# Automated Backup Script

## Project Description:

Developed and implemented a comprehensive bash script designed to automate the backup process of a specified directory on a Linux system. This script ensures data integrity and availability by performing regular, scheduled backups with minimal user intervention.

## Key Responsibilities:

### Script Development:

- Authored a bash script that performs a complete backup of a designated directory.  
- Implemented compression of the backup files using tar and gzip to optimize storage utilization.  
- Integrated a dynamic naming convention using timestamps to facilitate versioning and easy identification of backup files.

### Automation and Scheduling:

- Utilized cron to schedule the script for automated execution, ensuring regular backups without manual intervention.  
- Configured cron jobs to execute the backup script daily at midnight, maintaining up-to-date backups.

### Testing and Validation:

- Conducted thorough testing of the script to validate its functionality and reliability.  
- Verified the integrity and completeness of the backup files by restoring them to a test environment.

## Technical Skills Demonstrated:

- Proficiency in bash scripting and Linux command-line tools.  
- Experience with file compression and archiving using tar and gzip.  
- Knowledge of cron job scheduling for automation of repetitive tasks.  
- Understanding of file system structures and backup best practices.

## Project Outcomes:

- Successfully automated the backup process, reducing the need for manual intervention and minimizing the risk of data loss.  
- Improved data management by maintaining organized and versioned backups.  
- Enhanced system reliability and disaster recovery readiness through consistent and reliable backup practices.

## Technologies Used:

- Bash scripting  
- Linux command-line utilities (tar, gzip)  
- cron for job scheduling

## Sample Code Snippet:

#!/bin/bash  
  
# Directory to be backed up  
SOURCE\_DIR="/path/to/source"  
  
# Backup destination  
BACKUP\_DIR="/path/to/backup"  
  
# Current date and time  
DATE=$(date +'%Y-%m-%d\_%H-%M-%S')  
  
# Backup file name  
BACKUP\_FILE="backup\_$DATE.tar.gz"  
  
# Create the backup  
tar -czf $BACKUP\_DIR/$BACKUP\_FILE $SOURCE\_DIR  
  
echo "Backup of $SOURCE\_DIR completed at $DATE"

## Example cron Job Entry:

0 0 \* \* \* /path/to/backup.sh

## Professional Impact:

- Demonstrated the ability to write efficient and reliable scripts for system administration tasks.  
- Showcased problem-solving skills and attention to detail in automating critical processes.  
- Enhanced the overall operational efficiency and data security of the system.