



WHAT IS AWS

Amazon Web Services (AWS) is a cloud computing platform that provides a wide range of services, including computing power, storage, databases, analytics, machine learning, and more. It allows businesses and individuals to access powerful computing resources without having to invest in expensive hardware or manage their own data centers. With AWS, users can easily scale their applications and services to meet demand, pay only for what they use, and benefit from the security and reliability provided by Amazon's global infrastructure.

Amazon Web Services

Here are some of the services AWS provides:

- Compute (EC2, Lambda, etc.)
- Storage (S3, EBS, etc.)
- Database (RDS, DynamoDB, etc.)
- Analytics (Redshift, Athena, etc.)
- Security (IAM, KMS, etc.)
- Application Integration (SQS, SNS, etc.)
- Management Tools (CloudFormation, CloudWatch, etc.)
- Artificial Intelligence (SageMaker, Rekognition, etc.)
- DevOps (CodePipeline, CodeBuild, etc.)

Overview of AWS Services

① Compute

Compute services like EC2, Elastic Beanstalk, and Lambda enable developers to build and run applications easily and efficiently.

② Storage

AWS offers a wide range of storage services such as S3 and EBS. These services are secure, scalable, and highly available.

③ Database

AWS provides highly scalable and durable databases like DynamoDB and RDS, which are easy to set up and manage.

④ Analytics

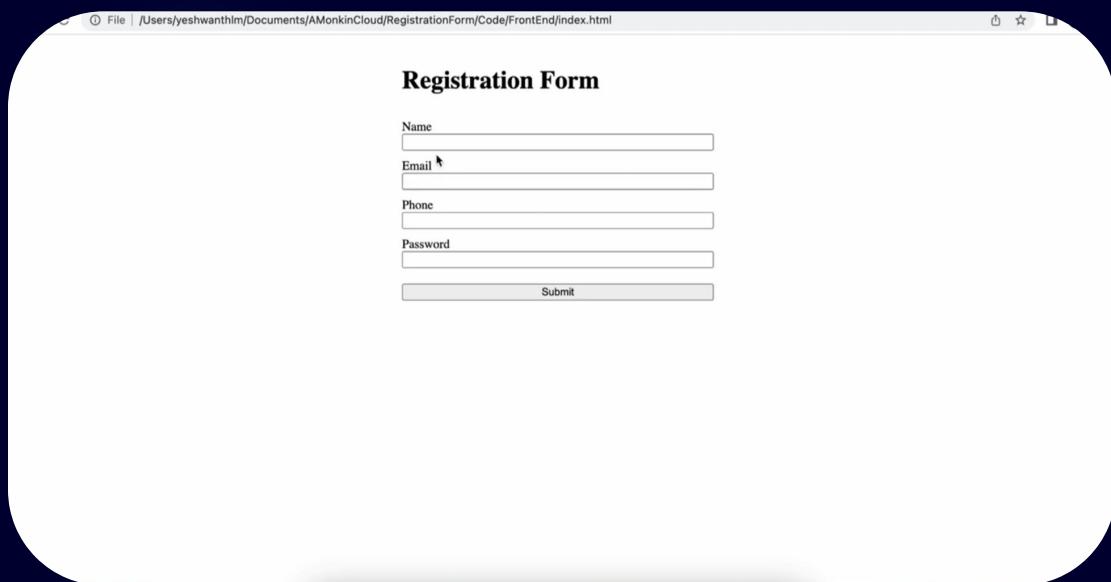
Use services like Kinesis and Quicksight to process and analyze vast amounts of data in real-time.

PROJECT

Serverless Registration Form

Project Description

The "Serverless Registration Form using AWS Services" project aims to create a dynamic and scalable registration form application leveraging the power of various AWS services. This application will allow users to register for an event, service, or platform seamlessly, while all backend processing, storage, and handling are handled through serverless architecture.



Project: Serverless Registration Form Using AWS Services

Design Frontend

Use HTML/CSS and React to design a user-friendly frontend for the registration form.

Configure IAM

Configure AWS Identity and Access Management (IAM) to create and manage AWS users and roles.

Create DynamoDB Table

Create a NoSQL DynamoDB table to store user registration data.

