CS 307 : System Practicum

Mini-Project
Backup/Restore Utility for linux

-:Team members:-

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1. Introduction

1.1. Purpose:

This document will provide a detailed overview of a backup and restore utility for linux. The interface, feature and constraints of the system will be discussed in this document. This document is written keeping in mind both client and developer.

1.2. Scope of Project:

Nowadays we use many devices like PCs,laptops and mobile phones and they all run various types of software and handle massive amounts of data. The data can be very important and it may not be feasible to recreate that data again from scratch if lost. In big industries and organisation and even in PCs/laptops the precious data can be lost due to failures in a system, application or hardware etc. Even the frequent changes in data has to be taken into account for ensuring complete safety. Organisations have their own private network and most of them wants to store their data on remote host.

Backup/Restore utility can fill this need. Using this utility the organisation's member and other end user of devices can update the changes made in the data automatically and manually too on the remote host.

1.3 High Level Description

This utility will provide user with provision to backup data on local hard disk, external hard disk as well as on a disk on a network. This utility will also provide features such as automatic backup, record of backups and full restore or a file restore.

1.4. Intended Audience:

This SRS document is intended for anyone who want a Backup/Restore utility like linux Backup/Restore. Specifically for professionals like software manager and designer, network administrator and also for the general tech enthusiastic people.

1.5. References:

1. https://en.wikipedia.org/wiki/Rsync
2. https://www.jveweb.net/en/archives/2011/02/using-rsync-and-cron-to-automate-incremental-backups.html
3. https://www.digitalocean.com/community/tutorials/how-to-use-rsync-to-sync-local-and-remote-directories-on-a-vps

1.6. Overview of Document

The first section describes the purpose of the project and its scope. It determines and document the list of specific project goals, features, functions and tasks. A high level description of the project is given and the type of audience it is meant for is mentioned.

The second section gives the overall description of the project like the type of environment this software will run on and the specifications it requires.

2.0. Overall Description

We are designing Backup/Restore utility similar to Linux Backup/Restore and after implementing this utility it will work across network. It will backup level 0 and level 1 dump. It will allow selective restore of a given file or directory. SSH will be used to save backups on remote server and to restore backups so SSH has to be enabled on both type of devices.

2.1 System Environment

This utility will have two actors, the user and the server. User will be client on which this utility will be used. It's up to user whether he/she wants to save backup locally or on server. In case, server is used, a constant connection should be maintained between these two PC's.

2.1.1 Hardware

Local PC whose files will be backed up, Remote Server that stores Backup Files, high speed and reliable network connection (100/1000 Mbps link speed) between this two PCs.

For a PC acting as a server, the response time for a online request should not exceed 2-4 secs. Also the server PC should be powered on 24x7 in order maintain reliable backup/restore utility.

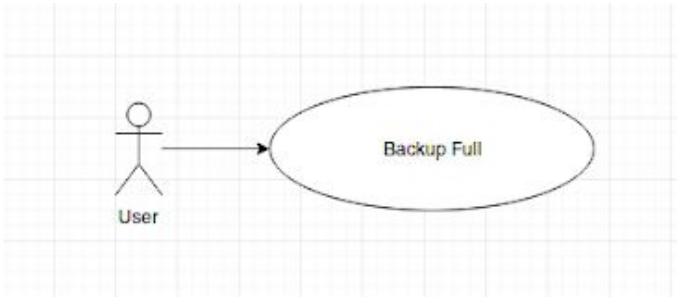
2.1.2 Software

The Backup/Restore Utility can run on any recent version of Linux, such as Ubuntu, Debian, Fedora etc.

Other dependencies (rsync, cron, fswatch, etc.) will be installed automatically (if not installed).

