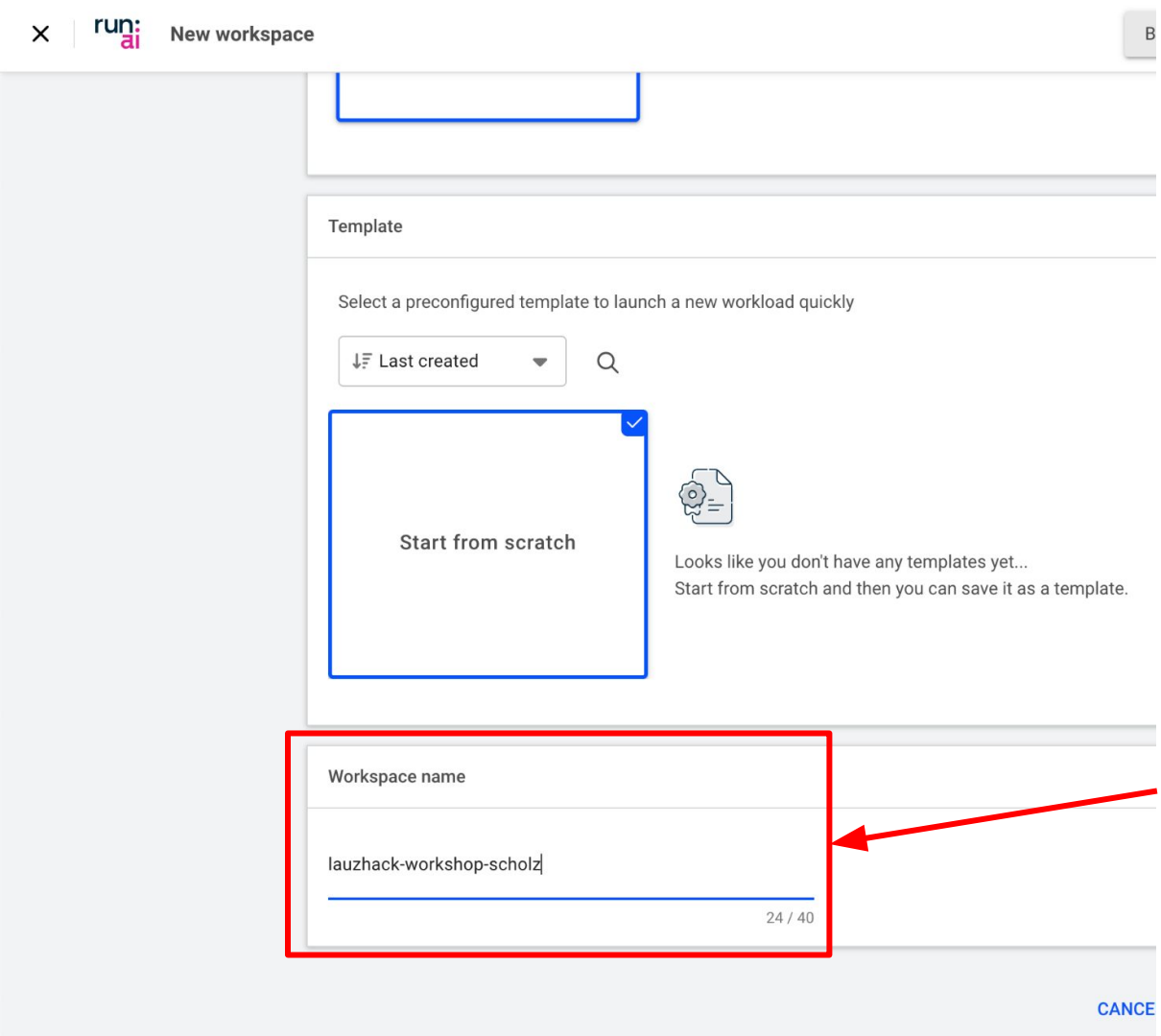
- Long-running jobs
- Preemptible
- Distributed
- More GPUs 🤩