Deploy Lambda Function and API Gateway

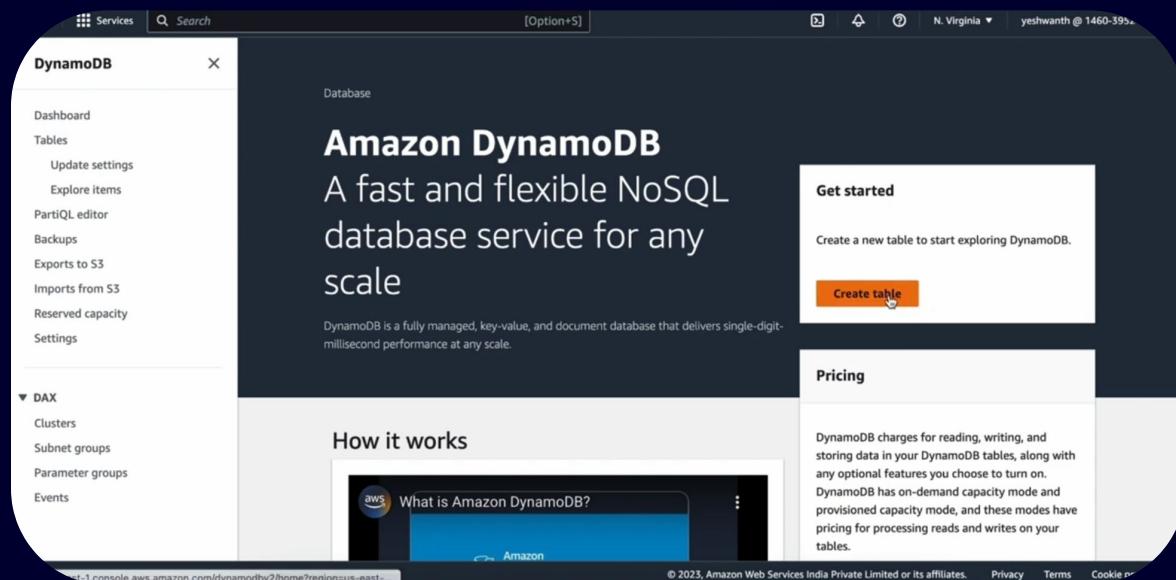
Deploy a serverless backend using AWS Lambda and API Gateway to handle incoming requests and store them in DynamoDB.



Services Used in the Project

1. DynamoDB

DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. It is designed to scale horizontally across many servers to provide high availability and low latency access to data. DynamoDB is used in the Serverless Registration Form project to store all the user registration data.



AWS Services Resource Groups

DynamoDB

Dashboard Tables Backups Reserved capacity Preferences

DAX Dashboard Clusters Subnet groups Parameter groups Events

Donations Close

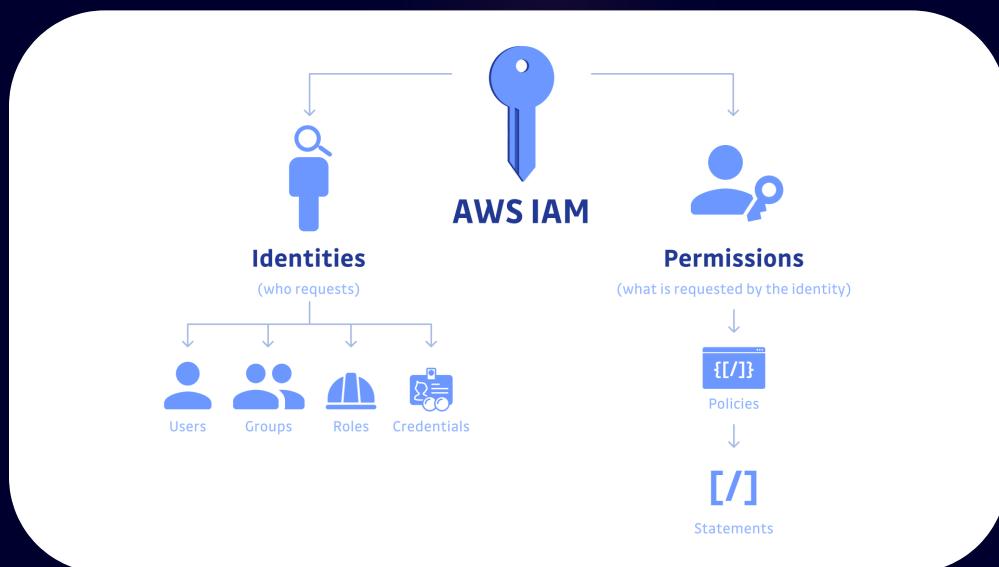
Overview Items Metrics Alarms Capacity Indexes Global Tables Backups Tr...

