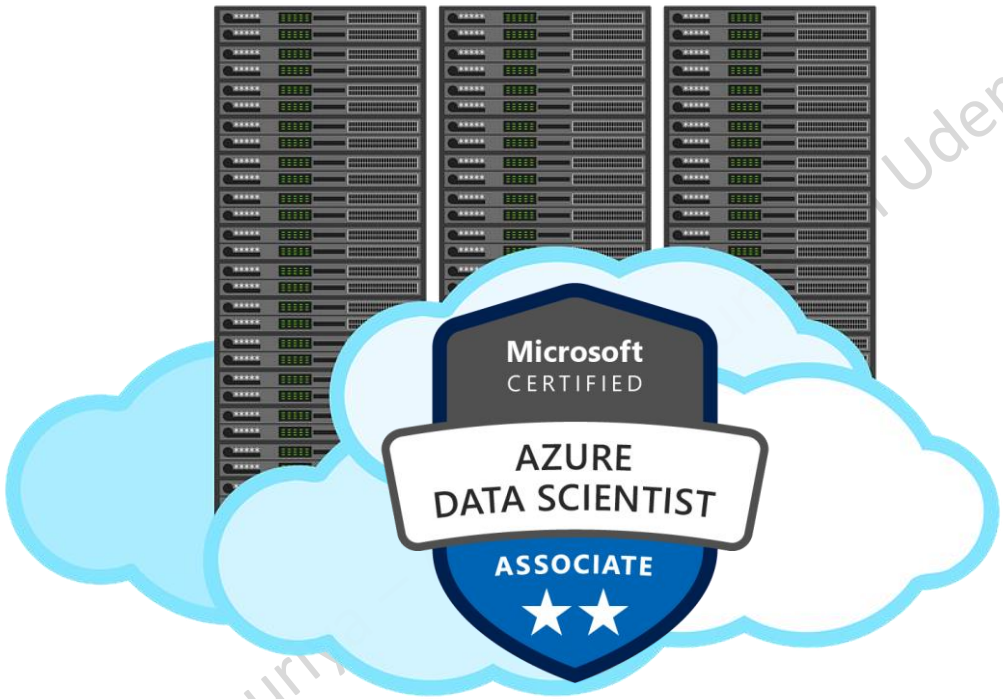
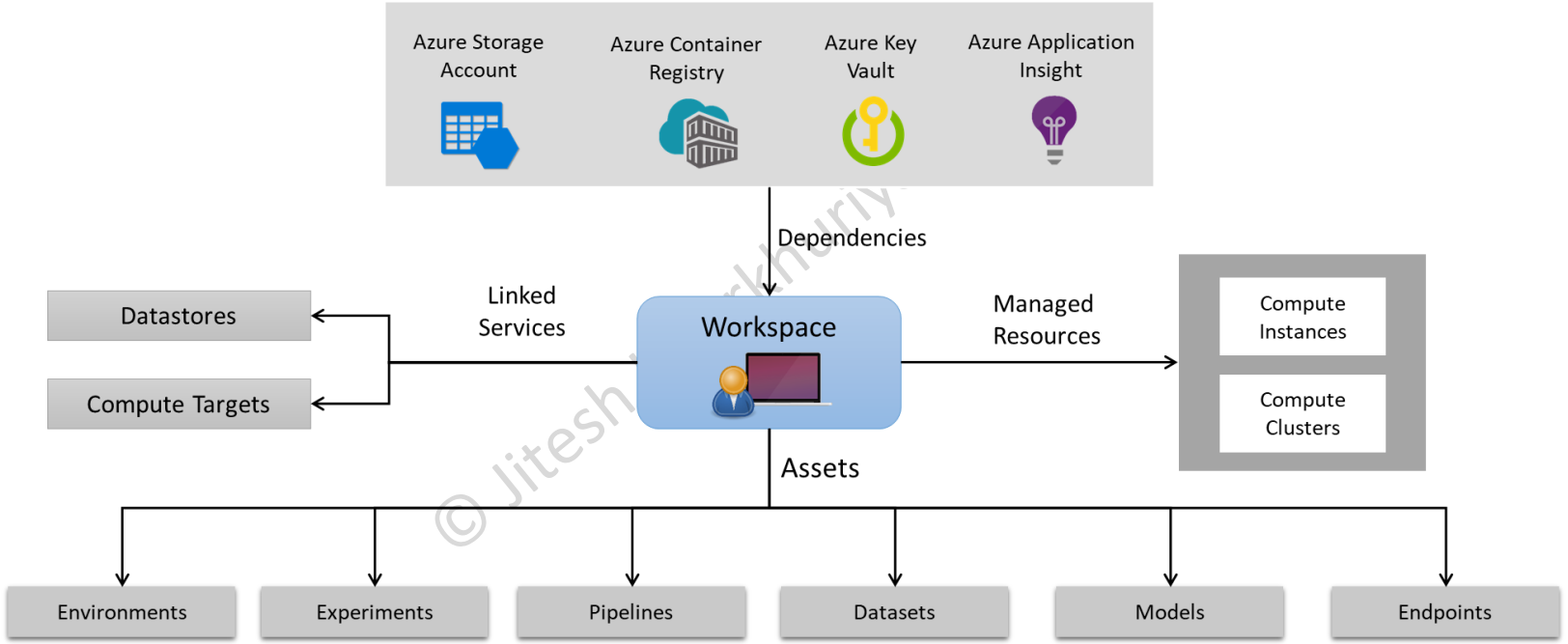