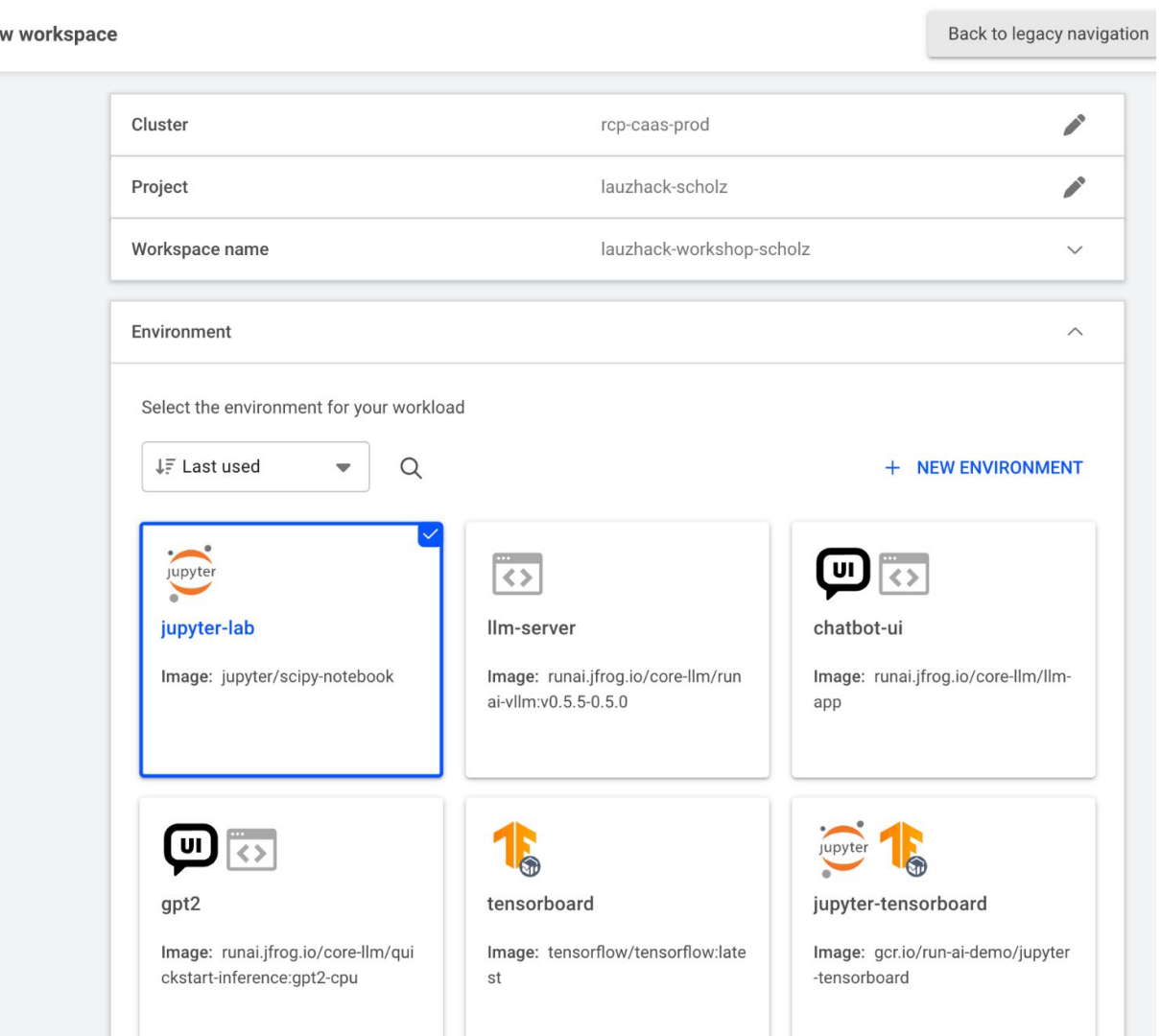
Search for your surname in the projects and select.

Check if quota available

Quota: Amount of resources CPU/RAM/GPU available for workloads



Pick any recognizable workspace name :)



Pick what you want to run as your workflow.

