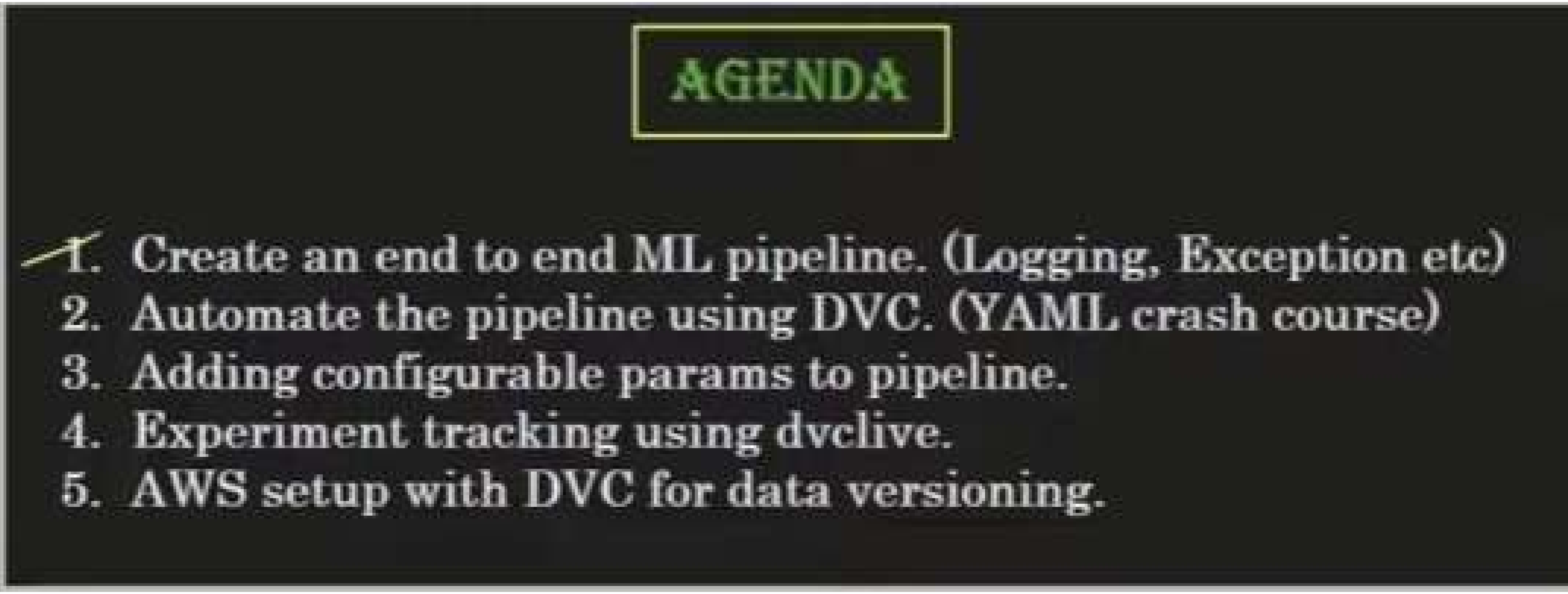
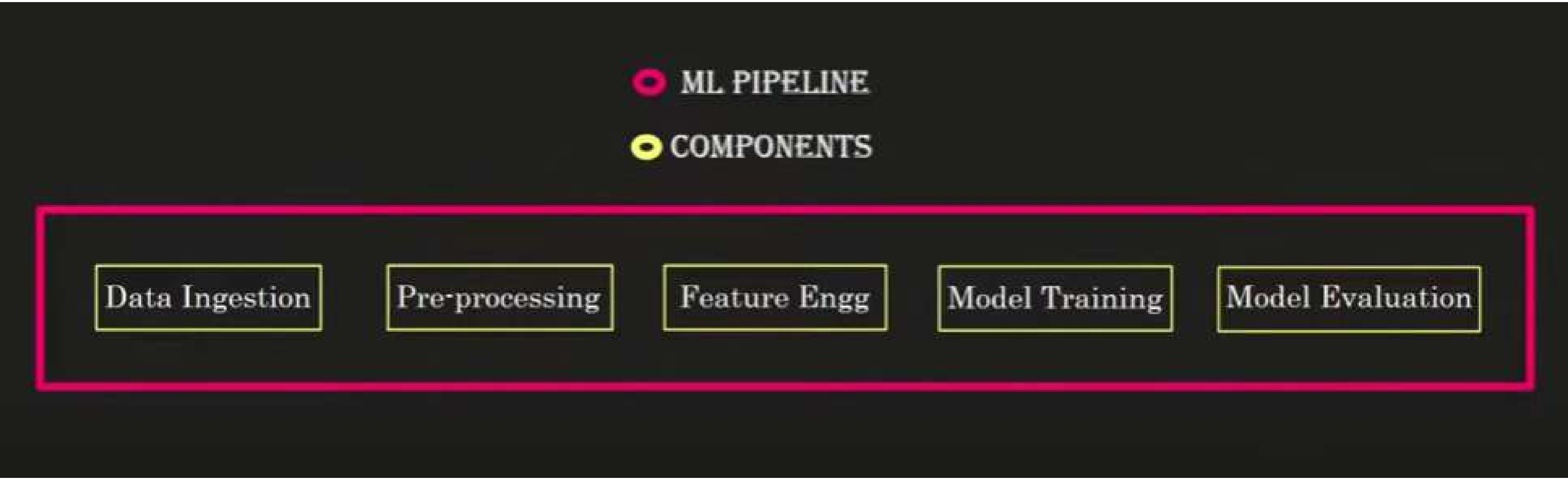


