



## AWS Real Time Project List

### Set: 1

#### Beginner Level Projects

##### Launch a Static Website on Amazon S3

- **Objective:** Host a static website using Amazon S3 and configure it for public access.
- **Services Used:** Amazon S3, Route 53 (for DNS management).
- **Skills Gained:** Understanding of static website hosting, DNS configuration, and basic AWS services

##### Mass Emailing using AWS Lambda

- **Objective:** Develop an application using AWS Lambda to send mass emails to a large audience.
- **Services Used:** AWS Lambda, Amazon S3, AWS SES (Simple Email Service), AWS SNS (Simple Notification Service).
- **Skills Gained:** Experience with server less computing and email services

##### Deploying a Simple Web Application with AWS Elastic Beanstalk

- **Objective:** Deploy a simple web application using AWS Elastic Beanstalk for scalable and managed environments.
- **Services Used:** AWS Elastic Beanstalk.
- **Skills Gained:** Experience with scalable web deployments and managed services

##### Setting Up a Basic Serverless API

- **Objective:** Create a basic serverless API using AWS Lambda and API Gateway.
- **Services Used:** AWS Lambda, API Gateway.
- **Skills Gained:** Understanding of serverless architecture and API management



## Intermediate Level Projects

### Real-time Data Processing Application

- **Objective:** Build an application to process high-volume data in real-time using Amazon Kinesis and AWS Lambda.
- **Services Used:** Amazon Kinesis, AWS Lambda, Amazon DynamoDB.
- **Skills Gained:** Understanding of real-time data processing, event-driven architecture, and scalable data handling.

### Creating a Chabot with AWS Lex

- **Objective:** Develop a chatbot that translates languages using Amazon Translate and Amazon Lex.
- **Services Used:** Amazon Lex, Amazon Translate.
- **Skills Gained:** Experience with conversational AI and language translation services

### Deploying a Simple React Web Application using AWS Amplify

- **Objective:** Deploy a React web application using AWS Amplify for streamlined development and deployment.
- **Services Used:** AWS Amplify.
- **Skills Gained:** Understanding of modern web development frameworks and cloud integration

### Building an Alexa Skill with AWS Lambda and DynamoDB

- **Objective:** Create an Alexa Skill that provides study tips using AWS Lambda and DynamoDB.
- **Services Used:** AWS Lambda, DynamoDB, Alexa Skills Kit.
- **Skills Gained:** Experience with voice-activated applications and data storage



## Publishing Amazon CloudWatch Metrics to a CSV File

- **Objective:** Use AWS Lambda to publish Amazon CloudWatch metrics to a CSV file.
- **Services Used:** AWS Lambda, Amazon CloudWatch.
- **Skills Gained:** Understanding of monitoring and logging services

## Building Custom Alexa Skills

- **Objective:** Create custom Alexa Skills using AWS Lambda and the Alexa Skills Kit.
- **Services Used:** AWS Lambda, Alexa Skills Kit.
- **Skills Gained:** Understanding of voice-activated applications and serverless functions

## Advanced Level Projects

### Serverless Image Processing System

- **Objective:** Create a serverless workflow for image processing using AWS Step Functions, AWS Lambda, and Amazon Rekognition.
- **Services Used:** AWS Step Functions, AWS Lambda, Amazon Rekognition.
- **Skills Gained:** Experience with complex workflow orchestration, serverless architecture, and AI-driven image processing

### Deploying a Complete Machine Learning Fraud Detection Solution

- **Objective:** Develop a machine learning model for fraud detection using Amazon SageMaker.
- **Services Used:** Amazon SageMaker.
- **Skills Gained:** Understanding of machine learning model development and deployment.



## **Building a Multimodal RAG Using Foundation Models and AWS**

- **Objective:** Develop a multimodal Retrieval-Augmented Generator (RAG) to extract insights from diverse data formats using Amazon Bedrock and Amazon SageMaker.
- **Services Used:** Amazon Bedrock, Amazon SageMaker.
- **Skills Gained:** Hands-on experience with cutting-edge AI tools and complex data extraction

## **Building a Recommendation System using MXNET Data on Amazon Sage Maker**

- **Objective:** Create a recommendation system using MXNET data on Amazon SageMaker.
- **Services Used:** Amazon SageMaker.
- **Skills Gained:** Experience with machine learning model development for recommendation systems

## **Building a Containerized Web Application using Amazon ECS and AWS Fargate**

- **Objective:** Develop a containerized web application using Amazon ECS and AWS Fargate for scalable and managed environments.
- **Services Used:** Amazon ECS, AWS Fargate.
- **Skills Gained:** Understanding of containerized applications and scalable deployment strategies



## Set: 2

### Beginner Level Projects

#### Static Website Hosting on S3

- **Skills Covered:** S3, Route 53, CloudFront, ACM.
- **Description:** Host a static website on S3 and use CloudFront for faster content delivery.