We are running Jupyter Notebooks as an example here!

You can also run your own Docker Images 🐳

New workspace

Back to legacy naviga

gpu-memory-16g
GPU devices: 1
GPU memory (GB): 16
CPU compute (Cores): 1
CPU Memory (GB): 16

small-fraction
GPU devices: 1
GPU % (of device): 10
CPU compute (Cores): 0.1
CPU Memory (MB): 100

gpu-memory-20g
GPU devices: 1
GPU memory (GB): 20
CPU compute (Cores): 1
CPU Memory (GB): 20

gpu-memory-40g
GPU devices: 1
GPU memory (GB): 40
CPU compute (Cores): 1
CPU Memory (GB): 40

gpu-memory-80g
GPU devices: 1
GPU memory (GB): 80
CPU compute (Cores): 1
CPU Memory (GB): 80

cpu-only
GPU devices: 0
CPU compute (Cores): 0.1
CPU Memory (MB): 100

1 2

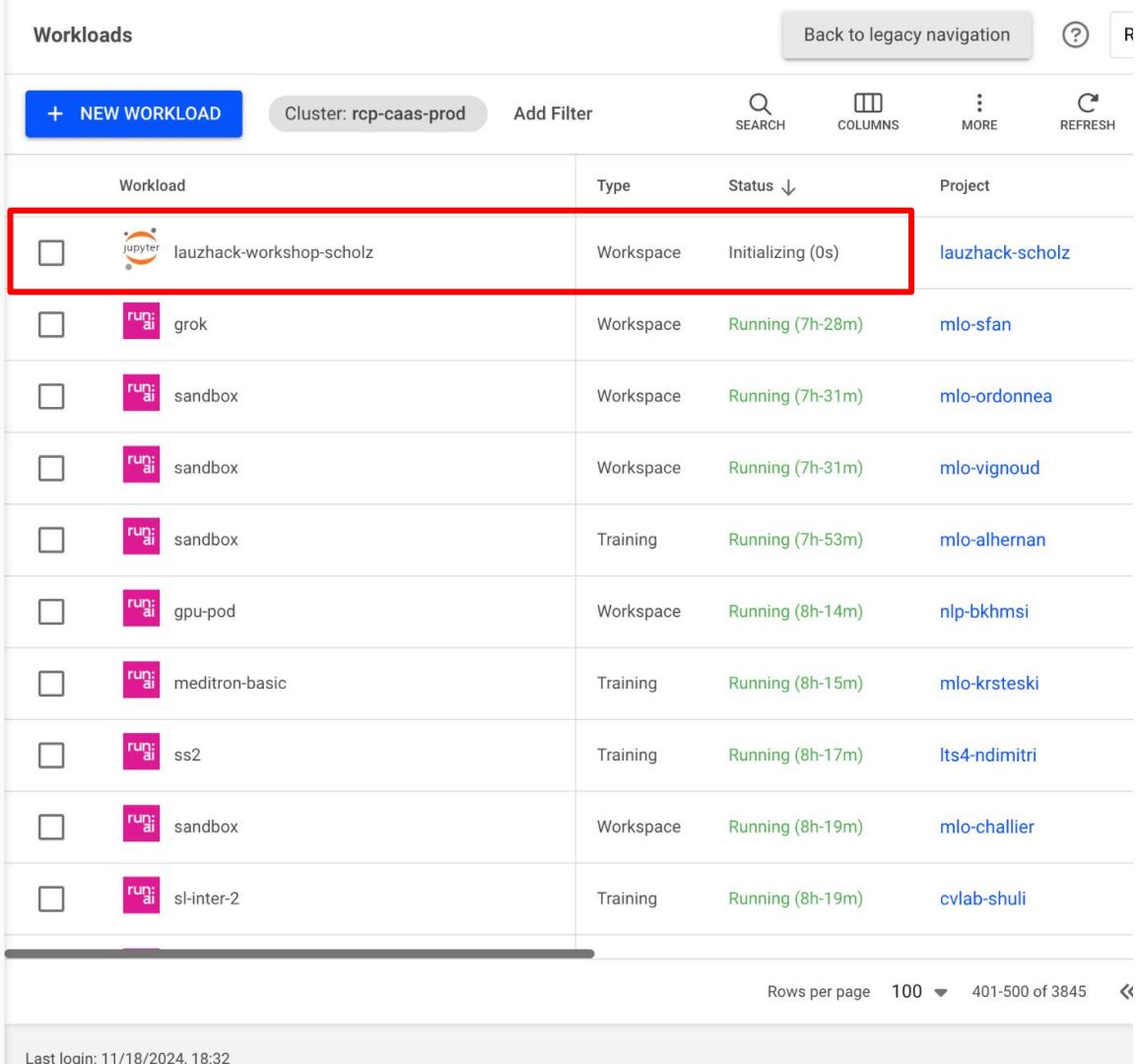
Nodes

Volume	None
Data sources	None
General	Not allowed to exceed the project's quota

How many resources do you *really* need?

For testing: small-fraction

→ Always check what your Quota allows, or creating the workflow will fail :)

