ASSIGNMENT 4: PART C

TASK A: Read AWS official documentation on SageMaker and Comprehend. Learn how these services are used in event-driven applications and explore various use cases.

Once you learn about the services, write 1 page summary on these services highlighting the usage, and an overview on how you will be using these services for "Halifax bike rental application".

AWS SageMaker[1]:

Machine learning software hosted in the cloud is called AWS Sage Maker. Users may easily create, train, test, fine-tune, and then deploy machine learning models using this tool in a setting that is ready for production.
For models to be deployed more quickly, flawlessly, and at a very low cost, Sage Maker offers all the necessary components in a single toolset.

The following is how AWS Sage Maker is used:

1. To make machine learning components easier to manage, all their components are kept in one location (the Dashboard).
2. AWS Sage Maker considerably reduces the amount of time needed to train a model.
3. The seamless scaling of the AWS Sage Maker service.
4. Data expenses for machine learning models were optimised while using AWS Sage Maker.
5. Continues to ensure service uptime for greater availability.
6. Simple data exchange between several AWS services, including S3, DynamoDB, RDS, and many others.
7. Exceptional data security is ensured.

Data Wrangler, Feature Store, Studio, Autopilot, Debugger, Distributed Training, Deploy, Pipelines, and Model Monitor are a few tools Sage Maker offers for using machine learning models.

AWS Comprehend [2]:

The cloud-based service AWS Comprehend enables users to extract insightful information from text. For decision-making, it employs machine learning models and natural language processing (NLP). AWS Comprehend has a straightforward interface. Only the location of the source file or text content and the API's call are required from our application. Our programme will receive the output after processing from the API. The following are a few services offered by AWS Comprehend:

1. Sentiment analysis: It analyses the text for sentiment and provides a result that can be POSITIVE, NEGATIVE, or NEUTRAL.

2. Language Detection: The dominant language and the confidence score supporting the language are returned when language detection of the entire text has been completed.
3. Syntax Analysis - The programme analyses the syntax of the entire text using tokenization and the Parts of Speech, and the results include labels such as nouns, pronouns, adjectives, and verbs.
4. Recognition of Entities: It identifies named entities like a person, company, location, and date by performing entity recognition on the entire text.

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

How you will be using these services for "Halifax bike rental application"?

Due to multiple expenses like vehicle maintenance, insurance, parking fees, gasoline pricing, and a host of other expenses, owning a personal vehicle is expensive. People choose to hire vehicles rather than deal with such difficulty on a monthly basis. Numerous rental organisations provide their clients a wide range of rental services. They keep becoming better and make their products better to keep current customers and draw in new ones.

Cloud services like AWS Sage Maker and AWS can be used by businesses in following ways:

1. Advising the consumer on the best vehicle: By recommending the best vehicle to a customer, a business can increase customer happiness, which in turn promotes customer retention. Customers can be guided toward the best vehicles by considering factors including the driver's age, height, vision, number of passengers, need for kid safety seats, travel time between origin and destination, and road type.
2. Predicting the customer traffic: When to increase the number of rental bikes can be determined by factors like the weather, traffic, frequency of events, residential neighbourhood, etc. For instance, more individuals are likely to rent bikes on a bright, sunny day during the summer. The optimal method of managing and planning bike numbers can be determined using several machine learning algorithms.

REFERENCES:

[1] Amazon, "Amazon SageMaker," Amazon, [Online]. Available: https://aws.amazon.com/sagemaker/.[Accessed: 09-Nov-2021].

[2]Amazon. "Amazon Comprehend," Amazon, [Online]. Available: https://aws.amazon.com/comprehend/. [Accessed: 09-Nov-2021].