Azure Machine Learning

AzureML SDK

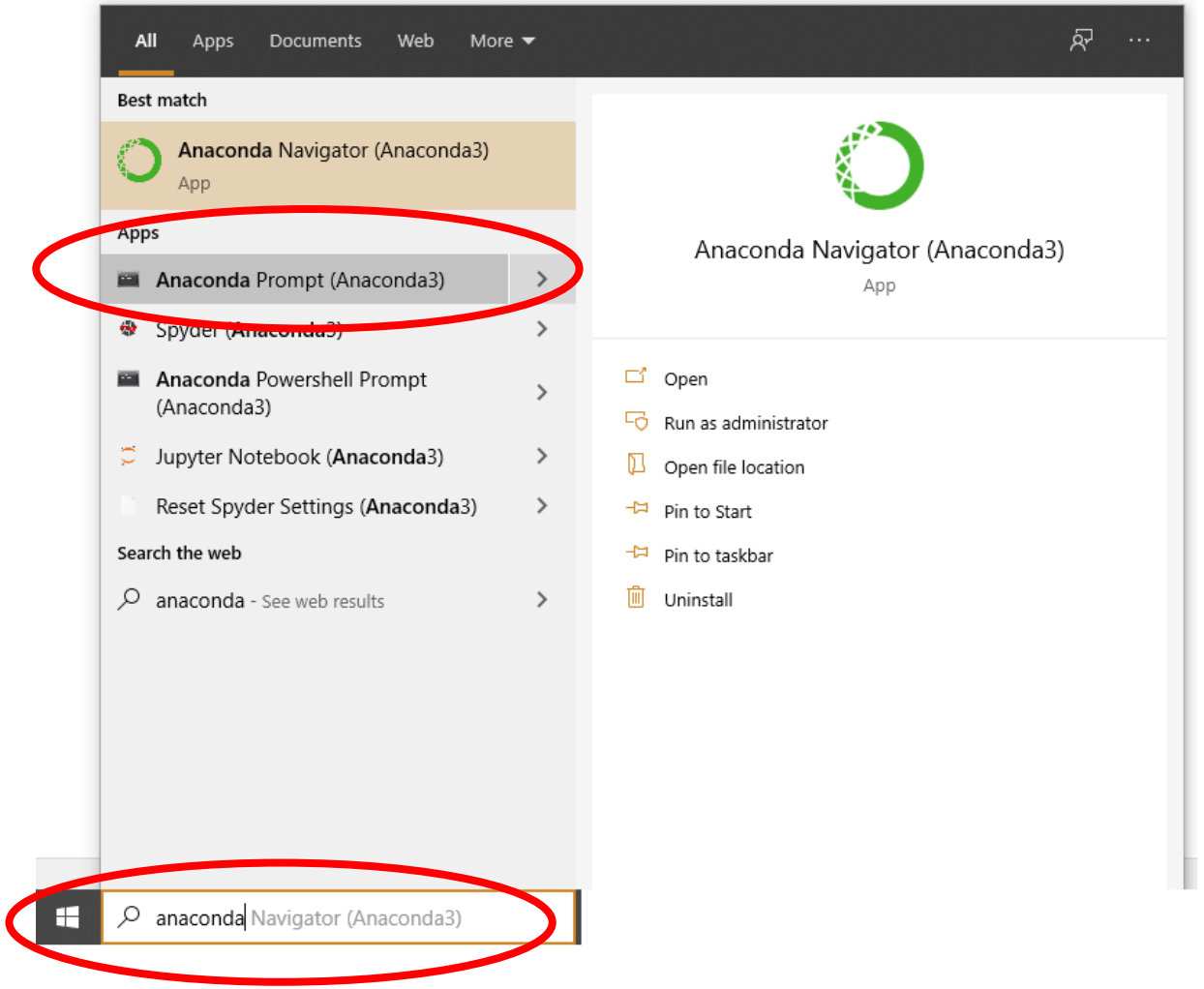
AzureML SDK

- Manage Cloud resources of AzureML in Python environment
- Train Models locally with replicable environments
- Available across all Python IDEs and Notebooks

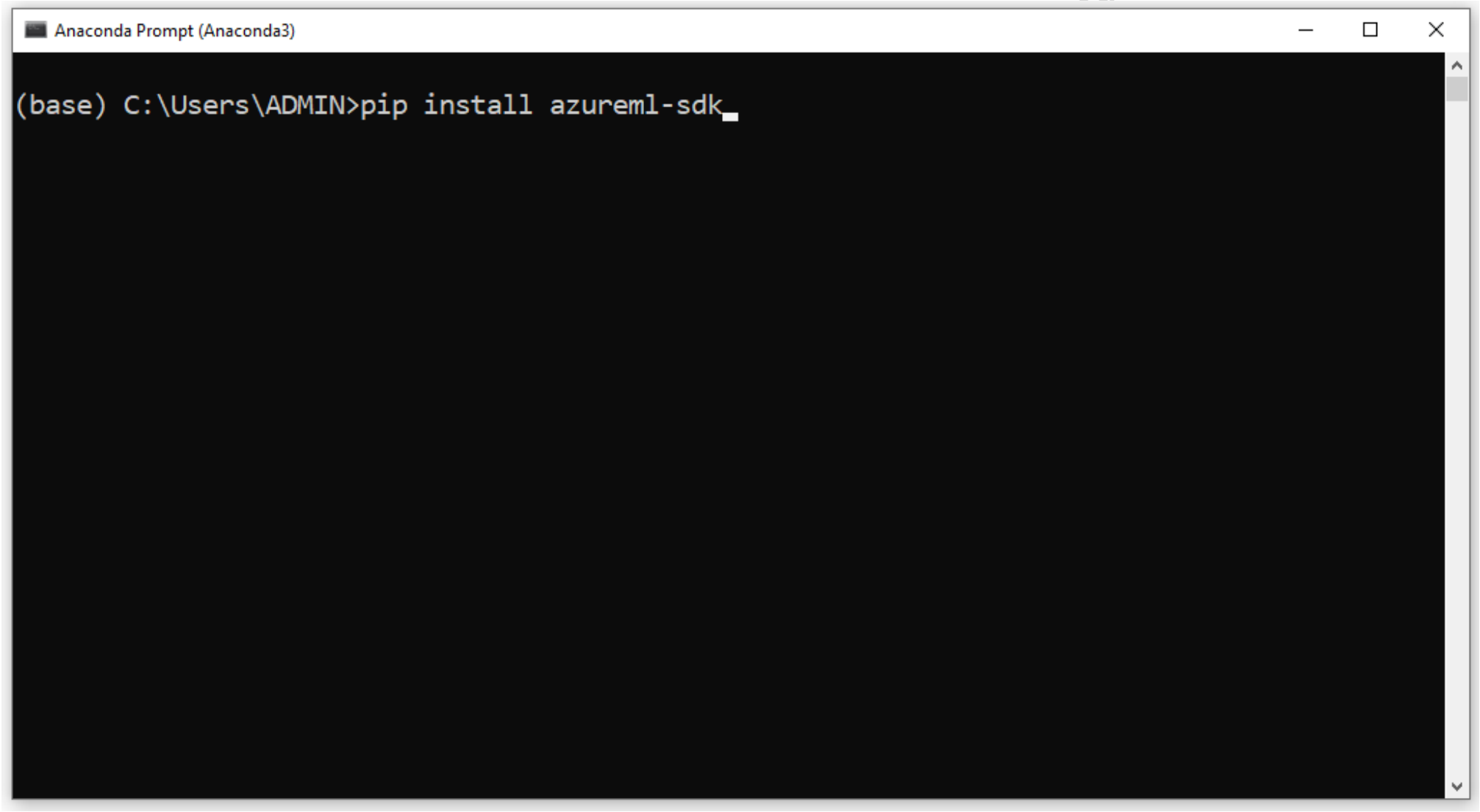


- Workspace ( )
- Environment ( )
- Dataset ( )
- Experiment ( )
- Pipeline ( )
- Run ( )
- Model ( )
- ComputeTarget ( )
- AutoMLConfig ( )

