UDACITY

Return to Classroom

DISCUSS ON STUDENT HUB

Operationalizing Machine Learning

REVIEW

CODE REVIEW

HISTORY

Requires Changes

4 specifications require changes

Good Work Done!

This is really a very good one, and I acknowledge that it has indeed taken much effort to get this far. I especially admire that you added more screenshots to solidify the evidence of work you did in the notebook, and your overviews include just the right information. Good job! There are still areas that should have been looked at, and I have highlighted those areas in their respective sections:

To Do:

- Include a screenshot of the ML studio showing the scheduled run from the **Experiments** section.
- Add **improvement suggestions**, and especially useful under their own section.
- Add a screenshot of the **"Published Pipeline overview"**, showing a REST endpoint and a status of `Active`.
- Revise your screencast to include a demonstration of **the Deployed Pipeline** and **Successful API requests to the endpoint with a JSON payload**

I hope these are met soon, and I look forward to a duly revised submission.

Best regards!

Machine Learning Ops Principles

A README file is included in the project root and has:

- **An overview of the project**
- **An Architectural Diagram**
- **A short description of how to improve the project in the future**
- **Screenshots required with a short description to demonstrate key steps**
- **A link to the screencast video on YouTube (or a similar alternative streaming service)**
- **In case you are unable to provide an audio file, you can include a written description of your script instead of audio, if you prefer. Please include it in your README file.**

Nice work providing useful details of the steps that you have used to successfully operationalize the machine learning model:

Completed:

- **An overview of the project:**
  You have provided a precise overview of the project, touching on training using AutoML, and deploying a model, with its endpoint made public and accessible. Nice work also for talking about the publishing of the pipeline as a service. I especially like the way you itemised the overview, creating a well defined segmented view of the steps involved. Excellent!
- **An Architectural Diagram:**
  Your architectural diagram is simple and informative, and rightly depicts the follow up of steps used in successfully operationalising the model. Nice!
- **A link to the screencast video on YouTube (or a similar alternative streaming service):**
  Well done adding a link to your screencast demonstrating the key steps for this process, from YouTube. Great!
- **Screenshots required with a short description to demonstrate key steps:**
  Nice work also providing descriptions for screenshots included in the submission. This helps readers gain more insight into the steps undertaken in those shots. Your descriptions are explanatory enough. Good job!

Requires Changes:

- **A short description of how to improve the project in the future:**
  An outline of how to improve the project in the future, is not included in your submission yet. The project may need some improvement in the future, and you will need to identify such improvements, and outline them. It is useful that you add your improvement suggestions under their own identifiable section, such as **Future Improvement Suggestions** or something similar.

The screencast should meet the following criteria:

- Screencast is 1-5 minutes in length
- Audio is clear and understandable
- Video is 1080P or higher with 16:9 aspect ratio
- text is readable

The screencast shows the entire process of the working ML application, including a demonstration of:

- Working deployed ML model endpoint.
- Deployed Pipeline
- Available AutoML Model
- Successful API requests to the endpoint with a JSON payload

Nice work done here actually! This was good, touching on the essential details including the:

- Working deployed ML model endpoint.
- Available AutoML Model

Required Changes:

- **Successful API requests to the endpoint with a JSON payload**:
  You did not show the inference requests in the form of **HTTP posts requests sent to the model's endpoint**, with **valid JSON payload and required headers**, for prediction. Note that this is supposed to test the model's endpoint by making actual predictions just as user would, demonstrating the prediction process and the kind of results to be expected.
- **Deployed Pipeline**:
  We also did not see much of the **deployed pipeline**. The deployed pipeline is seen from the **Endpoints > Pipeline endpoints** section of the ML Studio; briefly talk about this in your demonstration.

Deploy model in Azure ML Studio

The submission includes screenshots of:

- “Registered Datasets” in ML Studio shows "Bankmarketing" dataset available
- The experiment is shown as completed.

Nice work! You provided screenshots of:

- Your **dataset is registered** under the "**Registered Datasets**" section of the **Azure ML Studio**. Good work with registering the dataset.

- The experiment shown as `completed`, from the **Automated ML** section of the studio.

Recommendation:

To exceed expectations, you could have taken the screenshot from the Experiments section of the ML Studio, showing even more valuable details of the experiment.

The submission includes screenshots of:

- **Endpoints section in Azure ML Studio, showing that "Application Insights enabled" says "true".**
- **Logging is enabled by running the provided `logs.py` script**
- **Swagger runs on localhost showing the HTTP API methods and responses for the model**
- **`endpoint.py` script runs against the API producing JSON output from the model.**
- **Apache Benchmark (ab) runs against the HTTP API using authentication keys to retrieve performance results. (optional)**

Great! You included screenshots of the expected activities, and the details are just as expected. These include:

- The `logs.py` and `endpoint.py` scripts successfully ran without tracebacks, and produced the desired output. Good job!
- Screenshot of **Swagger UI** is displaying the **HTTP API methods and responses**. Awesome!
- **Logging is also enabled** after running the `logs.py` script. Nice!
- Your screenshot shows that **Applications Insights is enabled**. It displays `true`.