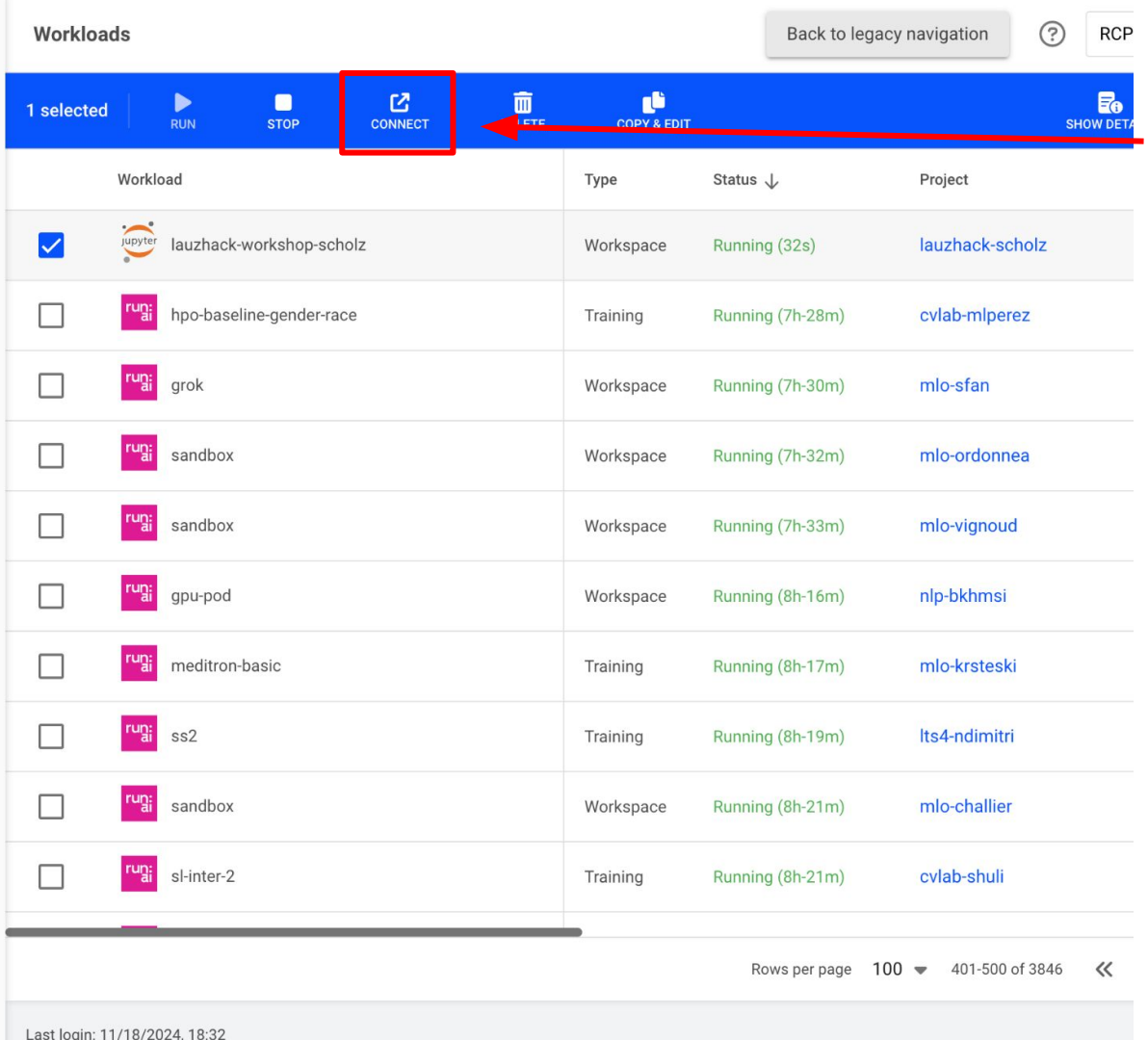


Wait until Status is **Running**