Create item Actions ▾

	platform ⓘ	donatedAt	amount	email
<input type="checkbox"/>	Facebook	2019-08-07T07:26:56	10	a@test.com
<input type="checkbox"/>	Facebook	2019-08-07T07:48:04	10	f@test.com
<input type="checkbox"/>	Facebook	2019-08-07T09:52:10	8	d@test.com
<input type="checkbox"/>	Facebook	2019-08-07T12:55:53	5	c@test.com
<input type="checkbox"/>	Telephone	2019-08-07T02:58:43	15	e@test.com
<input type="checkbox"/>	Telephone	2019-08-07T08:52:06	40	h@test.com
<input type="checkbox"/>	Telephone	2019-08-07T10:32:09	20	g@test.com
<input type="checkbox"/>	Telephone	2019-08-07T21:19:56	30	b@test.com

2. IAM

IAM is AWS's Identity and Access Management service. It allows you to securely control who can access your AWS resources and what they can do with them. You can create and manage users, groups, and roles, and assign specific permissions to each one.



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Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

- User groups
- Users
- Roles**
- Policies
- Identity providers
- Account settings

Access reports

- Access analyzer
- Archive rules
- Analyzers
- Settings
- Credential report
- Organization activity

CloudShell Feedback Language

IAM > Roles

Roles (27) Info

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

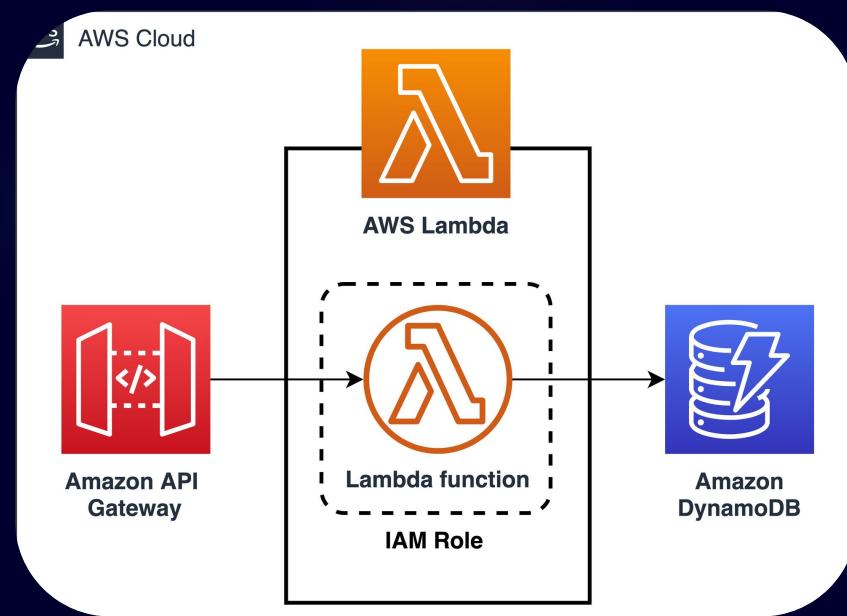
Search | < 1 2 > | Create role

<input type="checkbox"/>	Role name	Trusted entities	Last ac...
<input type="checkbox"/>	AmazonSageMaker-ExecutionRole-20230208T204997	AWS Service: sagemaker	60 days ag
<input type="checkbox"/>	amc-aws-lambda-s3-project-role	AWS Service: lambda	10 days ag
<input type="checkbox"/>	amc-aws-lambda-s3-project-role-vxq9s32z	AWS Service: lambda	-
<input type="checkbox"/>	amc-aws-lambda-s3-project-s3-access-role	AWS Service: lambda	10 days ag
<input type="checkbox"/>	AMonkinCloud-Admin	Identity Provider: arn:aws:iam::146039528711:saml-provider/Azure...	51 days ag
<input type="checkbox"/>	api-gateway-sftp-role	AWS Service: apigateway	-
<input type="checkbox"/>	AWSDataLifecycleManagerDefaultRole	AWS Service: dlm	-
<input type="checkbox"/>	AWSServiceRoleForAPIGateway	AWS Service: ops.apigateway (Service-Linked Role)	-
<input type="checkbox"/>	AWSServiceRoleForApplicationAutoScaling_DynamoDBTable	AWS Service: dynamodb.application-autoscaling (Service-Linked Role)	23 hours a
<input type="checkbox"/>	AWSServiceRoleForAutoScaling	AWS Service: autoscaling (Service-Linked Role)	8 days ago

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3. Lambda

Lambda is a computing service provided by Amazon Web Services (AWS) that allows you to run your code without having to provision or manage servers. With Lambda, you can upload your code and it will automatically be run in response to various types of events, such as changes to data in an S3 bucket or a new record being added to a DynamoDB table.



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Lambda > Functions > Create function

Create function Info

AWS Serverless Application Repository applications have moved to [Create application](#).

