Here is the Google Colab notebook link in git hub :
https://github.com/abduyea/Simple_TFX_pipeline.git

I attempted to execute the pipe line in Google Colab , however the current Colab run time uses Python 3.12 which is not supported by Tensorflow Extended (TFX). As a result the full pipe line could not be executed directly with Google colab environment.

To resolve this, I also attempted to run the pipe line on a local machine by creating a virtual environment and installing TensorFlow and TFX using a Python 3.9 Conda environment. Despite these efforts, execution within Google Colab remained infeasible due to the enforced Python 3.12 runtime in the 2026 Colab environment, which is incompatible with TFX.

2. Pipeline Description

I had not used a TFX pipeline before this project, but working through this tutorial helped me understand its value, and I plan to use it in future projects. The Simple TFX Pipeline demonstrates a complete end-to-end machine learning workflow. It begins with ExampleGen, which ingests the Penguin dataset and splits it into training and evaluation sets. StatisticsGen and SchemaGen analyze the data and define feature types and constraints. Transform applies feature engineering and preprocessing to ensure consistency during training and serving. The Trainer component trains a TensorFlow model, Evaluator measures model performance, and Pusher deploys the trained model if it meets the evaluation criteria.

3. Pipeline Improvements

This pipeline can be improved in several ways. First, resolving dependency and environment compatibility issues would make the notebook easier to execute across different platforms. Adding exploratory data analysis and data cleaning steps in detail before training would help better understand the dataset and improve data quality. In addition, hyperparameter tuning could be added to systematically improve model performance.Also adding model monitoring after deployment will improve the pipe line.

4. AI Transparency Statement

I use AI for grammar, and concept clarification.