Project Title: Linux backup and Restore App
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Team Leader: Fahim San
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Project Objective: Backup disk and partitioning data from original storage and restore image data to storage(Cloned storage)

Project Chapter:

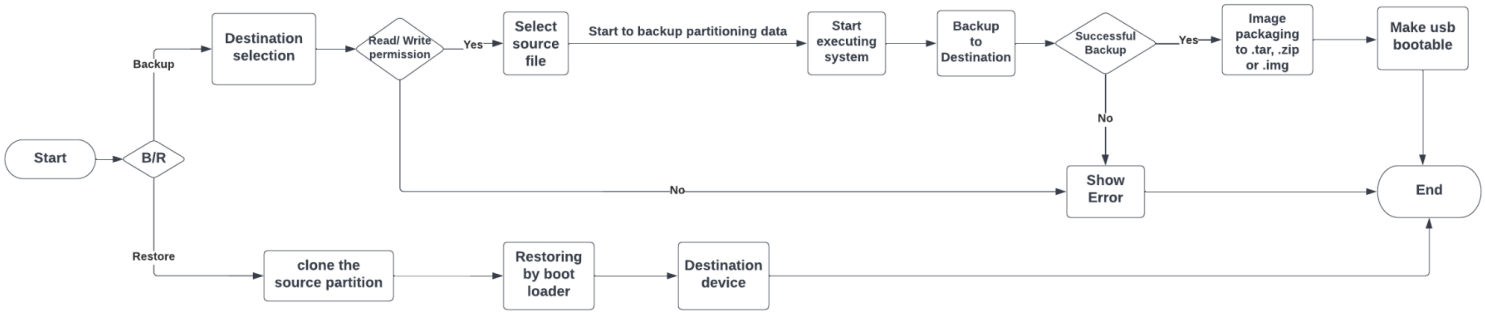
1. Backup data from pc to a pendrive
2. Make the data bootable
3. Restore all the data to another pc (via boot pendrive)

Project Schedule:
Project Schedule (Linux Team)
N.B: Project Schedule might change. If change is needed, permission will be taken.

Project Requirements:

1. Linux (***works on CentOS 7 and Miracle Linux 8***)
2. Qt Creator (Cross platform which simplifies GUI application development)
3. Live USB stick, DVD or pendrive.

Block Diagram:



System Overview

1. **GUI (graphical User Interface):** The program has a very simple yet effective User interface. There are four buttons: Start, Backup, USB selection and Quit.

2. **Backup:** Using rsync command, we choose the source and destination file. Then the file get copied from source to destination

3. **System Program:** C++ codes with some conditions to make the whole system executable only by clicking.

4. **Boot Loader:** While copying data from source to destination(pendrive), the data is covert as bootable.

5. **Restore:** After rebooting, the data get restored to the desired destination (pc/OS)

6. **Partitioning:** Read the original partition structure and rebuild it to the clone destination

7. **Image packaging:** Archive OS files into some files to tar,zip, img, whatever.

8. **Installer:** The Installer will install the application by clicking on it.

User manual:

N.B: The user must **FAT format** the **USB** drive before the backup process.

Backup process:

1. Download the installer (.run file)

2. Change the permission as executable.

3. Next, click on the .run file

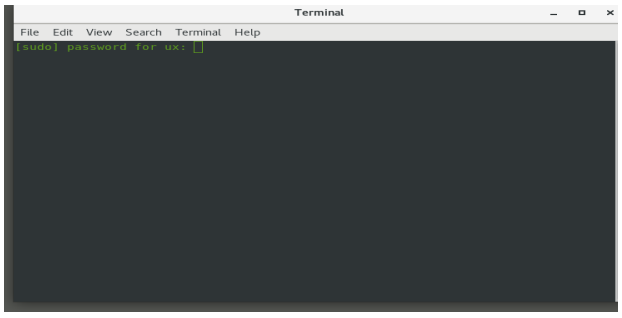
4. **The installer will open:**
    A. Click next
    B. Change directory (if you wish) -> next
    C. Select component (BackupApp) ->next
    D. Agree on license via selecting checkbox -> next
    E. Click install
    F. Finish