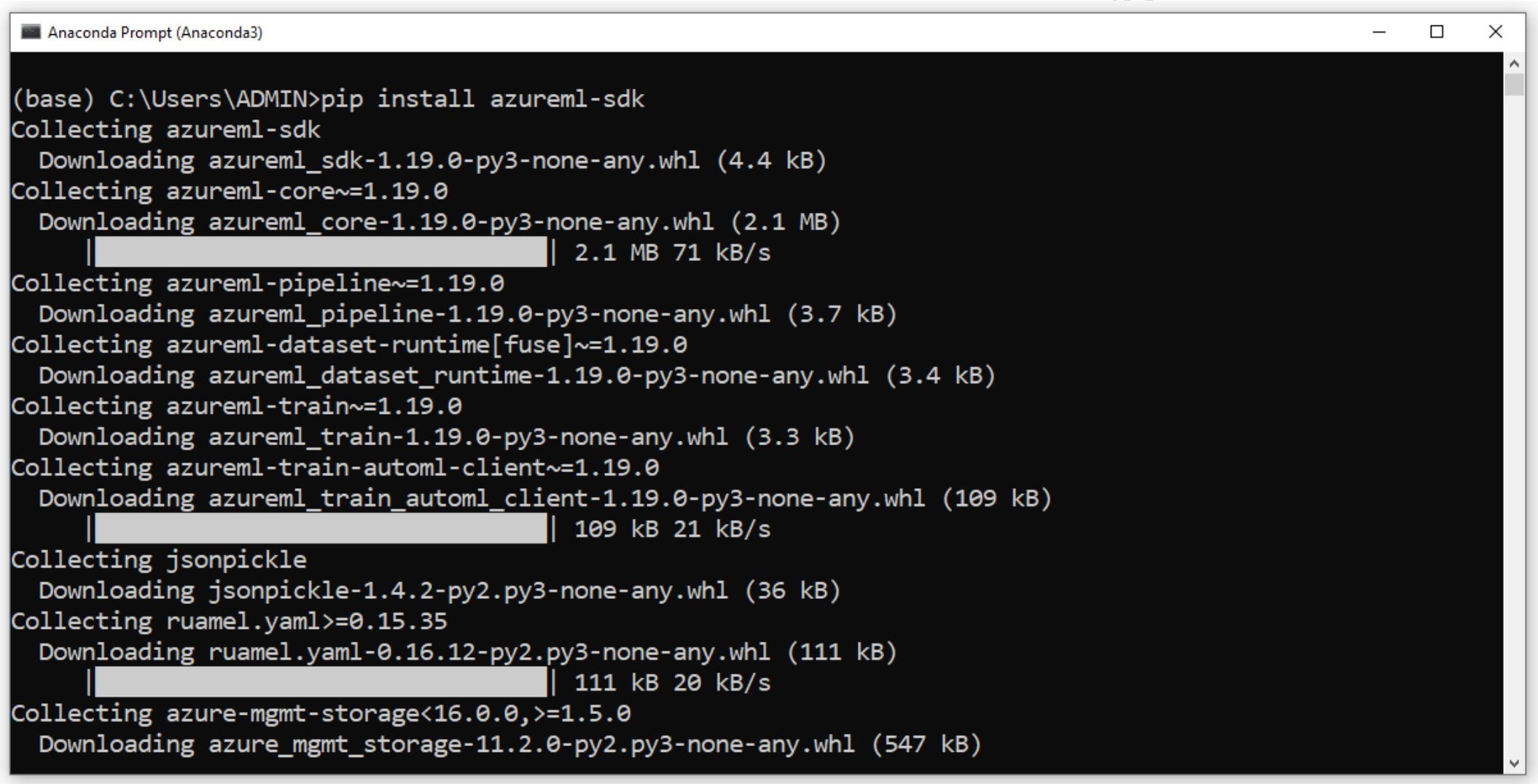
Installing AzureML SDK



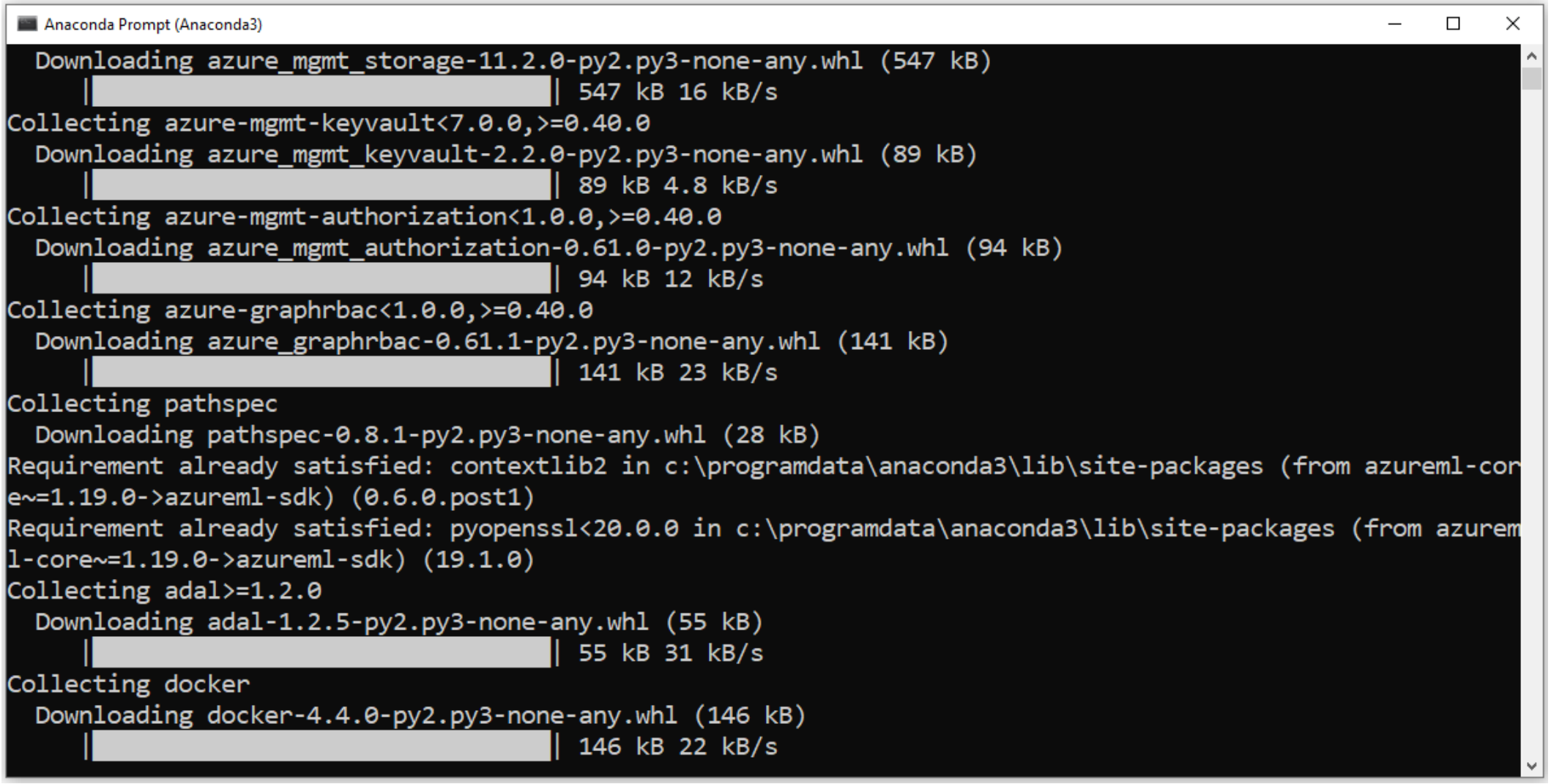
Installing AzureML SDK



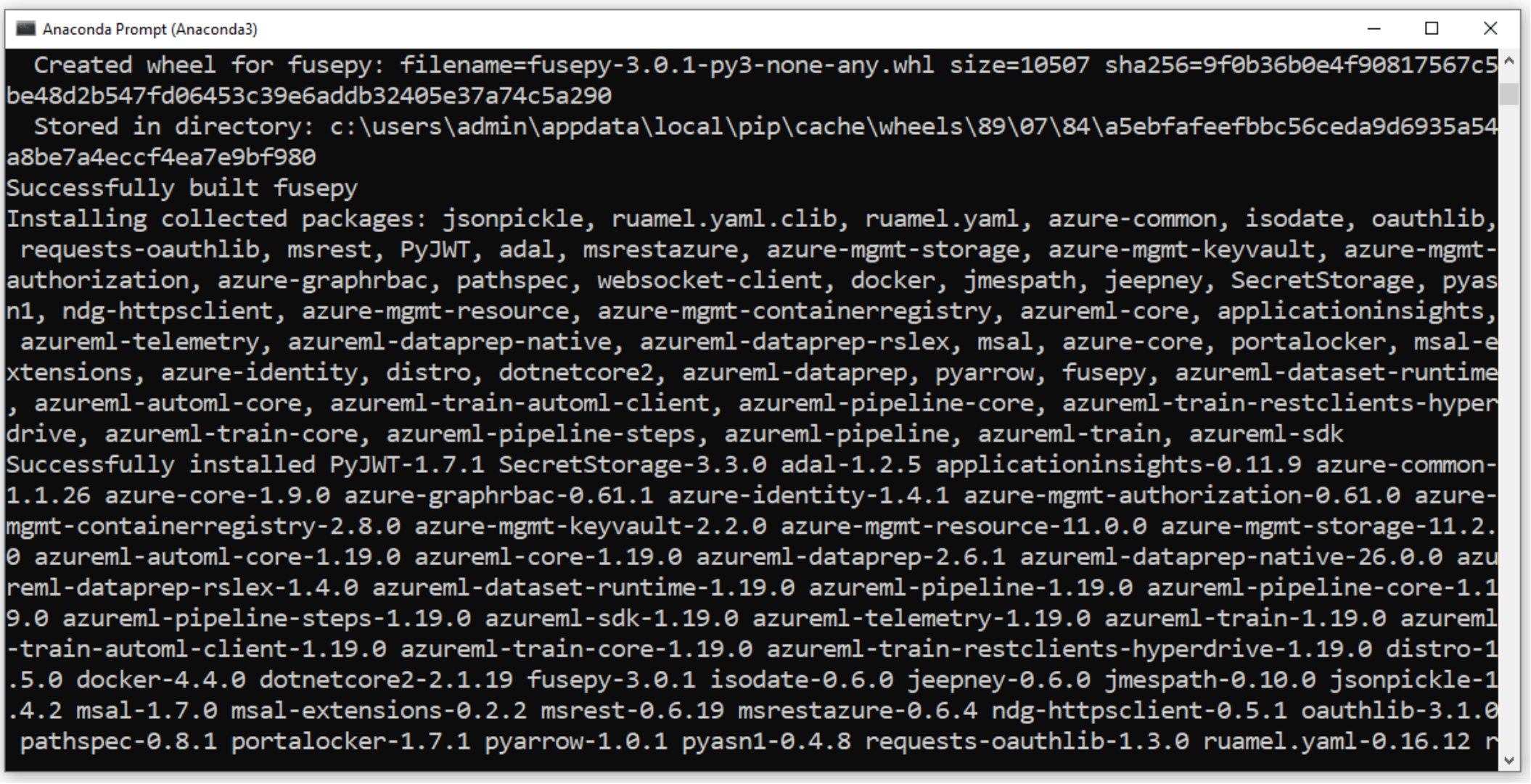
Installing AzureML SDK



Installing AzureML SDK



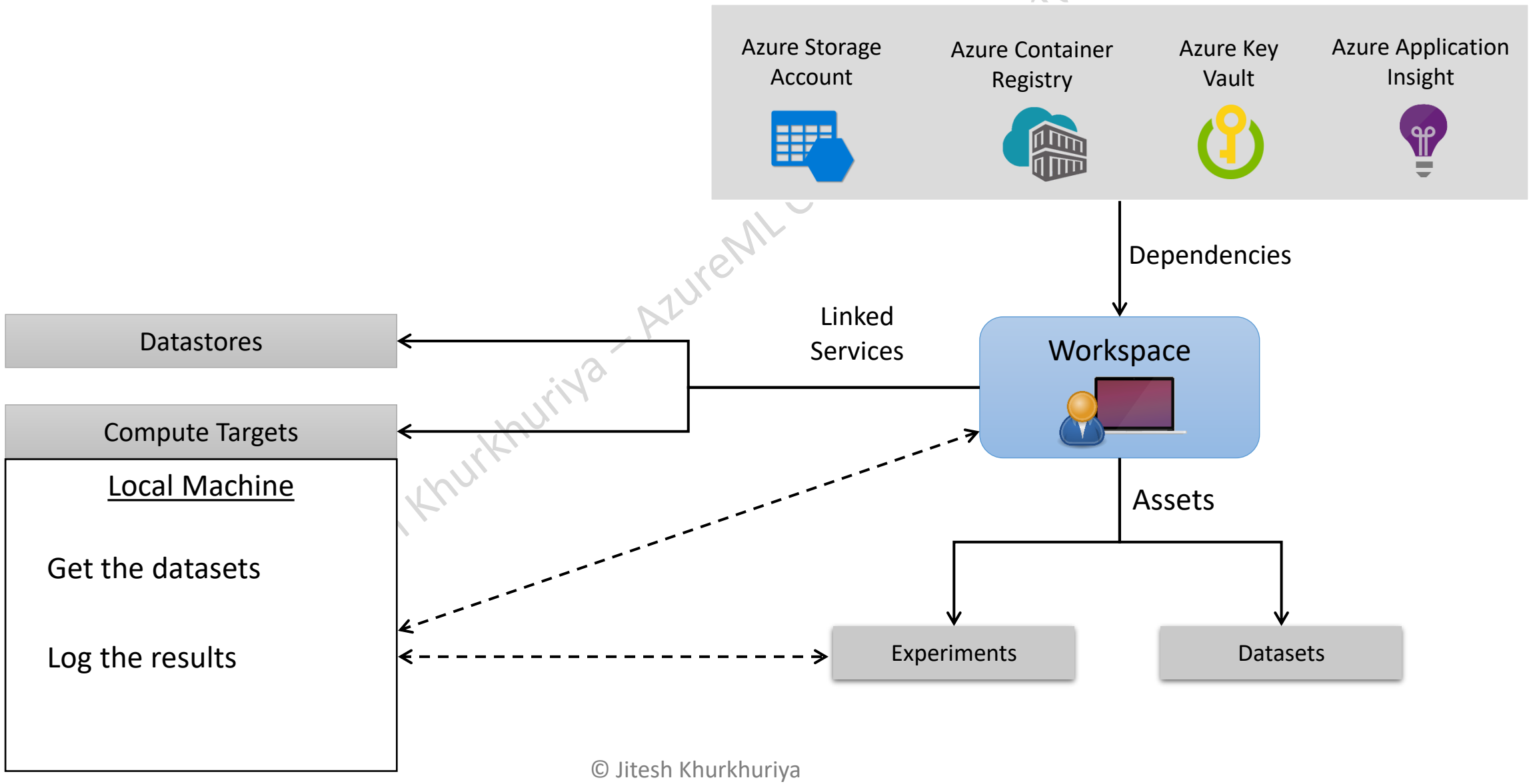
Installing AzureML SDK



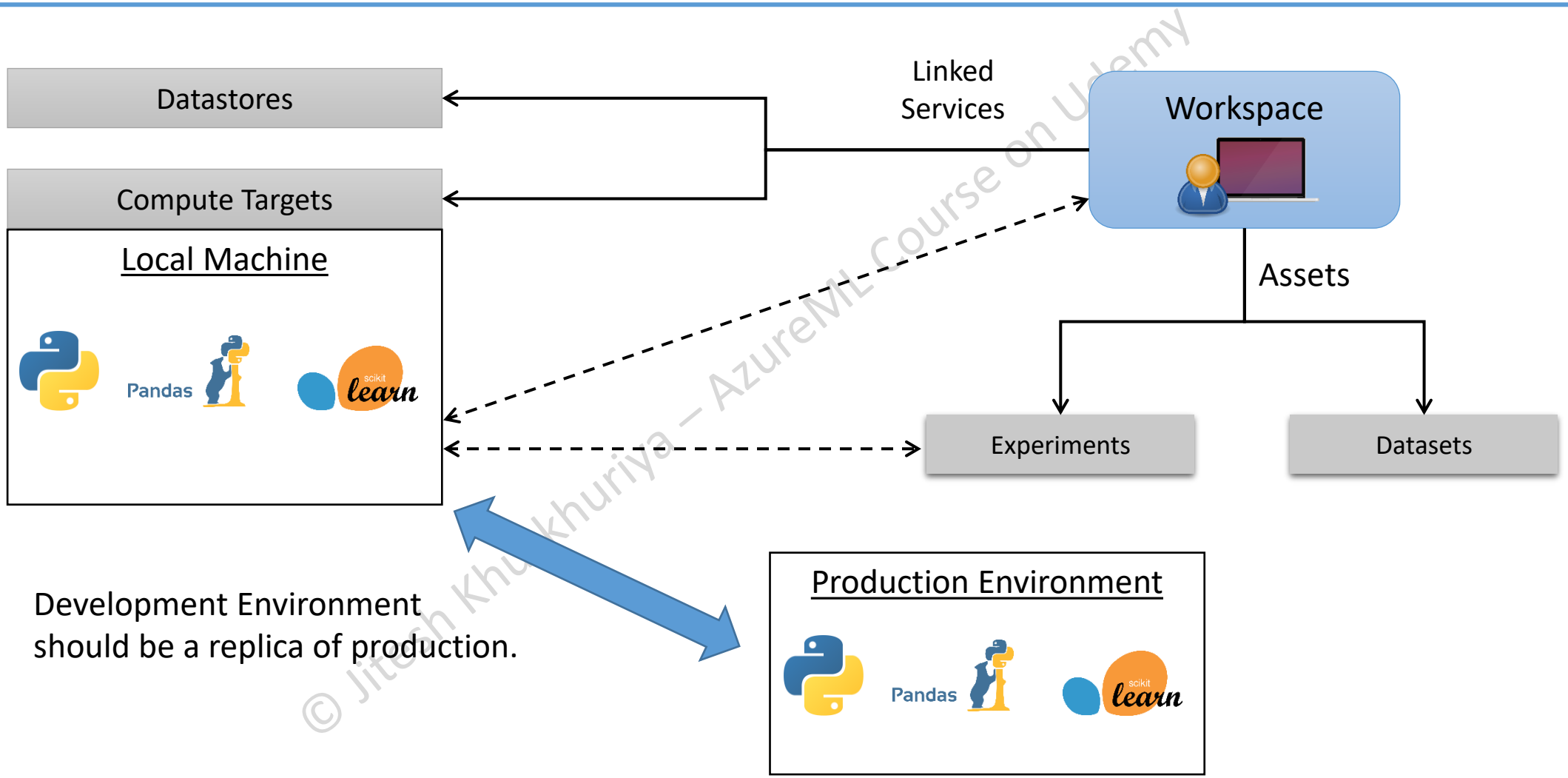
Verify AzureML SDK

```
import azureml.core
```

Azure Machine Learning SDK Running on Local machine



Running an experiment in an Environment



Python Versions

Release version	Release date
Python 3.8.7	Dec. 21, 2020
Python 3.9.1	Dec. 7, 2020
Python 3.9.0	Oct. 5, 2020
Python 3.8.6	Sept. 24, 2020
Python 3.5.10	Sept. 5, 2020
Python 3.7.9	Aug. 17, 2020
Python 3.6.12	Aug. 17, 2020
Python 2.7.18	April 20, 2020
Python 3.7.7	March 10, 2020
Python 3.8.2	Feb. 24, 2020
Python 3.8.1	Dec. 18, 2019
Python 3.7.6	Dec. 18, 2019

Pandas Versions

1.1.5 (December 07, 2020)

1.1.4 (October 30, 2020)

1.1.3 (October 5, 2020)

1.1.2 (September 8, 2020)

1.1.1 (August 20, 2020)

1.1.0 (July 28, 2020)

1.0.5 (June 17, 2020)

1.0.4 (May 28, 2020)

1.0.3 (March 17, 2020)

1.0.2 (March 12, 2020)

1.0.1 (February 5, 2020)

1.0.0 (January 29, 2020)

0.25.3 (October 31, 2019)