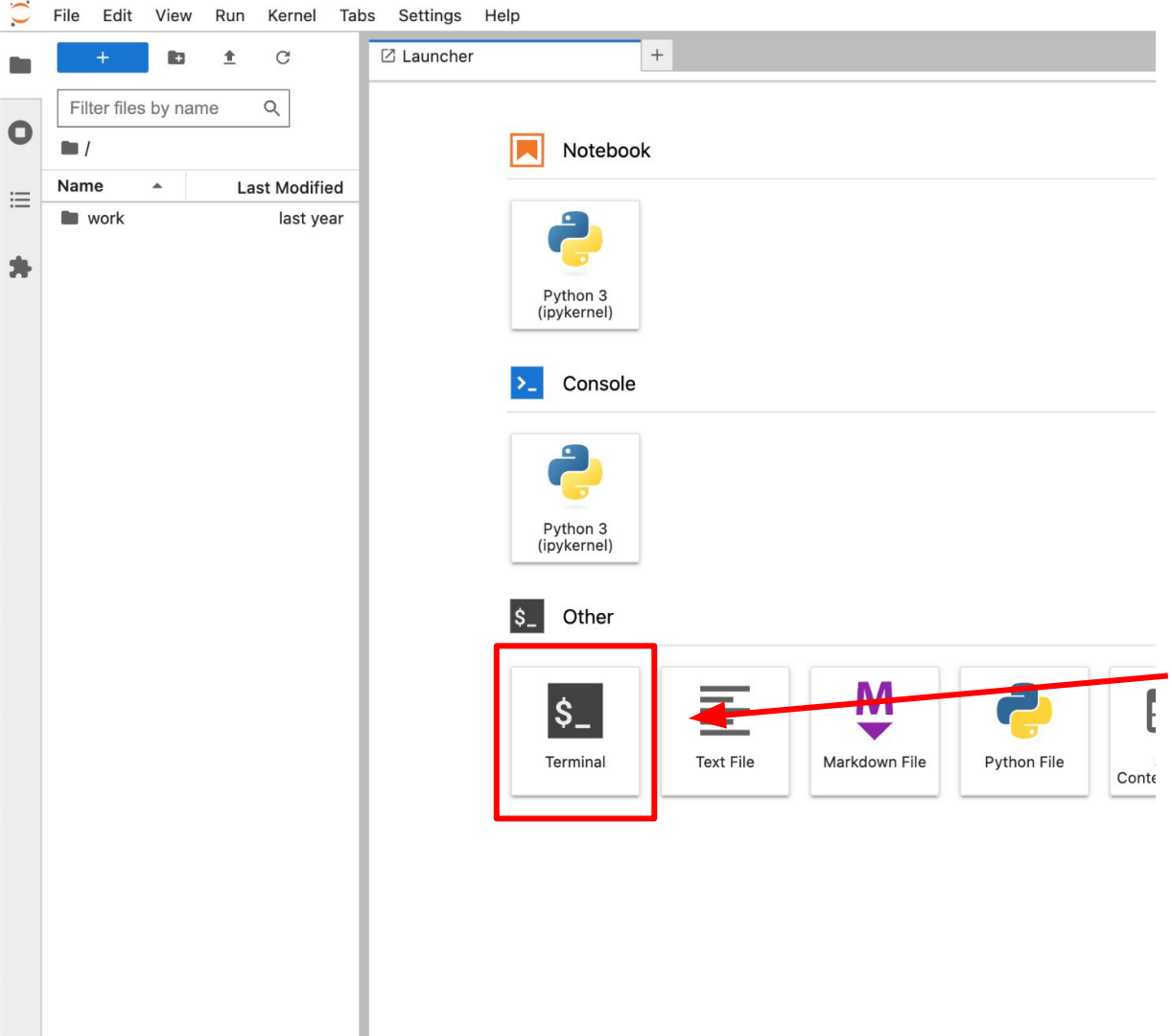
If it's not "Initializing" its probably broken.

