1. Initialize a Git Repository Locally

On your local machine, create a new directory for your project and initialize a Git repository.

bash

CopyEdit

mkdir ec2-backup-s3

cd ec2-backup-s3

git init

2. Create Project Files

Inside the ec2-backup-s3 directory, create the necessary files:

📁 **Project Structure:**

CopyEdit

ec2-backup-s3/

├── backup_script.sh

├── setup_ec2.md

├── README.md

└── .gitignore

📝 **README.md (Project Documentation)**

Create a README.md file and document your project.

md

CopyEdit

EC2 Instance Backup to S3

This project demonstrates how to automatically back up files from an EC2 instance to an S3 bucket using AWS CLI and cron jobs.

Steps to Implement:

1. **Create an S3 Bucket**

2. **Launch an EC2 Instance** (Ubuntu, `t2.micro`)

3. **Install AWS CLI on EC2**

4. **Create Sample Files** (`sample1.txt`, `sample2.txt`)

5. **Automate Backups using Cron Job**

6. **Create a Backup Script** (Sync folder to S3)

7. **Restore Backup from S3**

8. **Testing**: Create `testing.txt`, wait 5 minutes, and verify backup in S3.

Backup Script (`backup_script.sh`)

```bash
#!/bin/bash

# Define variables
BACKUP_DIR="/home/ubuntu/backup"
S3_BUCKET="your-s3-bucket-name"
TIMESTAMP=$(date +%Y%m%d%H%M%S)

# Create a backup directory if it doesn't exist
mkdir -p $BACKUP_DIR

# Copy home directory files to the backup directory
cp -r /home/ubuntu/*.txt $BACKUP_DIR/

# Sync the backup folder to S3
aws s3 sync $BACKUP_DIR s3://$S3_BUCKET/backup_$TIMESTAMP/

echo "Backup completed at $(date)"
```

How to Automate Backup with Cron Job

Edit the cron job using:

bash

CopyEdit

```
crontab -e
```

Add this line to run the script every 5 minutes:

bash

CopyEdit

*/5 * * * * /bin/bash /home/ubuntu/backup_script.sh

bash

CopyEdit

📝 `.gitignore` (Ignore unnecessary files)

```gitignore

*.log

*.tmp

backup/
```

3. Push to GitHub

Step 1: Create a GitHub Repository

- Go to GitHub and create a new repository named **ec2-backup-s3**.

Step 2: Add Remote Repository & Push Code

bash

CopyEdit

git add .

git commit -m "Initial commit - EC2 backup to S3 project"

git branch -M main

git remote add origin https://github.com/yourusername/ec2-backup-s3.git

git push -u origin main