

✓ 🧠 cloudChronicles Lab #001: Disaster Recovery Detective

Lab Type: Idea

Estimated Time: 30–45 mins

Skill Level: Beginner

```
# Let's begin by printing your name to personalize the notebook
your_name = "Raheem Kareem"
print(f"Welcome to the lab, {your_name}!")
```

🔄 Welcome to the lab, Raheem Kareem!

🔍 STAR Method Lab Prompt

Situation: A critical web application hosted in Google Cloud's `us-west2` region is experiencing a complete outage due to a regional failure. This application relies on a Cloud SQL database and stores user-uploaded content in Cloud Storage.

Task: As a Cloud Architect, you need to outline a disaster recovery plan using Google Cloud services to minimize downtime and data loss, ensuring business continuity.

Action:

1. **Failover Trigger:** A load balancer health check detects the primary application instance in `us-west2` is unhealthy. This triggers a Pub/Sub message.
2. **Database Failover:** The Pub/Sub message initiates a Cloud Function that promotes a read replica of the Cloud SQL database in a different region (e.g., `us-east1`) to become the new primary.
3. **Application Redeployment/Traffic Rerouting:** The load balancer automatically reroutes traffic to a pre-deployed or automatically scaled instance of the web application in the `us-east1` region.
4. **Storage Access:** The application in `us-east1` accesses the user-uploaded content stored in a multi-region Cloud Storage bucket, ensuring data availability.
5. **Monitoring and Verification:** Cloud Monitoring and Cloud Logging are used to verify the successful failover and the application's health in the new region.

Expected Result: A documented disaster recovery plan outlining the steps and Google Cloud services used for failover and recovery during a regional outage, ensuring the application is available to users in the `us-east1` region with minimal data loss.

📝 My Assignment

- **Primary Region:** `us-west2`
- **Backup Location:** `us-east1`
- **Failover Trigger:** Load balancer health check + Pub/Sub alert
- **Redundancy Services:**
 - Cloud SQL read replica with failover
 - Multi-region Cloud Storage
 - Cloud Functions for failover initiation
 - Cloud Load Balancing for traffic rerouting
 - Cloud Monitoring and Logging for verification
- **Backup Schedule:** (This wasn't explicitly defined in the prompt, but a common practice would be) Regular backups of Cloud SQL to a multi-region Cloud Storage bucket.

