# Project Report: Directory Backup Script

**Project Title:- Directory Backup Script**
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# 1. Introduction

In the digital age, data management and backup are crucial for both personal and professional use. The Directory Backup Script is a shell script designed to automate the backup process of a specified directory, in this case, the user's `Documents` folder. By creating a backup of important files, users can protect their data from accidental loss.

# 2. Objectives

- To create a shell script that automates the backup of the `Documents` directory to a designated backup folder.
- To append the current date to the backup folder name for easy identification.
- To ensure the script is user-friendly and can be executed with minimal input.
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# 3. Technologies Used

- Shell Scripting: The script is written in Bash, a widely used shell in Unix-based systems.
- Git: Version control system used for tracking changes in the script and managing the project.
- GitHub: Platform used for hosting the project repository and facilitating collaboration.

# 4. Implementation

# 4.1 Script Overview

The backup script performs the following functions:
1. Check for Source Directory: Verifies if the `Documents` directory exists.

2. **Create Backup Directory: If the backup directory does not exist, it creates one in the user's home directory.**
3. **Date Handling: Appends the current date to the backup directory name to maintain version control.**
4. **Copy Files: Uses th `cp` command to copy files from the `Documents` directory to the backup directory.**

## 4.2 Code Snippet

```bash
#!/bin/bash

# Define source and destination directories
SOURCE_DIR="$HOME/Documents"   (Give your own Directory Name for Backup)
BACKUP_DIR="$HOME/Backup"

# Check if source directory exists
if [ ! -d "$SOURCE_DIR" ]; then
    echo "Source directory does not exist."
    exit 1
fi

# Create a backup directory with the current date
DATE=$(date +%Y-%m-%d)
BACKUP_PATH="$BACKUP_DIR/backup_$DATE"

mkdir -p "$BACKUP_PATH"

# Copy files from source to backup directory
cp -r "$SOURCE_DIR/"* "$BACKUP_PATH"

echo "Backup of '$SOURCE_DIR' completed successfully to '$BACKUP_PATH'."
```

## 4.3 Usage
To run the script, follow these steps:
1. **Open a terminal.**
2. **Navigate to the directory where the script is located.**
3. **Make the script executable: `chmod +x backup_script.sh`.**
4. **Execute the script: `./backup_script.sh`.**

## 5. Testing
The script was tested under various scenarios:
- **Normal Operation: Verified that the script successfully backs up files from the `Documents` directory to the backup directory.**
- **Non-Existent Source Directory: Confirmed that the script correctly handles the case where the `Documents` directory does not exist by displaying an appropriate error message.**

- **Multiple Executions: Ensured that running the script on different days creates separate backup folders with the respective dates.**
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# 6. Conclusion

**The Directory Backup Script effectively automates the backup process for users, providing a simple and efficient way to secure important files. The project demonstrates fundamental shell scripting techniques and highlights the importance of data backup in daily computing tasks.**

# 7. Future Work

**Future enhancements to the project may include:**
- **Adding options for users to specify different source directories.**
- **Implementing logging functionality to keep track of backup operations.**
- **Providing email notifications upon successful backup completion.**
- **Creating a user interface for easier interaction with the script.**