Troubleshooting:

- Quota available?
- Overall cluster utilization?
- Valid configuration?
- Permission issues: wait 30 minutes and try again 🫠


Workloads
Back to legacy navigation
RCP
1 selected
RUN
STOP
CONNECT
COPY & EDIT
Workload
Type
Status
Project
lauzhack-workshop-scholz
Workspace
Running (32s)
lauzhack-scholz
hpo-baseline-gender-race
Training
Running (7h-28m)
cvlab-mlperez
grok
Workspace
Running (7h-30m)
mlo-sfan
sandbox
Workspace
Running (7h-32m)
mlo-ordonnea
sandbox
Workspace
Running (7h-33m)
mlo-vignoud
gpu-pod
Workspace
Running (8h-16m)
nlp-bkhmsi
meditron-basic
Training
Running (8h-17m)
mlo-krsteski
ss2
Training
Running (8h-19m)
lts4-ndimitri
sandbox
Workspace
Running (8h-21m)
mlo-challier
sl-inter-2
Training
Running (8h-21m)
cvlab-shuli
Rows per page
100
401-500 of 3846
Last login: 11/18/2024, 18:32

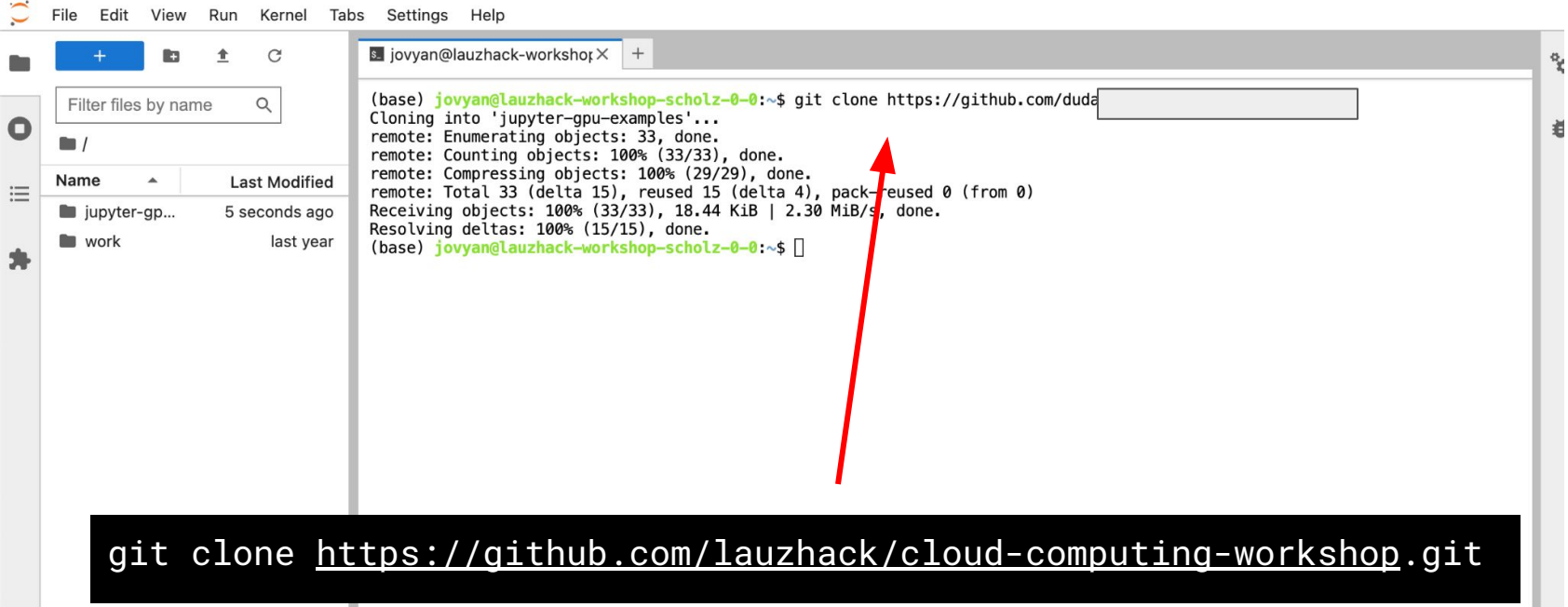
Connect!



