# AWS Project Documentation

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# AWS Project

Over the course of this semester in NET1500, we have been working on a project. This project has been using many different topics involved in cloud computing. In this document we are going to be going over the topics we have focused heavily on. These topics include Lambda, SQS, SES, and Restful API. These areas were all new to me but turned out to be a super fun project to work on.

The first topic we learned for this project was AWS Lambda. Now what is this you might ask? AWS Lambda is an Amazon serverless computing system that runs code and automatically manages the underlying computing resources. It is an event-driven computing service. It lets a person automatically run code in response to many types of events. It also enables the person to extend to other AWS services with custom logic and even creates their own back-end services. It supports many different coding languages and allows you to build your own functions. Lambda integrates with many different AWS services that we will speak about later in this document.

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**Lambda Function Overview Screen**

Now let’s look at some services that can work together with Lambda. The first service is SQS or Simple Queue Service. Amazon Simple Queue Service (SQS) is a managed message queuing service technical professionals and developers use to send, store, and retrieve multiple messages of various sizes asynchronously (Martin, 2021). SQS enables web service applications that help to quickly and reliably queue messages. These messages have one component in their application that generates only when to be consumed by another component. Therefore, the queue is a temporary repository for messages and these messages are awaiting processing. So, once these messages are processed, the messages also get deleted from the queue. AWS SQS service basically adds messages in a queue and then, Users will pick up these messages from the queue. A queue is a place where you can store your messages until they are extracted from the queue or expired (*AWS Simple Queue Service(SQS)*, 2022). SQS is used to exchange messages between different software components. SQS uses a standard program interface that users can access and use via common programming languages.

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**Simple Queue Service Interface**

The second service that we learned about was SES or Simple Email Service. SES is a cloud-based email service for sending both transactional and mass emails. Large companies will use it because it’s a reliable and cost-effective way to send mass emails to customers or employees. You can also use SES to retrieve emails and use them as a trigger in AWS Lambda. SES integrates very well with a lot of different AWS services like Amazon CloudWatch. You can use Amazon CloudWatch to send scheduled emails at certain times. We used both Amazon CloudWatch and SES in our big mover project this semester and they are both very easy and reliable services to use.

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**Example of an email sent using SES and Amazon CloudWatch**

The final topic to dive deeper into is Restful API. Restful API is an interface that two computer systems use to exchange information securely over the internet. An API is a set of definitions and protocols for building and integrating application software. It’s sometimes referred to as a contract between an information provider and an information user. In other words, if you want to interact with a computer or system to retrieve information or perform a function, an API helps you communicate what you want to that system so it can understand and fulfill the request (RedHat, 2020).

So, what was this project’s scope? The scope of the project was to get an understanding of cloud computing using Amazon AWS and popular features in AWS. We used many lambda functions to send and receive data from SQS. One of the lambda functions took data on big moving stocks from Yahoo Finance and sent it to SQS. SQS would then receive a command from another lambda function and all the data sent would be turned into an email of the top movers for the day. This email would be sent every day at 9am using CloudWatch EventBridge. Overall this project opened my eyes to an area I was not familiar with and I have came to like the topics we focused on.

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