0.25.2 (October 15, 2019)

scikitlearn

Version 0.24

Version 0.23.2 3rd Aug, 2020

Version 0.23.1 18th May 2020

Version 0.23.0

Version 0.22.2.post1

Version 0.22.1

Version 0.22.0

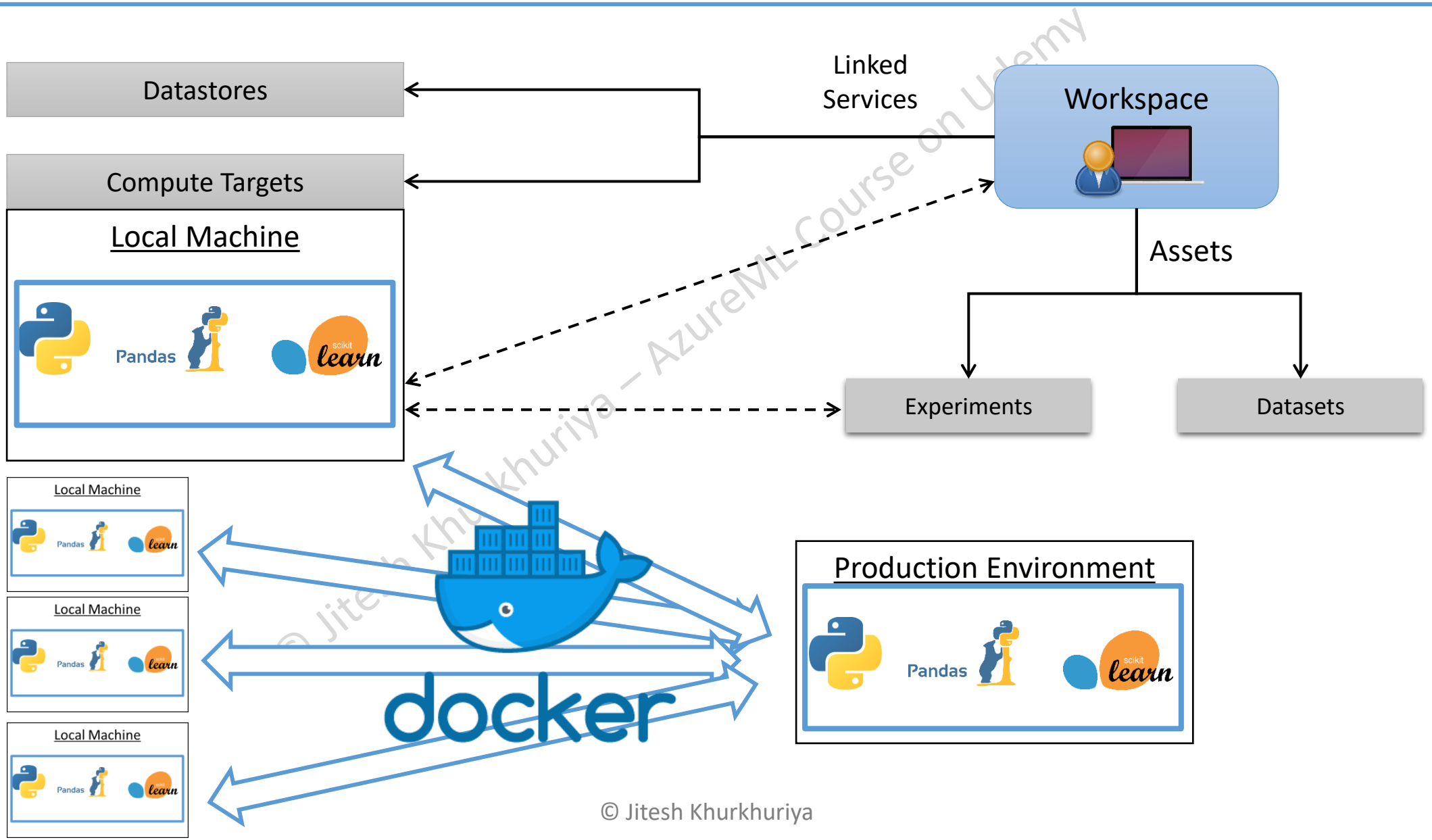
Version 0.21.3

Version 0.21.2

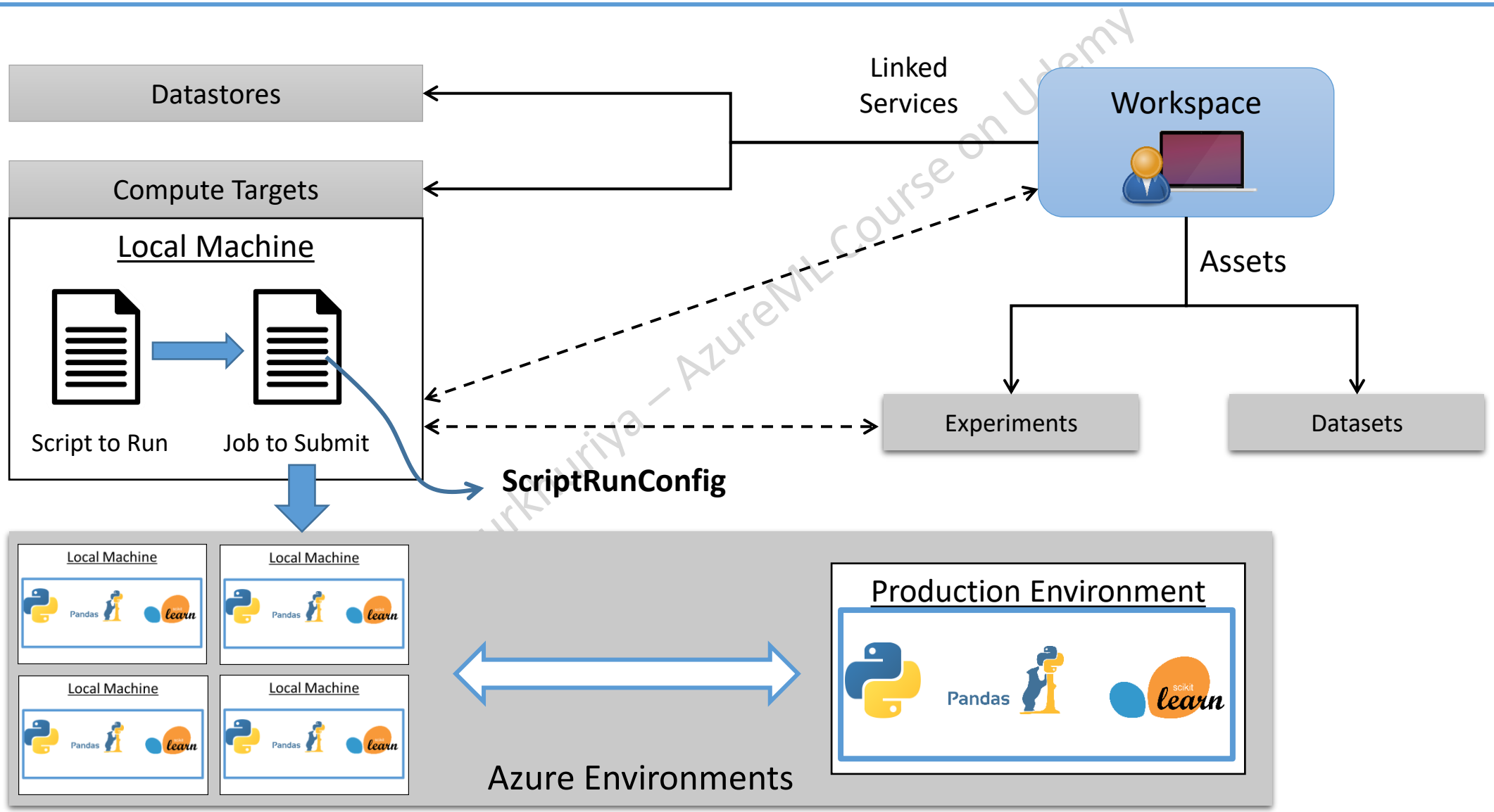
Version 0.21.1

Version 0.21.0

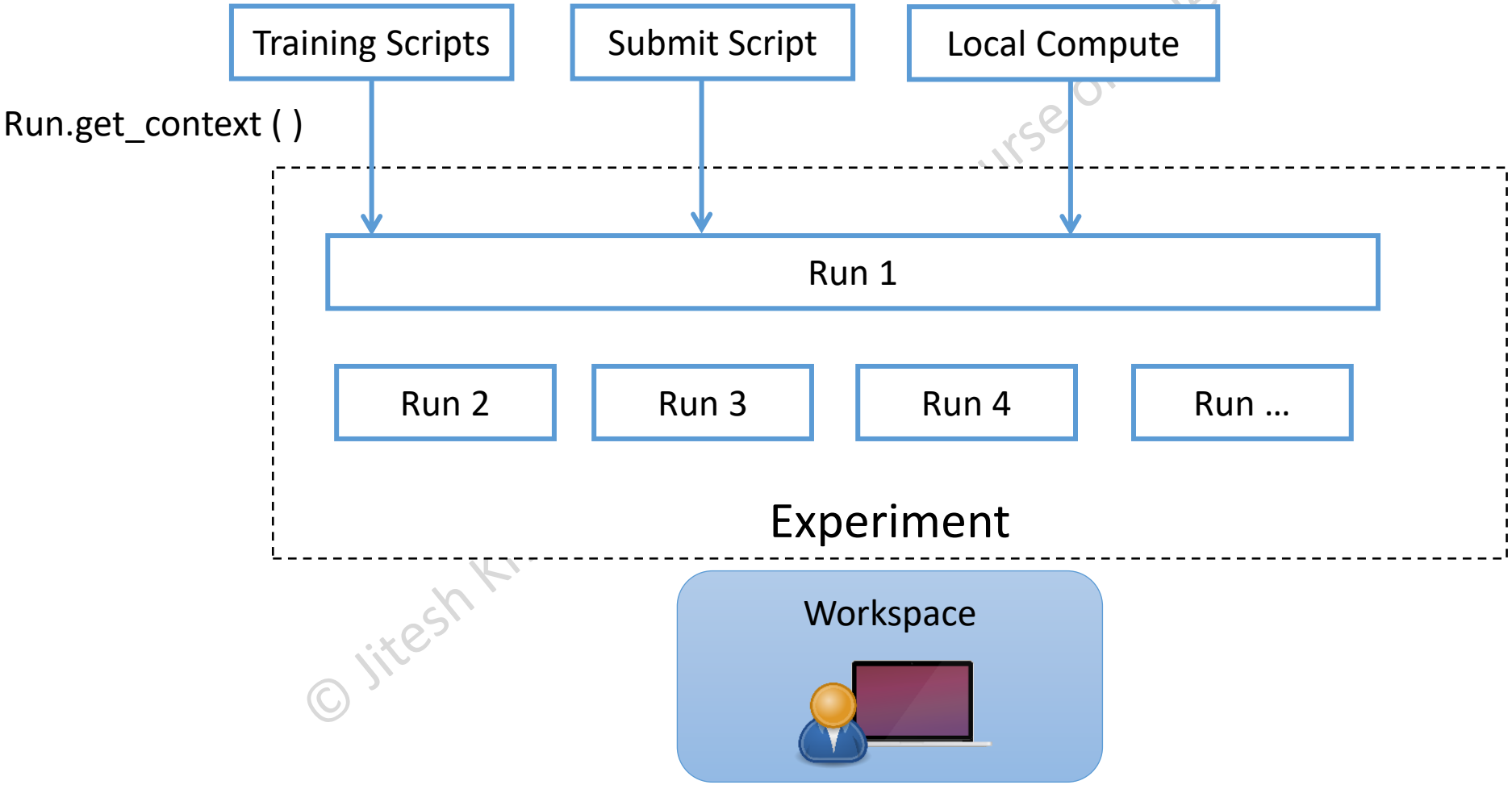
Running an experiment in an Environment



Running an experiment in an Environment



Running an experiment in an Environment



Train and run the model using script in Azureml Environment

Changes to the Run Script

- Import the azureml.core classes
