MLOPS EXAM REPORT

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# REPO - <https://github.com/danyukezz/mlops_exam>

# Explanation:

### Project description

This exam project implements a small MLOps workflow for a “Game of Thrones House Predictor”, focusing on reproducible data processing, automated model training, and simple deployment. The goal is not to maximize model performance, but to demonstrate a correct end-to-end pipeline with versioned datasets, components, and outputs.

### Azure ML pipeline (training workflow)

The first part uses Azure Machine Learning to build a pipeline with separate steps for data preparation and model training. The raw Excel dataset is converted and uploaded as a Tabular Data Asset, then a preparation component splits the data into training and testing sets and applies one-hot encoding to categorical features while ensuring train/test feature alignment. A Decision Tree Classifier is trained on the prepared data, evaluation metrics (accuracy and classification report metrics) are logged via MLflow, and the trained model artifact is produced as a folder output and registered in Azure ML.

### Deployment (local + Hugging Face)

The second part packages the trained model into a lightweight API for inference. A FastAPI application exposes a POST /predict endpoint that accepts a JSON payload with character attributes and returns the predicted house label. FastAPI’s /docs endpoint is used to validate requests and capture a screenshot showing a successful prediction. Finally, the same API is containerized with Docker and deployed to a Hugging Face Space so the model can be tested online, and a screenshot of the running Space is included.

# Screenshots:

## Step 0 - Setup of your Azure Machine Learning Workspace.

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## Step 1 - Data Uploading

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## Step 1 - AI Data Preparation

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## Step 2 - AI Training - Decision Tree Classifier

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### STEP 3 – DEPLOY