

**Capstone Project Title : Building an e-commerce web app on AWS, analyzing data with Amazon S3 and Redshift, and visualizing data with Amazon QuickSight.**

**Objective: To develop a robust e-commerce web app on AWS with data analysis and visualization below patterns using S3, Redshift, and QuickSight:**

- **User shopping pattern**
- **User monthly average spendings**
- **Most sold product**
- **Most searched product**

**Set up WordPress on AWS:**

- Launch WordPress on Amazon EC2:
- Create an Amazon EC2 instance.
- Install and configure WordPress on the EC2 instance.
- Use Amazon RDS for WordPress Database:
- Set up an Amazon RDS instance for the WordPress database to ensure scalability and manageability.

**Set up Amazon S3 for Data Storage:**

- Create S3 Bucket:
- Create an S3 bucket to store data, such as logs, media files, etc.
- Configure WordPress for S3

**Analyze Data with Amazon Redshift:**

- Set Up Amazon Redshift Cluster:
- Create an Amazon Redshift cluster for data analysis.
- Configure the necessary security groups and IAM roles.
- Load Data into Redshift:
- Periodically export relevant data from your WordPress database to Amazon S3.
- Use Amazon Redshift COPY command to load data from S3 into Redshift.

**Visualize Data with Amazon QuickSight:**

- Connect QuickSight to Redshift:
- Set up an Amazon QuickSight account.
- Connect QuickSight to your Amazon Redshift cluster.
- Create Visualizations:
- Build visualizations and dashboards in QuickSight using the data in Redshift.
- Use features like QuickSight ML Insights for automated insights.

**Monitoring and Optimization:**

- Set Up CloudWatch Alarms:
- Implement CloudWatch alarms to monitor EC2, RDS, and Redshift performance.
- Optimize S3 and Redshift:
- Implement best practices for S3 and Redshift to optimize performance and reduce costs.
- 6. Backup and Disaster Recovery:
- Implement Regular Backups:
- Set up regular backups for your WordPress database using Amazon RDS automated backups.
- Disaster Recovery Plan:
- Create a disaster recovery plan, including regular testing of backups.

### Security:

- Use IAM roles to grant the minimum required permissions to EC2 instances, S3 buckets, and Redshift clusters.
- Enable encryption at rest for S3 and Redshift.

### Tools:

- EC2
- RDS
- S3
- RedShift
- Quicksight

