**Work- Case №4**

*Performed by students of the group РПЗ 93-Б*

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**Task 1:**

1. **Package** - is a special format archive that contains all the binary and configuration files needed by the application, information about how they should be placed in the file system, information about the package's dependencies, and a list of actions that need to be performed during the installation process. You can open any package yourself with the help of an archiver and see what is inside it.

**Repository** - is all package files belonging to one distribution (for example, Fedora), one version of it (for example, 16), that is, it is a huge repository of packages that is located on the Internet and which you can easily use.

1. **Package manager** - is a set of software in Linux that installs, configures, removes, and updates both individual packages (programs) and the entire system.

Some of the most famous package managers are:

* Yum and RPM on Red Hat-like systems;
* dpkg - on Debian-like systems;
* Pacman - in Arch Linux;
* Portage and Paludis are in Gentoo.

1. Yum (Yellow dog Updater, Modified) is an open source package manager for Red Hat-like systems. It was created in order to facilitate the process of updating the system, taking into account the relationship of packages. Also, Yum searches for RPM packages in repositories, installs them, monitors dependencies between packages, removes unused packages, and downgrades (rolls back a package version to a previous one).

By default, the manager is managed through the console, but it is possible to install additional components to work through the graphical interface (PackageKit).

1. DPKG (Debian Package) is the package manager for Debian-like systems. Allows you to get information about .deb packages, as well as install or remove them.
2. APT (Advanced Packaging Tool) is a utility on Debian-like systems that installs, updates packages, and tracks their dependencies. The purpose of creating the program was to automate the process of package management, in particular, updating and maintaining dependencies, which, in the case of direct work with the dpkg manager, took place manually. Packages are directly manipulated using the apt-get program.
3. RPM (RPM Package Manager) is the RPM package manager for Red Hat-like systems. Allows you to install, uninstall, and update software. Among the main advantages of this manager should be noted:

* The simplicity of the process of updating, removing packages;
* Ability to verify GPG signature and checksum to verify the integrity of the package.

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**Task 2:**

1. **Synaptic** is a more advanced application installation and removal system than the Software Center. Even so, the environment is graphical and very powerful, and it has full control over the applications that are installed on the system, their dependencies, and the various package versions that can be installed according to need. As of Ubuntu 12.04 Synaptic is not installed by default and if we want to use it we must install it from the Software Center by searching for Synaptic.

To install a package, we will select a category, right-click on the desired package and select Mark for Installation or we will double-click on the package name. This way we will mark all the packages that we want to install on the system and click the Apply button to start your installation. Synaptic will only download the necessary packages from the repositories on the web or from the installation CD.

You can also use the search button to find the packages we want to install. By clicking on this button, we can search for programs by name or description. Once the program we want to install is found, we double click on it to install it. If we want to uninstall a program, all we have to do is right-click on it and choose Uninstall o Uninstall Completely.

In all cases, the changes will take effect after we click the "Apply" button.

Synaptic Manager, like the Software Center, takes care of resolving package dependencies for applications to work properly. In the same way, you can configure it to install recommended packages that, without requiring the application, can perform other additional functions.

1. In order to find out all the installed packages, we will use the dpkg-request program, which will be responsible for listing all the packages we have installed. The command to execute is the following:

**dpkg-query -W -f='${Installed-Size}${Package}\n' | sort-n** .

**3)** Cleaning up an Ubuntu 20.04 system should start with finding out which files are consuming the most disk space. The ncdu program will help you with this. It's a pseudo-graphical console utility, but I like it the most. First you need to install it. To do this, run in the terminal:

**sudo apt install ncdu**

Then run the program:

**ncdu /**

After the analysis is completed, you can see which files take up the most space on your hard drive. You may suddenly find that logs or junk files in your home folder take up a lot of space. You can open folders with the Enter key, navigate through them using the up and down arrows, and delete unnecessary files right here using the Delete button.

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**4)** Open the Synaptic package manager, click the Status button, then open Not installed (configuration files left). Here will be those packages that remained in the system after an update or incomplete removal. Check the boxes next to all such packages, and select the Mark for complete removal option.

1. APT (Advanced Package Tool) - package manager, can handle the installation and removal of software on Debian, Slackware, and other Linux distributions. Below are some simple usage examples:
2. Refresh

This option is used to install the latest versions of all packages currently installed on the system. Packages currently installed with new versions are extracted and updated; under no circumstances are currently installed packages removed or packages that have not yet been installed, extracted and installed. To update, enter the following command:

**sudo apt-get upgrade**

1. Dist Upgrade

In addition to performing the upgrade function, dist-upgrade also intelligently handles dependency changes with new package versions. If necessary, it will try to update the most important packages at the expense of the less important ones. To do this, enter the following command:

**sudo apt-get dist-upgrade** .

**Task 3:**

Audacious Audio Player 4.0.2 on Ubuntu Linux. Audacious is a free advanced audio player for Linux Ubuntu and many other UNIX compatible systems. It focuses on low resource usage, high audio quality, and support for a wide range of audio formats. It was originally based on Beep Media Player, which in turn was based on XMMS.

Users can drag and drop folders and individual song files, search for artists and albums across your entire music library, or create and edit their own custom playlists. Listen to CDs or stream music from the Internet.

Ubuntu users can install Audacious 4 via PPA. To add this PPA and install Audacious on Ubuntu Systems, simply run the following commands in a terminal:

**sudo add-apt-repository ppa:ubuntuhandbook1/apps**

**$ sudo apt-get update**

**$ sudo apt install audacious audacious-plugins**

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**Task 4:**

"**Application Manager**" is included in the standard build of Ubuntu and does not require additional installation. Therefore, before starting the procedure, make sure that the program is definitely missing. To do this, go to the menu, try to search and find the necessary tool. If the application manager is still missing, you can enter the following command in the console in order to install it:

**sudo apt-get install software-center.**

If we want to get more detailed information about the application, for example, information about installation plugins or ratings and user comments, we can view all this information by clicking on "More information". After the installation of the application is completed, the "Install" button will automatically become "Uninstall" and from here we can remove the application from the system.

**Conclusion:** During this work, I learned to install various packages and applications for the Linux operating system.