Thumbs Up!

Well done also for completing the benchmarking activity in the Standouts section, using Apache's benchmarking tool, `ab.exe`, by running the `benchmark.sh` script, even though this is optional. Testing the performance of your service is an invaluable step in the lifecycle of the development process. Nice work!

Publish an ML Pipeline

The submission includes screenshots of:

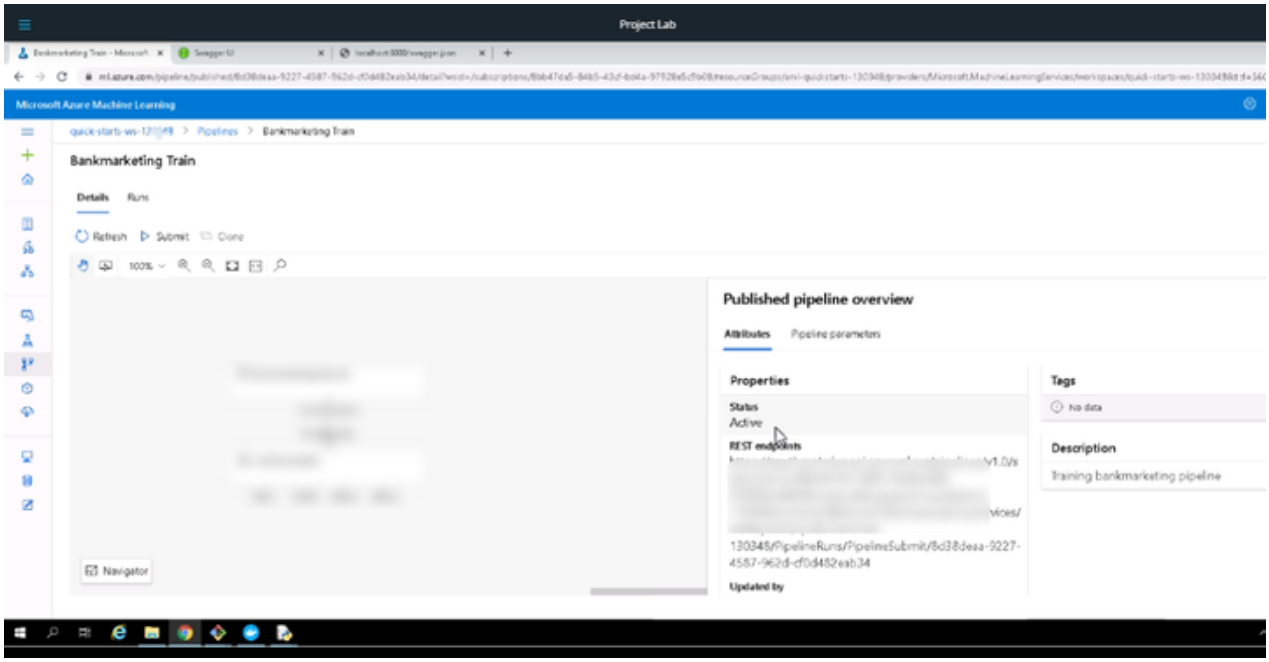
- **The pipeline section of Azure ML studio, showing that the pipeline has been created**
- **The Bankmarketing dataset with the AutoML module**
- **The "Published Pipeline overview", showing a REST endpoint and a status of ACTIVE**

Well done for providing screenshots of:

- The **Bankmarketing dataset with the AutoML module** shown in the **Experiments** section. Well done!
- A screenshot of the **Pipeline section of Azure ML studio** showing that the **pipeline has been created**.

Requires Changes:

We need to see a screenshot of the **"Published Pipeline overview"**, showing a REST endpoint and a status of `Active`. Note that it needs to read **"Published Pipeline overview"**, and NOT **"Pipeline run overview"**. As already pointed out in the preview, it should look like this:



- A screenshot of the Jupyter Notebook is included in the submission showing the "Use RunDetails Widget" with the step runs

Visualising the training process is helpful in getting details of the different runs and metrics of the experiment. The `RunDetails` widget is one important tool that facilitates this, right from the notebook. You have rightly included a screenshot of the required `RunDetails` widget, showing the progress of the experiment, with no tracebacks whatsoever. Good!

The submission includes screenshots of:

- ML studio showing the pipeline endpoint as Active
- ML studio showing the scheduled run

Nice work! Your submission rightly includes:

Completed:

A screenshot from the ML Studio, showing the pipeline endpoint as `Active`. Nice work!

Requires Changes:

It is required that you show the **scheduled or completed run** from the **Experiments** section. This section provides even more useful information about the pipeline.

RESUBMIT

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Best practices for your project resubmission

Ben shares 5 helpful tips to get you through revising and resubmitting your project.

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