- Access the workspace using config.json
- Get the run context
- Get the data, Train and score the model
- Log the metrics and send the output to the azureml workspace

```
from azureml.core import Workspace, Run

ws      = Workspace.from_config()

new_run = Run.get_context()

# Do your stuff here

Log
- Total Observations
- Confusion Matrix
- Accuracy Score

Output
- Scored dataset with predicted probabilities
```

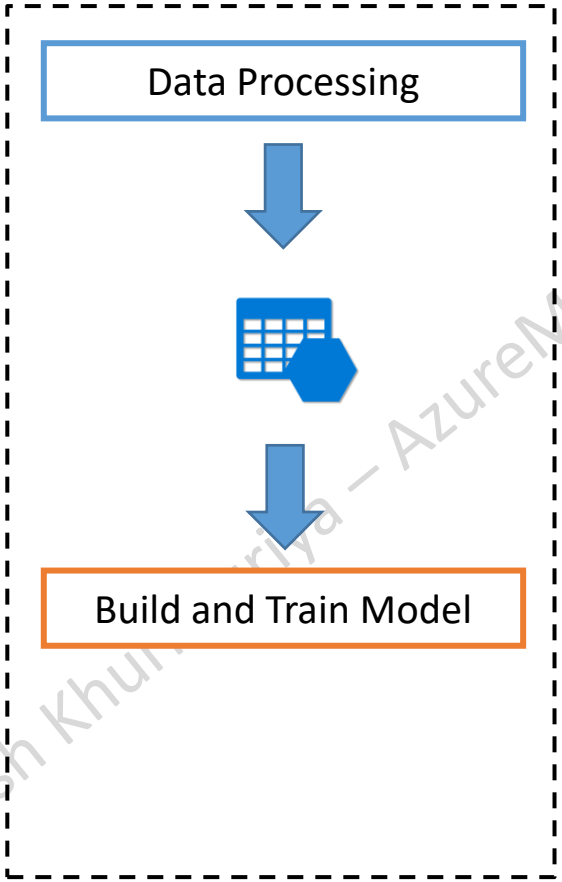
Changes required for the Submit Job

- Import classes for dependencies
- Create Scikit-learn as the dependency
- Register the environment to the workspace