AGENDA

1. Create an end to end ML pipeline. (Logging, Exception etc)
2. Automate the pipeline using DVC. (YAML crash course)
3. Adding configurable params to pipeline.
4. Experiment tracking using dvclive.
5. AWS setup with DVC for data versioning.



○ ML PIPELINE

○ COMPONENTS

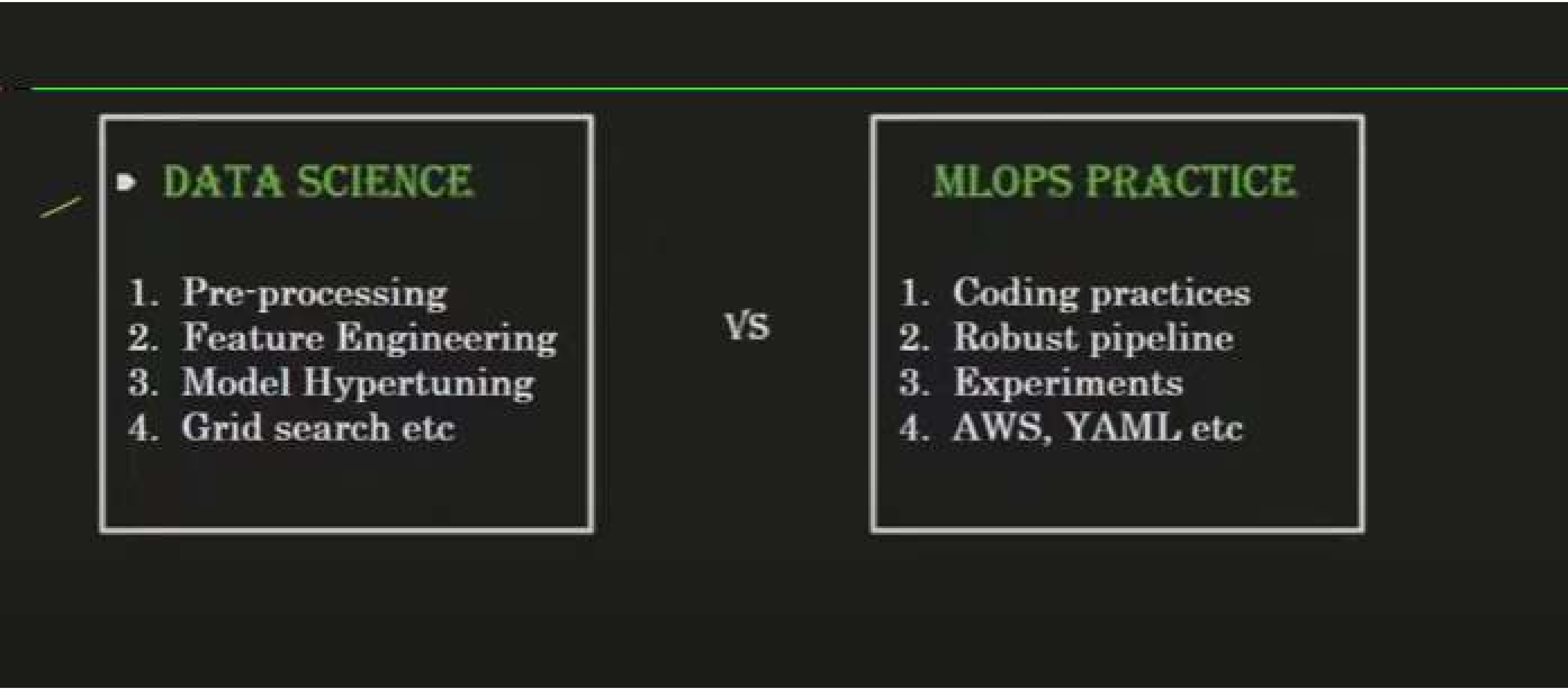
Data Ingestion

Pre-processing

Feature Engg

Model Training

Model Evaluation



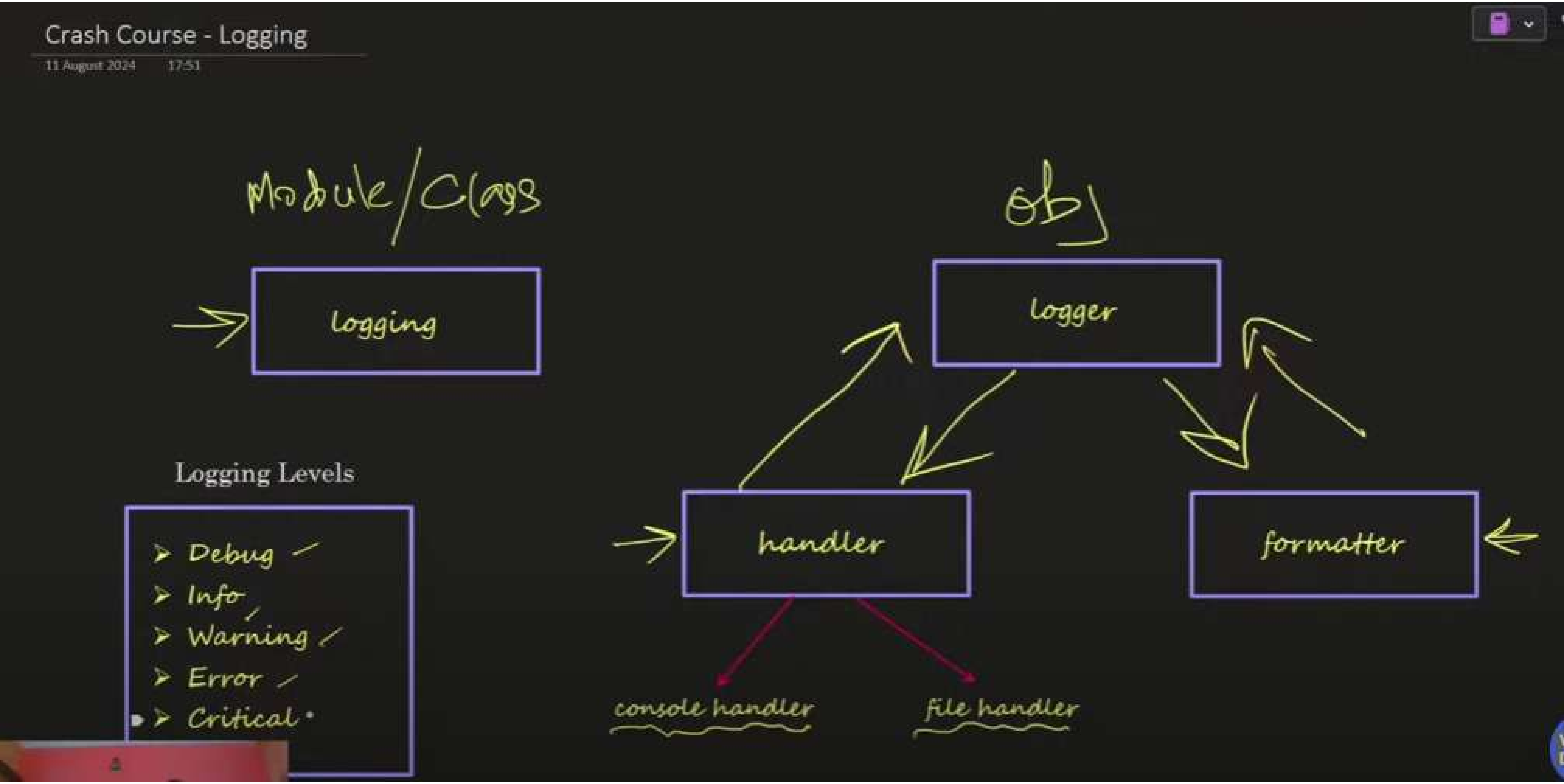
- DATA SCIENCE