2.2 Functional Requirements Specification

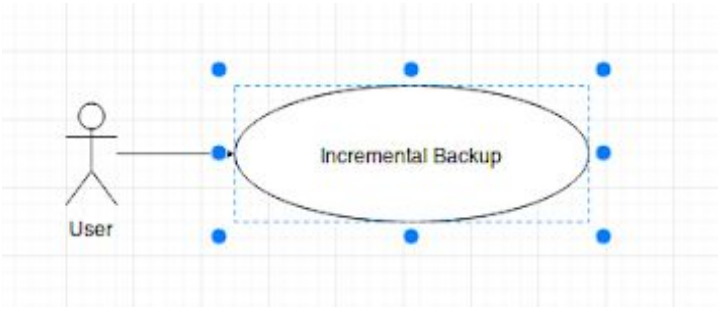
1. **Backup Full**



Description : User requests for full backup.

When a full backup is requested by user this utility will perform a complete backup of the system and store it on local/external/server hard disk. The choice of location is upto the user.

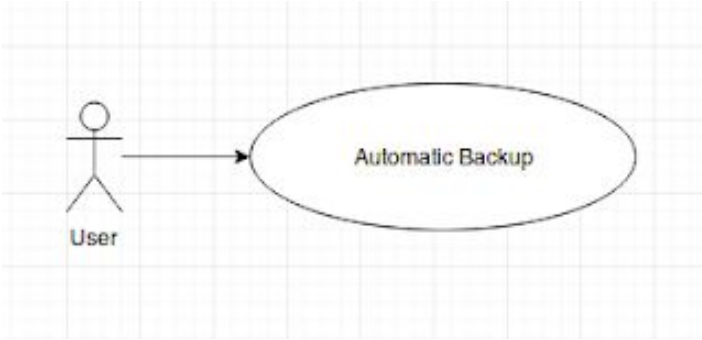
2. Incremental Backup Full



Description : User requests for incremental backup.

When a incremental backup is requested by user this utility will perform a backup of the files that are updated since the last full/incremental backup and store it on local/external/server hard disk. The choice of location is upto the user.

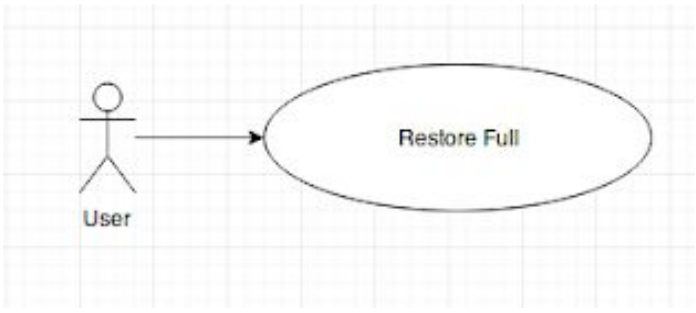
3. Automatic Backup



Description : Utility will automatically start a backup.

Automatic Backup will be initiated when the size of updated files will exceed a certain size (tentatively 5 GB) for an incremental backup and will perform a full backup once every 5 incremental backup. User will have option to overwrite this manually call a backup but this will not affect rest of the backup and will be counted as one incremental backup in case of an incremental backup. Again the choice of saving location will be upto user and can be modified any time but will be at affect after next full backup.

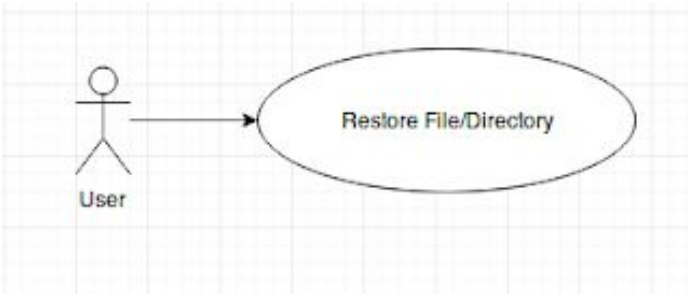
4. Restore Full



Description : User requests for full restore.

When a full restore is requested by user this utility will perform a full restore for selected restore point.

5. Restore File/ Directory



Description : User requests for file/directory restore.

When a this option is requested the user will have to select a restore point from list of backups and then the select the file/directory that is to be restored.

2.3 Non-Functional Requirements Specification

1. The user will be able to view list of all the backups that are stored.
2. The user will be able to delete a backup.
3. The system will automatically manage the space on the saving location by deleting older full backups and incremental backups accordingly.