Pipeline with AzureML SDK

Pipeline.py

1. Create the environment
2. Assign Compute clusters
3. Create Data Transfer Folder
4. Define Pipeline Steps
5. Build the Pipeline
6. Create/Access an experiment
7. Run the Pipeline



AzureML SDK Pipeline

1. Read the Data
2. Select/Drop columns
3. Replace Missing Values
4. Normalise the data
5. Upload the data and log metrics
6. Save and Pass the data to next step

DataPrep.py

1. Read the data saved in previous step
2. Split in train and test
3. Train and test the model
4. Upload results and log metrics

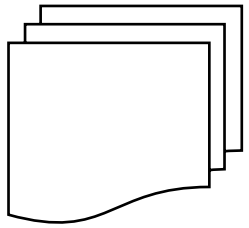
Training.py

Command Line Arguments in Python

Arguments passed using Command Line Interface

Command Line Arguments in Python

Data Processing Script

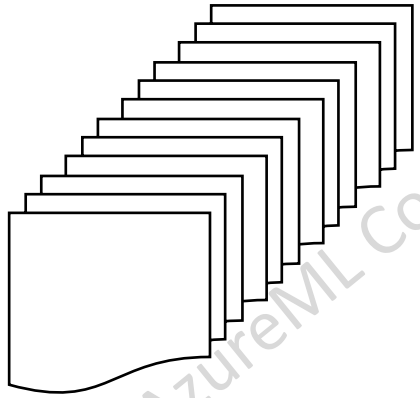


```
(base) C:\Jitesh\programs>python fileprocess.py

Please enter the file name : C:\Jitesh\Data.csv
```

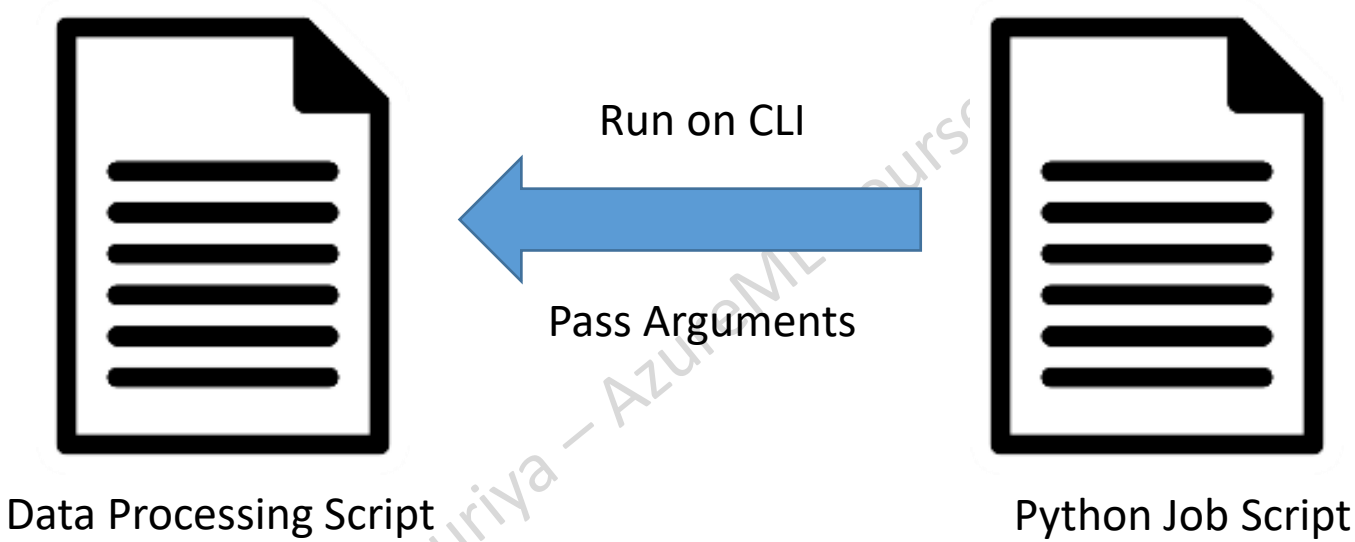
Command Line Arguments in Python

Data Processing Script

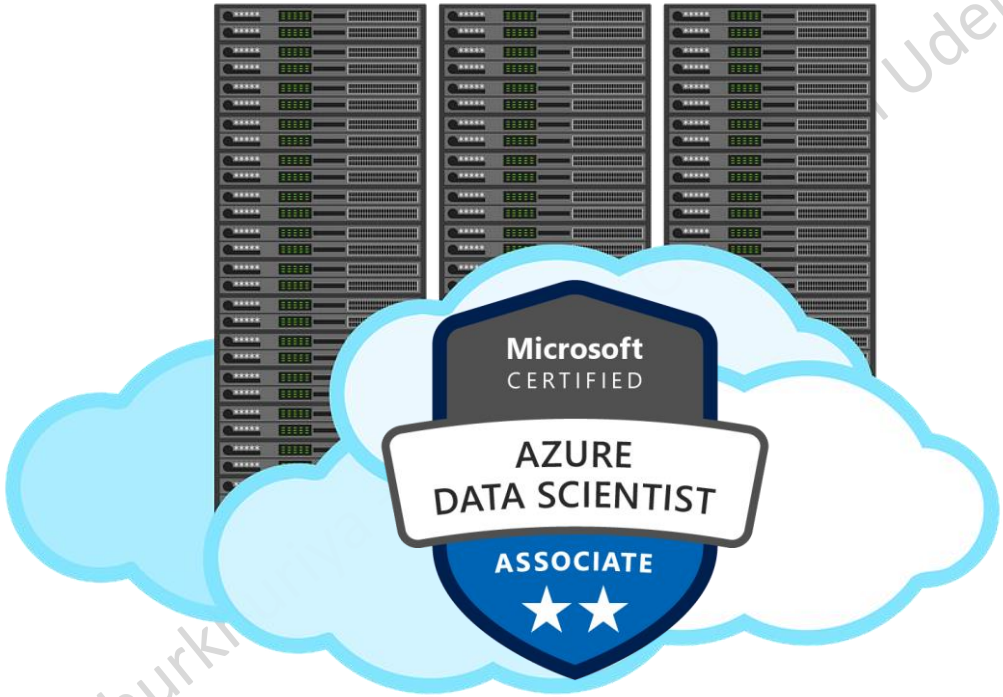


```
(base) C:\Jitesh\programs>python fileprocess.py --filename 'c:\Jitesh\data.csv'
```

Command Line Arguments in Python



Azure Machine Learning



Thank You..!!