# Project Documentation: Automated Backup and Rotation System with Google Drive Integration

# 1. Project Title

### Automated Backup and Rotation System with Google Drive Integration

### 2. Objective

To automate daily, weekly, and monthly backups of a project directory, upload backups to Google Drive, delete old backups, monitor storage quota, send optional email notifications, and allow manual restoration—all using shell scripting, rclone, and cron on an Ubuntu EC2 instance.

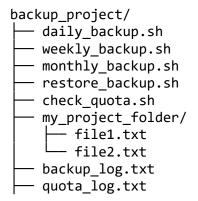
# 3. Key Benefits

- Reliable automated offsite backups
- Zero manual intervention after setup
- Low-cost, simple alternative to commercial tools
- Restore and recovery possible anytime
- Storage usage monitoring
- Customizable retention policy

# 4. Tools and Technologies Used

- Ubuntu EC2 Instance (Cloud Host)
- Shell Scripting (Bash)
- Rclone (Sync with Google Drive)
- Cron (Task Scheduling)
- Msmtp (Optional Email Notification)
- Zip/Unzip (Compression/Extraction)
- tree, du, df (for structure/logging)

## 5. Folder Structure



```
    project-backups/
    daily/
    weekly/
    monthly/
```

# 6. Steps to Set Up the Project

### Step 1: Launch Ubuntu EC2 Instance

- Login to AWS Console
- Launch EC2 instance (Ubuntu 22.04 preferred)
- Allow SSH (port 22)

### Step 2: Install Required Packages

```
sudo apt update
sudo apt install rclone zip unzip msmtp mailutils tree -y
```

### Step 3: Configure Rclone for Google Drive

```
rclone config
# Choose: n (new remote)
# Name: gdrive
# Type: drive
# Follow the prompts and authorize using your browser
```

### Step 4: Prepare Project Directory

```
mkdir ~/backup_project
cd ~/backup_project
mkdir my_project_folder project-backups
mkdir project-backups/daily project-backups/weekly project-backups/monthly
```

### Step 5: Create Your Scripts

Create the following shell scripts:

#### daily\_backup.sh

- Compresses the folder
- Uploads to Google Drive
- Logs actions
- Deletes old backups beyond 7 days

#### weekly\_backup.sh

- Same logic as daily but separate path
- Retain last 4 weekly backups

#### monthly backup.sh

Retain last 3 monthly backups

#### check\_quota.sh

Uses rclone about gdrive: to check space

#### restore\_backup.sh

- Asks for backup name
- Downloads and extracts it

```
chmod +x *.sh
```

# 7. Automate Using Cron

```
# Daily backup at 1 AM
0 1 * * * /home/ubuntu/backup_project/daily_backup.sh

# Weekly backup at 2 AM every Sunday
0 2 * * 0 /home/ubuntu/backup_project/weekly_backup.sh

# Monthly backup at 3 AM on 1st
0 3 1 * * /home/ubuntu/backup_project/monthly_backup.sh
```

### 8. Optional: Setup Email Notification

```
Step 1: Install msmtp
sudo apt install msmtp
Step 2: Configure
nano ~/.msmtprc
Add:
defaults
auth on
tls on
tls_trust_file /etc/ssl/certs/ca-certificates.crt
logfile ~/.msmtp.log
account gmail
host smtp.gmail.com
port 587
from your email@gmail.com
user your_email@gmail.com
password your_app_password
account default : gmail
```

# 9. Testing Scripts

Run each script manually and verify:

```
./daily_backup.sh
./weekly_backup.sh
./monthly_backup.sh
./check_quota.sh
./restore_backup.sh
```

Use rclone 1s gdrive:project-backups/ to check files in Drive.

# 10. Final Output and Logs

- backup\_log.txt Contains success/failure info
- quota\_log.txt Shows drive space report
- Google Drive has three folders: daily/, weekly/, monthly/

### 11. Conclusion

This project delivers a production-ready, fully automated solution for backing up any critical data to the cloud. It ensures:

- Data Safety
- Disaster Recovery
- Cost Savings
- Minimal Manual Intervention

# 12. GitHub Repository

☐ GitHub - Automated Backup and Rotation System

For any queries or improvements, feel free to connect!