#### Simple Serverless CRUD Application (Lambda + API Gateway + DynamoDB)

- **Skills Covered:** AWS Lambda, API Gateway, DynamoDB, IAM.
- **Description:** Create a serverless CRUD application with a REST API to interact with DynamoDB.

#### Upload Files to S3 Using AWS SDK

- **Skills Covered:** S3, IAM, SDK (Python, JavaScript, etc.).
- **Description:** Build a simple application where users can upload files to S3 and retrieve them.

#### Basic EC2 Setup and Management

- **Skills Covered:** EC2, Security Groups, Key Pairs, SSH.
- **Description:** Launch an EC2 instance, configure security groups, and connect to it via SSH.

#### Create a Basic CloudFormation Template to Deploy Resources

- **Skills Covered:** CloudFormation, JSON/YAML, AWS Resources.
- **Description:** Learn how to automate the creation of resources like EC2 instances and S3 buckets using CloudFormation.



## Intermediate Level Projects

### Multi-Tier Web Application with EC2, RDS, and S3

- **Skills Covered:** EC2, RDS, S3, ELB, VPC, IAM.
- **Description:** Create a multi-tier application using EC2 for web servers, RDS for database, and S3 for static content.

### Log Management with CloudWatch and CloudTrail

- **Skills Covered:** CloudWatch, CloudTrail, Lambda, Alarms.
- **Description:** Set up logging for EC2, Lambda, and other services with CloudWatch Logs and create alarms to monitor AWS services.

### Set Up an Auto-Scaling Web Application Using EC2 and ELB

- **Skills Covered:** EC2, ELB, Auto Scaling, CloudWatch.
- **Description:** Design and deploy a scalable web app architecture using Auto Scaling and Elastic Load Balancing (ELB) to automatically handle traffic spikes.

### Set Up a VPC with Private and Public Subnets

- **Skills Covered:** VPC, Subnets, Route Tables, Security Groups.
- **Description:** Configure a VPC with private and public subnets, create a public-facing web server, and a private database.

### Create and Deploy a Serverless Backend with API Gateway, Lambda, and DynamoDB

- **Skills Covered:** API Gateway, Lambda, DynamoDB, IAM.
- **Description:** Develop a fully serverless backend where API Gateway triggers Lambda functions to perform CRUD operations on DynamoDB.



## **Advanced Level Projects:**

### **Build a Highly Available and Scalable Application with Elastic Beanstalk, CloudFront, and RDS**

- **Skills Covered:** Elastic Beanstalk, CloudFront, Route 53, RDS, Auto Scaling.
- **Description:** Deploy an application using Elastic Beanstalk with high availability, auto-scaling, and a CDN through CloudFront.

### **Set Up Cross-Region Replication for S3 and RDS**

- **Skills Covered:** S3, RDS, CloudFormation, IAM, Cross-Region Replication.
- **Description:** Implement cross-region replication for S3 and RDS to ensure data durability and low-latency access across regions.

### **Create a Multi-Region Disaster Recovery Setup Using Route 53 and CloudFormation**

- **Skills Covered:** Route 53, CloudFormation, VPC, EC2.
- **Description:** Implement a disaster recovery solution by setting up a secondary region and routing traffic with Route 53 during failover.

### **Set Up a CI/CD Pipeline with AWS CodePipeline, CodeBuild, and CodeDeploy**

- **Skills Covered:** CodePipeline, CodeBuild, CodeDeploy, IAM.
- **Description:** Create a fully automated CI/CD pipeline to deploy applications to EC2 or Lambda using CodePipeline.

### **Implement Security Best Practices: Set Up AWS GuardDuty, AWS WAF, and Shield**

- **Skills Covered:** GuardDuty, WAF, Shield, IAM, CloudTrail.
- **Description:** Build an architecture with AWS security best practices, including setting up GuardDuty for threat detection, WAF for web application firewall, and Shield for DDoS protection.