**W251 Homework #2**

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**PART #3**

Graphical user interface, application

Description automatically generated

**PART-4**

1. How can Sagemaker help Data Scientists?

Sagemaker provides a platform to Data Scientists that helps them through the various stages of the life-cycle of a model development & deployment process. It provides an environment for data cleanup (via python notebook) and store (in S3), train a model and store the results, deploy the model to an environment and creates as end-point to access it.

1. Advantages/Disadvantages of Sagemaker

Advantages: The life-cycle of model development is available through a console for a Data Scientist. Jupyter notebook environment integrated into S3 and other AWS features. Training and model deployment at one place

Disadvantages: Training for the Data Scientist of all tools available in AWS. Keep an eye on various services that can potentially get spun up in the process of development that can impact cost if not attended to carefully.

1. Integration of Sagemaker with other AWS services such as Lambda functions, Kubernetes etc.,

The model deployment creates an end-point and hence it can be referenced/called from a Lambda function.

Amazon SageMaker Operators for Kubernetes and Components for Kubeflow Pipelines enable the use of fully managed SageMaker machine learning tools across the ML workflow natively from Kubernetes or Kubeflow.

1. When to use what algorithms

The built-in sequence-to-sequence algorithms can be used for machine translation, text summarization, speech-to-text. K-means algorithm for clustering. Principal Component analysis for dimensionality reduction. Xgboost & k-NN for regression etc.

1. What are other ML services available from other cloud service providers such as Google, Microsoft, IBM?

Google offers AutoML products to address various Data Scientists needs. AutoML’s AI Platform is similar to AWS’ SageMaker, Vision can be used as an OCR (Optical Character Recognition) tool, Translation can be used for interactive translation of text from one language to the other

Microsoft offers Cognitive services (similar to Google’s Vision), machine bots, language translator among other services

IBM offers Watson as an interactive question-answering service using natural language. It also provides speech-to-text, text-to-speech, language translation among other services