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Create Machine Learning Models Easily with AWS SageMaker

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AMAZON SAGEMAKER

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What does Amazon SageMaker give us?

The Amazon SageMaker managed service provides us with tools to make it easy to create, train, and deploy machine learning models. Some of its functions vary between:

- ML streamlining
- Prepare and build ML models quickly
- Explore, analyze and process data
- Monitored training of ML models
- Automation of Machine Learning processes

AMAZON SAGEMAKER USE CASES

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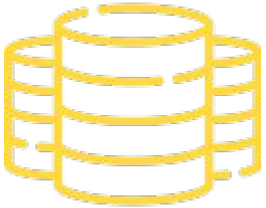
In what situations can Amazon SageMaker help us?

Amazon SageMaker is primarily aimed at solving situations that require data manipulation and processing, the management and deployment of machine learning models, and business analytics. More specific use cases are:

Improve ML model data training and inference.

Optimize and speed up the input and output of large data sets.



Predict demand in advance
and how to handle it properly

Reduce costs and increase speed of use of Machine Learning

MACHINE LEARNING PROCESS IN SAGEMAKER

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The goal of machine learning

The goal of Machine Learning is to create systems that can learn automatically from algorithms, in this way said system can identify patterns in data sets and produce predictions or inferences.

Machine learning process

The workflow for creating an ML model with Amazon SageMaker basically consists of:

1. Generate Sample Data: Depending on the ML solution we are looking for, we provide the necessary sample data.

2. Train the Model: We use algorithms. SageMaker gives you the option to choose from a list of built-in algorithms.

3. Deploy the Model: With Amazon SageMaker, we deploy our trained model for inference in different ways depending on different use cases.

INFERENCES IN AMAZON SAGEMAKER

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What is an inference in ML?

When we talk about Inferences in ML we refer to the process of making predictions using a trained model. SageMaker allows us to simplify and streamline our ML processes, it also has various Inference options that adapt to different needs.

Implementation Models for Inferences

In SageMaker we are given the option to deploy models for different types of inferences that vary depending on workloads or other factors. Among these we can find:

- Real Time Inference.
- Asynchronous Inference.
- Serverless Inference.
- SageMaker Batch Transform.

AMAZON SAGEMAKER: SERVERLESS INFERENCE

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What does Serverless Inference bring us?

Serverless Inference is the latest innovation in model options for inferences in SageMaker, its main objective is to facilitate the implementation of Machine Learning models, with this option it is not necessary to provision instances or configure specific scaling policies.

Serverless Inference is highly recommended for intermittent workloads as it has automatic scaling. In addition, with Serverless Inference, you only pay for the time used when the inference code was executed and the data that was processed, there is no extra charge for downtime.

SERVERLESS ENDPOINT

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What is an Endpoint?

An endpoint in Machine Learning is used as an entry and exit point to receive the inference result of a trained model.

Create a Serverless Endpoint

You can easily create a Serverless Endpoint using the Amazon SageMaker console.

1. Enter the Amazon SageMaker console.
2. In the Navigation Table, click on Inference.
3. Choose the Endpoints option.
4. Click on the Create Endpoint option.
5. In the Endpoint Name space, type a unique name from a region of your account.
6. Under Attach endpoint configuration, we select Use an existing endpoint configuration.
7. In Endpoint Configuration we select the name of the already created configuration (Serverless) and choose Select Endpoint Configuration.
8. Click on Create Endpoint.

SERVERLESS ENDPOINT

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Upgrade a Serverless Endpoint

To quickly update our Serverless Endpoint we can also use the SageMaker console.

1. Enter the Amazon SageMaker console.
2. In the Navigation table, click on Inference.
3. Choose Endpoints.
4. From the list, click on the endpoint that you want to update.
5. Choose Update Endpoint.
6. Under Change Endpoint Configuration, choose Use an existing endpoint configuration.
7. From the list of existing configurations, choose the one you want to use for the update.
8. Choose Select Endpoint Configuration.
9. Choose Update Endpoint.

SERVERLESS ENDPOINT

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Monitor a Serverless Endpoint

It is possible to monitor a Serverless Endpoint easily using the Amazon CloudWatch Alarms service, which allows us to collect and visualize metrics and events across our AWS resources in real time. We can create alarms that monitor these metrics and send notifications the moment a pre-specified threshold is breached. For example, using a Cloudwatch alarm, we can know if any of our Endpoints have had an error or we can also see if their performance is correct.

AMAZON SAGEMAKER

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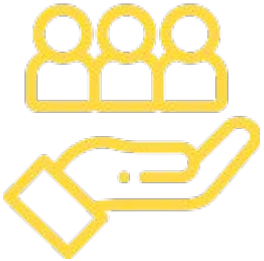
Amazon SageMaker brings us agile solutions to a rapidly growing technology like Machine Learning.
Being up to date with the newest technologies in the IT world allows us to be one step ahead when it comes to value in a company.

Benefits business reports

With Amazon Sagemaker you can streamline and improve the processing and analysis of data that concerns your business performance.

Payment for Use and Cost Reduction.

Simplify and improve your machine learning models without large on-premises expenses, in addition to only paying for the resources used.



Accessibility

Amazon SageMaker makes the use of its tools easy to access and use through its console, with an intuitive and efficient interface for new users.

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