Author from scratch
Start with a simple Hello World example.

Use a blueprint
Build a Lambda application from sample code and configuration presets for common use cases.

Container image
Select a container image to deploy for your function.

Basic information

Function name
Enter a name that describes the purpose of your function.

Use only letters, numbers, hyphens, or underscores with no spaces.

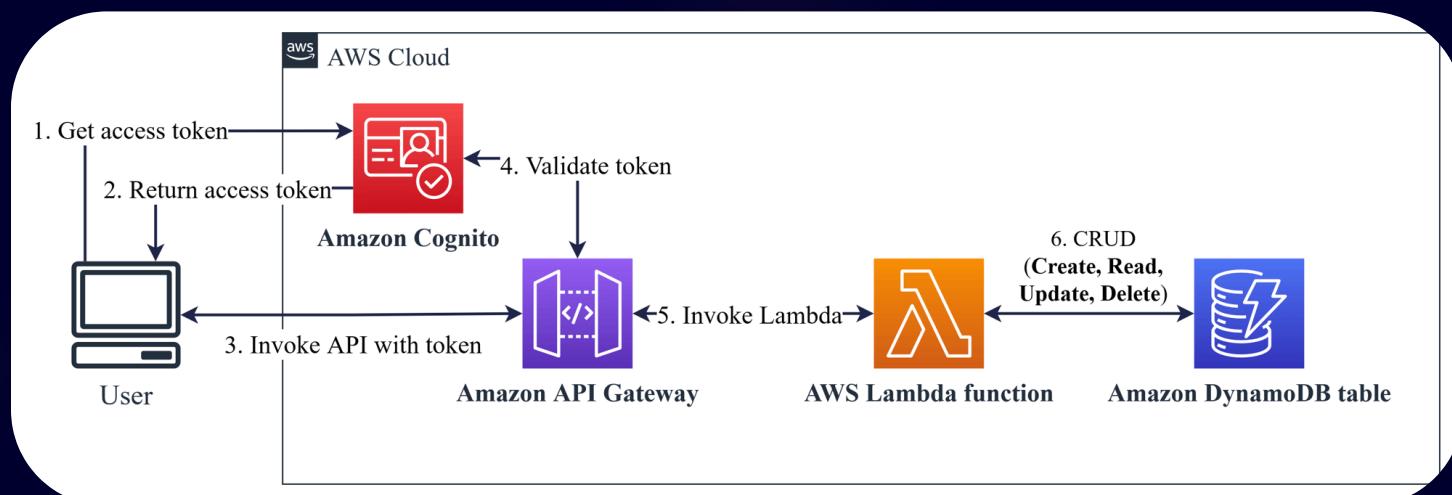
Runtime Info
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.

Architecture Info
Choose the instruction set architecture you want for your function code.
 x86_64
 arm64

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4. API Gateway

A fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs at any scale.



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Amazon API Gateway APIs > registration-api (r5s08f5b7f) > Stages > prod Hide hints ?

APIs Stages Create prod Stage Editor Delete Stage Configure Tags

Custom Domain Names VPC Links

API: registration-api Resources

Stages Authorizers Gateway Responses Models Resource Policy Documentation Dashboard Settings Usage Plans

prod Invoke URL: https://r5s08f5b7f.execute-api.us-east-1.amazonaws.com/prod

Settings Logs/Tracing Stage Variables SDK Generation Export Deployment History Documentation History Canary

Cache Settings

Enable API cache

Default Method Throttling

Choose the default throttling level for the methods in this stage. Each method in this stage will respect these rate and burst settings. Your current account level throttling rate is 10000 requests per second with a burst of 5000 requests. Read more about API Gateway throttling

Enable throttling Rate 10000 requests per second

Burst 5000 requests

Web Application Firewall (WAF) [Learn more.](#)

Select the Web ACL to be applied to this stage.

Web ACL

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Conclusion

The Serverless Registration Form project harnesses AWS services to craft a dynamic, scalable, and secure registration solution. By eliminating the need for traditional server management, it streamlines application development and ensures seamless scalability to accommodate varying user loads. Leveraging AWS Lambda, API Gateway, DynamoDB, and other components, the project achieves efficient data processing, storage, and user authentication. With automated email notifications, user data validation, and optional file uploads, it caters to diverse registration needs. The project underscores the power of serverless architecture in delivering responsive, cost-effective, and modern applications. Through its successful implementation, I have gained valuable insights into AWS services integration, serverless paradigms, and agile development practices, bolstering my proficiency as a developer in the ever-evolving landscape of cloud technology.

Thank You