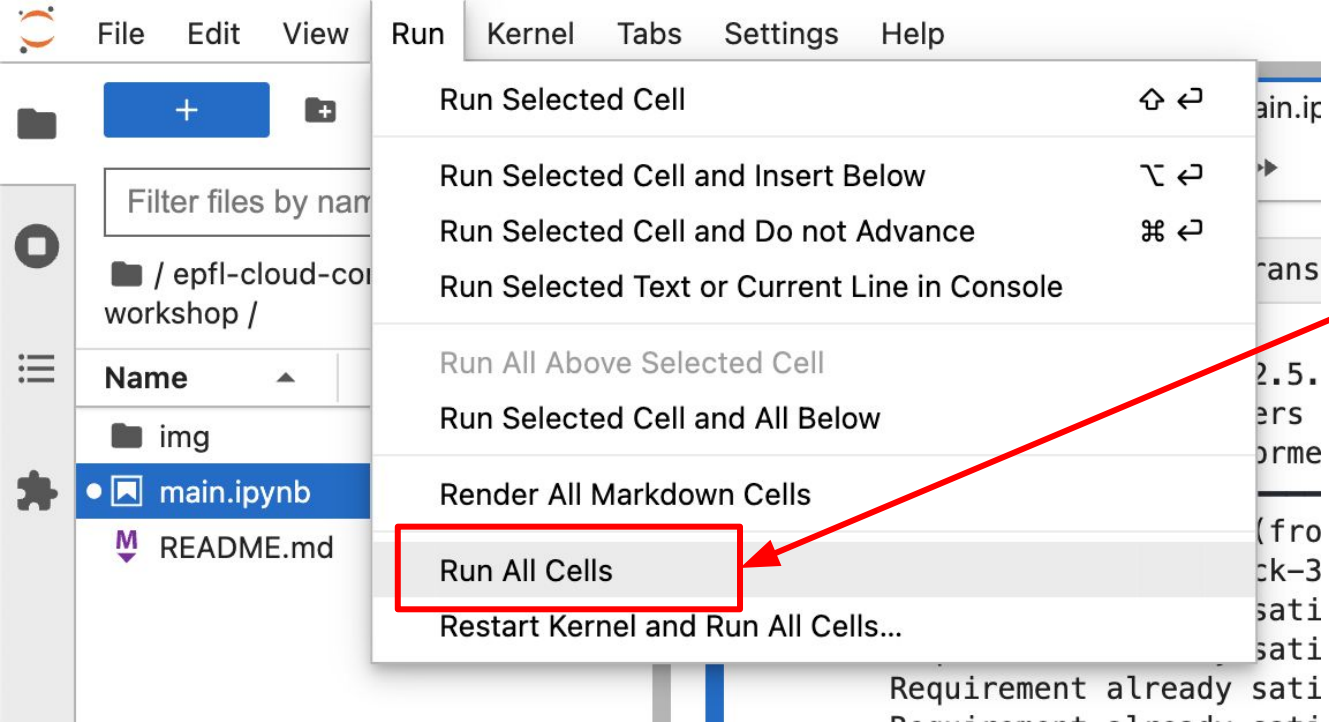
Jupyter Notebook:

- Web-based IDE for code + data
- Awesome for ML, Data Science
- Mostly for Python

Open Terminal




```
git clone https://github.com/lauzhack/cloud-computing-workshop.git
```



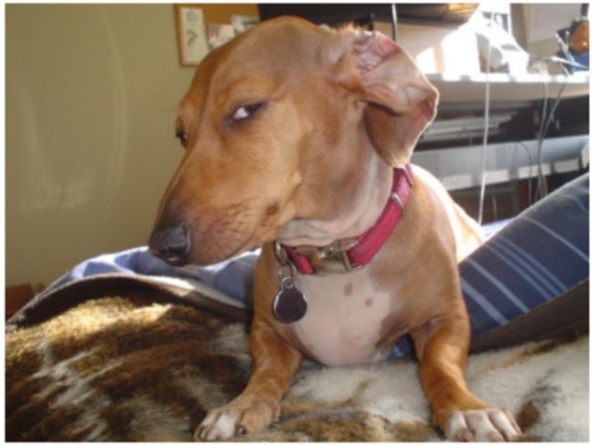
Execute everything

Result

```
# Show the images
plt.tight_layout()
plt.show()
```

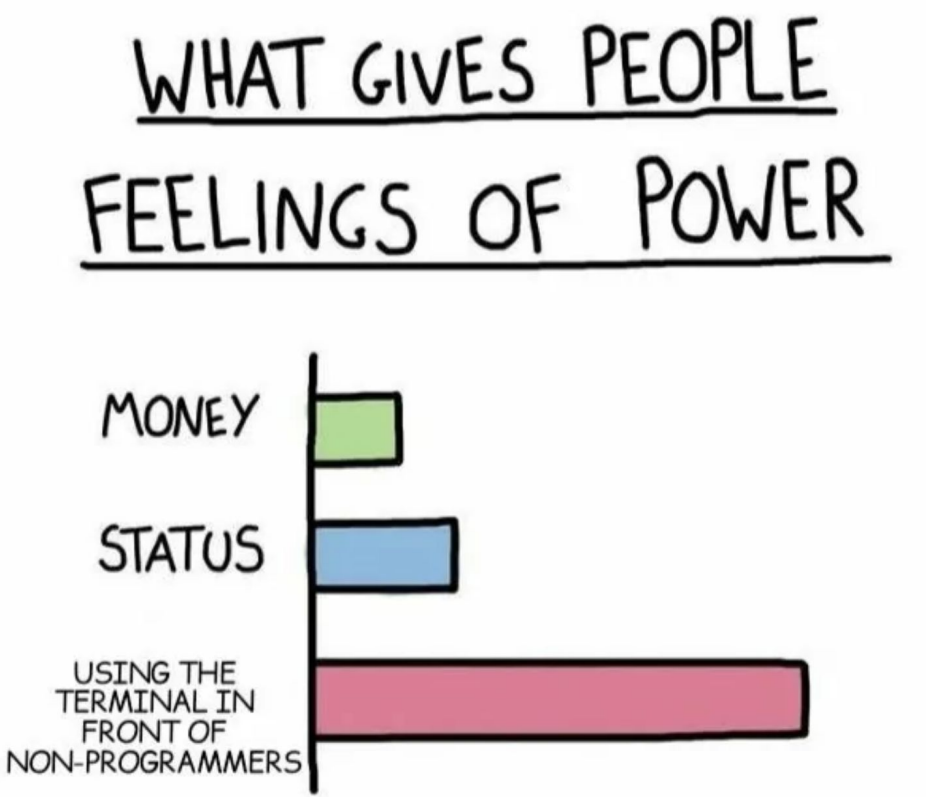
prediction: angry dog

prediction: happy dog



prediction: relaxed dog

Next: Terminal Basics



README.md: Terminal Basics

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Next: Quiz

Next: New Sponsor for LauzHack 2024

Thank you and good luck on LauzHack 2024!