5. Go the directory (selected directory in the installer process 4(B))

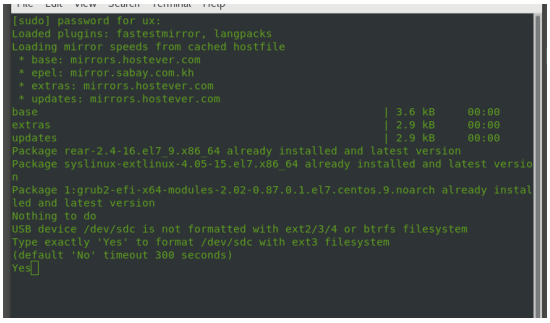
6. Click on the application icon

7. The UI will show up. Click on your desired operating system to backup (which you are using).

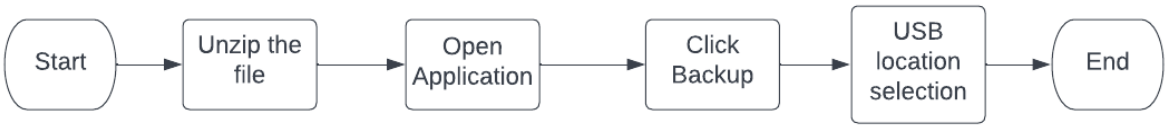
8. Click the Backup button with **root password** in the terminal



9. Type ‘Yes’ to rear format the selected USB drive. Else type ‘No’. (Check USB path)



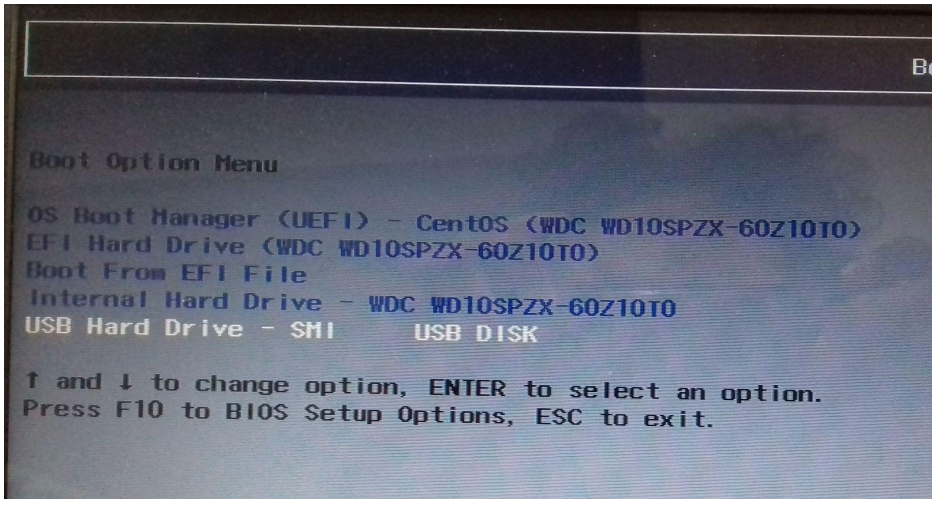
The backup process diagram:



Restore process:

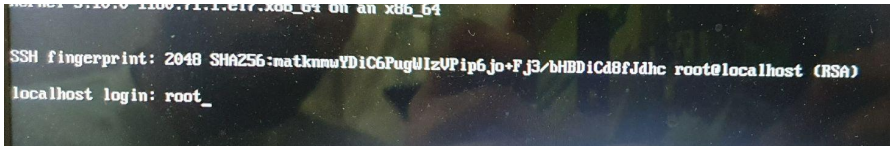
1. Restart the pc while attaching the USB driver and go to the BIOS menu using BIOS keys. (BIOS keys may differ in different pc brand)

2. Select USB Hard Drive

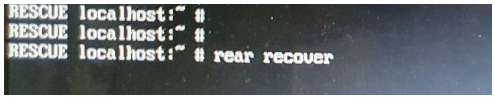


3. Select “Localhost” and the select “backup”

4. Write “root” in the localhost login.

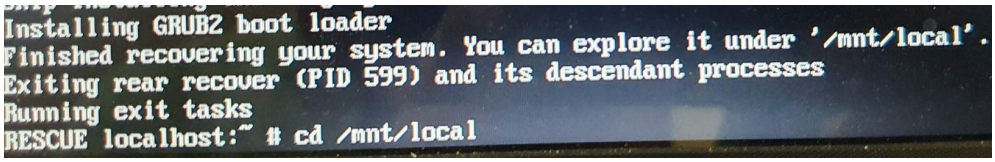


5. Write “rear recover” in RESCUE localhost



6. Enter 1 each time the message ‘default “1” timeout 300 seconds’ shows up

7. Type Rescue localhost: cd /mnt/local



8. Then write “reboot” in RESCUE localhost:/mnt/local

After rebooting, please remove the USB.

Note: If while in the BIOS, the pendrive is not found, then enable the legacy mode on the BIOS setting. Most computers nowadays have UEFI default in settings.

Note: The size of the source pc’s hard disk should be the same or smaller than the target pc’s hard disk.

Limitations:

1. The target pc gets the size of the hardisk of the source pc and the extra memory of the hardisk remains unused in the target pc.
2. In rescue, some inputs need to be given manually.
3. **Will work on same system only**, (UEFI to UEFI / BIOS to BIOS)