



AWS SAGE MAKER AND AWS COMPREHEND WRITTEN DOCUMENT

CSCI 5410 – Assignment 4 – Part A

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AWS Sage Maker [1]

AWS Sage Maker is a cloud-hosted machine learning platform. It helps users to build, train, test, tune, and finally deploy machine-learning models effortlessly in a production-ready environment. Sage Maker provides all the necessary components in a single toolset so that models can get deployed at a faster pace seamlessly with a very low cost. The usage of AWS Sage Maker are as below:

1. Optimized data costs for machine learning models while running AWS Sage Maker.
2. All components related to machine learning are stored in one place (i.e., on the Dashboard) so that they can be managed easily.
3. AWS Sage Maker service scales seamlessly.
4. Model training time is significantly faster using AWS Sage Maker.
5. Maintains service uptime for higher availability.
6. High data security is guaranteed.
7. Effortless data transfer between multiple AWS services such as S3, DynamoDB, RDS, and many more.

A few of the features provided by Sage Maker to work with machine learning models are Data Wrangler, Feature Store, Studio, Autopilot, Debugger, Distributed Training, Deploy, Pipelines, and Model Monitor.

AWS Comprehend [2]

AWS Comprehend is a cloud-based service that helps users to get valuable insights from text. It uses Natural Language Processing (NLP) and machine learning models for making decisions. The working of AWS Comprehend is simple. We only need to call the specific API from our application along with the location of the source file or text content. The API will return the processed output to our application. Few services provided by AWS Comprehend are as below:

1. Sentiment Analysis – It performs sentiment analysis of overall text and returns a result that can be POSITIVE, NEGATIVE or NEUTRAL.
2. Syntax Analysis – It performs syntax analysis of the overall text using tokenization and Parts of Speech and returns output that consists of labels like nouns, pronouns, adjectives and verbs.
3. Entity Recognition – It performs entity recognition of the overall text and returns the identified named entities such as a person, organization, location, and date.
4. Language Detection – It performs language detection of the overall text and returns the dominant language along with the confidence score to support the language.

Other services provided by AWS Comprehend are Keyphrase Extraction, Custom Entities, Custom Classification, Topic Modeling, and many more.

AWS Sage Maker and Comprehend in Car Rental Application

Owning a private vehicle is expensive because of numerous costs associated with personal vehicle ownership like vehicle maintenance, vehicle insurance, parking fees, fuel prices and many more. To avoid going through such hassle every month, people prefer to rent vehicles. Many auto rental companies provide various rental services to their customers. They are continuously improving

their services for customer retention and to attract new customers. Companies can use cloud services like AWS Sage Maker and AWS Comprehend in fields like:

1. **Recommending the right car to the customer** - Providing the right auto to a customer can help the company to earn customer satisfaction which further leads to customer retention. Parameters like driver's age, height, vision, total passengers, child seat requirement, the distance between source and destination, road type can help suggest appropriate cars to customers.
2. **Fleet planning and utilization** - Parameters like weather, traffic, events frequencies, residence area, airport schedules can help car rental companies decide what fleet to keep in the area. Different machine learning models can help find the best way of fleet planning, management, and utilization.
3. **Revenue management by selling fleets** - Choosing the right time to sell the vehicle is crucial to get the highest vehicle depreciation cost. AI and ML tools can improve cost management and automatically improve automobile rental rates based on pricing targets, as well as keep a close eye on depreciation.

References

- [1] Amazon, "Amazon SageMaker," Amazon, [Online]. Available: <https://aws.amazon.com/sagemaker/>. [Accessed 13 November 2021].
- [2] Amazon, "Amazon Comprehend," Amazon, [Online]. Available: <https://aws.amazon.com/comprehend/>. [Accessed 11 November 2021].