1. Pre-processing
2. Feature Engineering
3. Model Hypertuning
4. Grid search etc

VS

MLOPS PRACTICE

1. Coding practices
2. Robust pipeline
3. Experiments
4. AWS, YAML etc

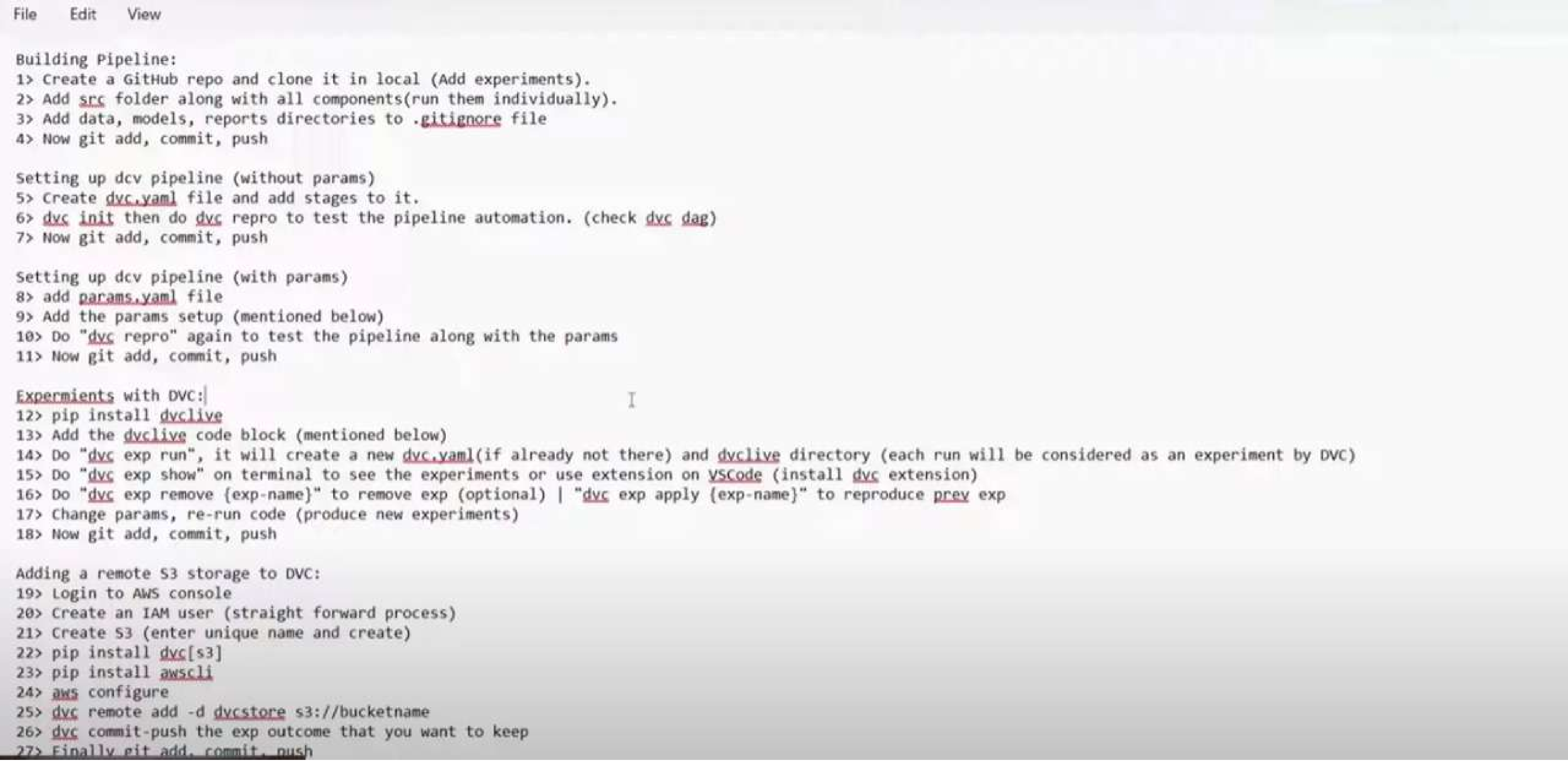


Crash Course - Logging

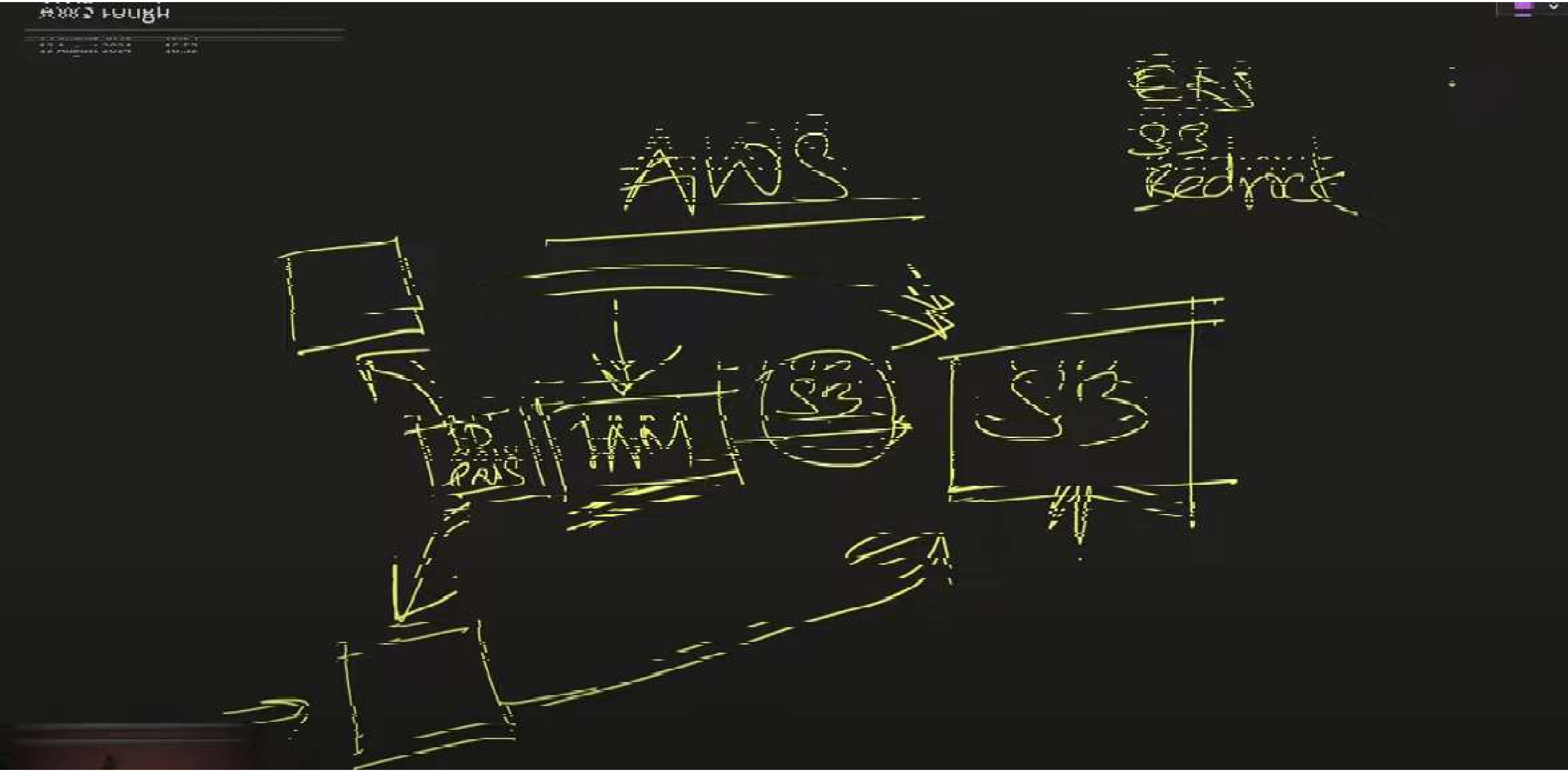
11 August 2024 17:51

Logging Levels

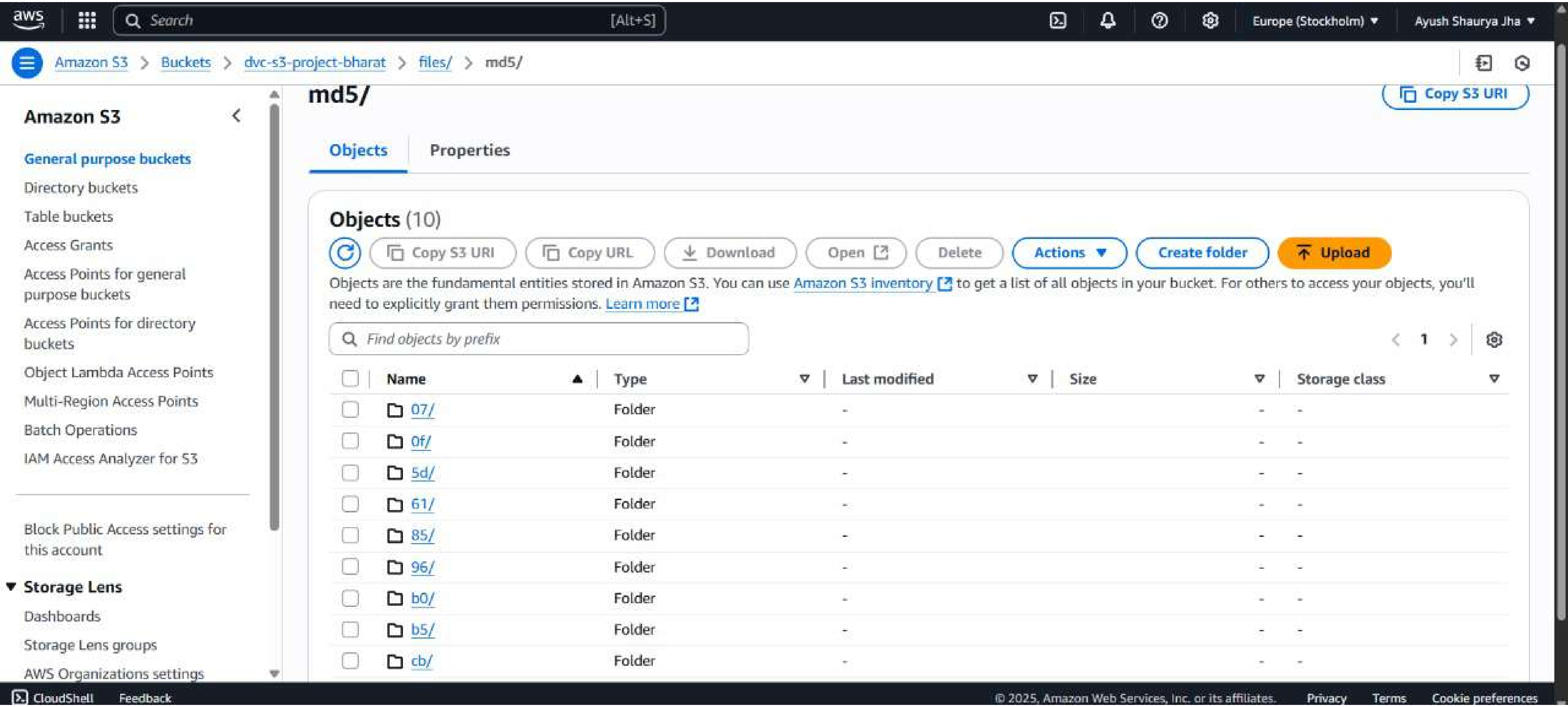
- Debug
- Info
- Warning
- Error
- Critical



```
Building Pipeline:
1> Create a GitHub repo and clone it in local (Add experiments).
2> Add src folder along with all components(run them individually).
3> Add data, models, reports directories to .gitignore file
4> Now git add, commit, push

Setting up dcv pipeline (without params)
5> Create dvc.yaml file and add stages to it.
6> dvc init then do dvc repro to test the pipeline automation. (check dvc dag)
7> Now git add, commit, push

Setting up dcv pipeline (with params)
8> add params.yaml file
9> Add the params setup (mentioned below)
10> Do "dvc repro" again to test the pipeline along with the params
11> Now git add, commit, push

Expermients with DVC:
12> pip install dvclive
13> Add the dvclive code block (mentioned below)
14> Do "dvc exp run", it will create a new dvc.yaml(if already not there) and dvclive directory (each run will be considered as an experiment by DVC)
15> Do "dvc exp show" on terminal to see the experiments or use extension on VSCode (install dvc extension)
16> Do "dvc exp remove {exp-name}" to remove exp (optional) | "dvc exp apply {exp-name}" to reproduce prev exp
17> Change params, re-run code (produce new experiments)
18> Now git add, commit, push

Adding a remote S3 storage to DVC:
19> Login to AWS console
20> Create an IAM user (straight forward process)
21> Create S3 (enter unique name and create)
22> pip install dvc[s3]
23> pip install awscli
24> aws configure
25> dvc remote add -d dvcstore s3://bucketname
26> dvc commit-push the exp outcome that you want to keep
27> Finally git add, commit, push
```



AWS rough



md5/

Objects (10)

Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

□	Name	Type	Last modified	Size	Storage class
□	07/	Folder	-	-	-
□	0f/	Folder	-	-	-
□	5d/	Folder	-	-	-
□	61/	Folder	-	-	-
□	85/	Folder	-	-	-
□	96/	Folder	-	-	-
□	b0/	Folder	-	-	-
□	b5/	Folder	-	-	-
□	cb/	Folder	-	-	-