MODULE 5. SOFTWARE CONCEPTS
The plan

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1.Definition of software.

Software - is a non-hardware component of a computer,which makes computer hardware work.

2.Categories of software(differences,examples).

Software is divided in :
1.**System software** which includes operating system,device drivers,utilities and programming languages. Windows,Mac OS, Linux, printer driver, Kaspersky are examples of system software.
2.**Application software** which includes web browsers,word processing programs, spreadsheet and presentation software.Microsoft Word, notes for Mac, PowerPoint,Firefox, Microsoft Edge,are examples of application software.

Differences between application and system software are:
1.System software is used for operating computer hardware, while application software is used by users to accomplish specific tasks.
2.System software is installed on the computer when the operating system is installed. Application software is installed according to the users requirements.
3.In general, users doesn't interact with system software because it works in the background,but users interacts with application software.
4.System software can run independently, while application software depends on system software(they cant run without the presence of system software).

3.Programming software.

Is **debuggers** - programs to fix bugs,**compilers and interpreters** - programs that translate source code. Compiler translates it in a single run, while the interpreter does it line by line(which means commands by

commands). Compiled code runs faster than interpreted and the compiler shows us errors after translation,while interpreter display errors of each line by line and runs slower.

4.Utility software.

Is a programme,which makes special tasks, for instance antivirus program, disk defragmentation programme, formatting,system clean-up are all related to utility software.

5.Device drivers.
Is a programme, which connects peripheral devices with system unit.(provides interface for hardware, is hardware dependent). For instance you may need to install drivers for printers or scanners.

6.Operating systems(definition,tasks,types).

Operating system - is a program which acts as an interface between user and computer hardware,including the background of the screen which is called the top desk and top desk consists of icons,windows,menus and pointer.During the boot process the **OS kernel** is loaded into RAM.(kernel provides essential operating system services, such as memory management and file access). OS interacts with hardware, device drivers and application software to manage computer resources.

Tasks:
1.OS ensures that tasks can run simultaneously.
2.OS manages RAM by distributing enough space to launch a program and ensures that data doesn't leak from one program to another.
3.OS keeps track of the hard disk of the field and empty space.
4.OS establish communication between system unit and peripheral devices, if not they ask to install device drivers.
5.OS establish interface, such as the appearance of the desktop,menus,and toolbars. **User interface** refers to the standard procedures that users follow in order to interact with each other.

Types:
1.Desktop OS - type of OS, which accommodates one user at a time but allows multiple accounts,provides connectivity to wireless local area networks,offers a GUI designed for a keyboard and mouse input,file management tools,runs more than one application at a time.
2.Mobile OS - type of OS,which includes cellular communications, offers a GUI designed for touchscreen input, runs more than one application at a time,and file management tools.
3.Server OS - type of OS,which accommodates multiple simultaneous users,includes sophisticated network management and security tools,file management tools, and provides local area networking capabilities.

7.Software installation basics.

1.Visit the distribution site, read the Installation instructions and select the Download link.
2.If you are downloading from a trusted site and have antivirus software running,select the Run button.
3.Wait for the download to finish, the setup program included in the download starts automatically.
4.Read the license agreement and accept its terms to continue with the installation.
5.Select a folder to hold the new application. You can use the default folder specified by the setup program, or a folder of your own choosing. You can also create a new folder during the setup process.
6.Wait for the setup program to uncompress the downloaded file and install the software in the selected directory.When the installation is complete, launch the software to make sure it works.

8.Pros and cons of using open source and proprietary software.

Open source
Pros:
1.Open source software comes with a great advantage since it can be installed for free.
2.Open source software helps companies save time and money by providing ready to use software as a whole.
3.Many of open source programs are created to work with almost any type of platform, which helps extend your hardware life and avoid the need to constantly replace them.
4.With open source code companies have more control of their data.
5.Open source software is developed by a group of talented and skillful experts, so there are must no issues

As every coin has two sides, open source is also having **its cons**:
1.Not as user-friendly as commercial software.
2.Lack of extensive tech support. No one is getting paid for fixing your bugs. If your client or employee is suffering from bugs, you are literally on your own.

Proprietary software:

Pros:
1.Range of functionality
Proprietary software has usually been designed for monetisation. For this reason, the developer will have put a lot of effort into ensuring a great customer experience, making the software easy to use and packing it full of impressive functionality.
2.Customer support
If you have any problems with installation, updates or issues with functionality, you'll usually be able to access support quickly to resolve your issues. In fact, many companies offer 24/7 assistance including the option for live chat, making it easier than ever to access technical support when you need it.

Cons:
1.One of the biggest drawbacks of proprietary software is the **licensing fee**. Proprietary software is often limited to a single computer or network. This means that the license that you purchase will typically only be valid on a single device and cannot be shared between separate users.
2.With proprietary software, you are reliant on the program's developer for all updates, support, and fixes. Updates may be slow in coming, depending on the size of the development team, and it may take some time to address security holes or other problems.
3.Open-source software is typically patched to address security threats faster than proprietary programs, simply due to the source code's availability to the public.

9.Software protection:copyright,license agreements and software licenses.

License-an official document that gives someone permission to do or use something.
Copyright-is a form of legal protection that grants the author of an original work an exclusive right to copy,distribute,sell and modify that work.
License agreement - is a contract that allows someone to use and earn revenue from the property of the owner (the licensor).
Software license - agreement between a **software** author and a business or IT organisation that wishes to use their **software** products

There are two categories of software: public domain and proprietary:
Public domain software is not protected by copyright because the author has placed their program in the public domain. Public domain software may be freely copied,distributed and resold.
Proprietary software has restrictions on its use that are delineated by copyright,patents or license agreements.Based on licensing rights, proprietary software is distributed commercially,whereas some of it is free.
Commercial software - is distributed under a single-user or multi-user license that limits use to either one person or organization.
Freeware software - users can use for free of cost,within restrictions on the use limit.
Demoware software - is a trial version of software that has limits until you pay for it.
Shareware software - is a software with try-before-buy policy which is similar to demoware but with limitations.
Open source software - is a software which makes source code available for programmers who want to modify a program.

10.Basic maintenance: troubleshooting hardware/software problems in a computer.

1.**Search the Internet to find solutions,** because chances are that it happened to someone else and you can find help on the Internet.
2.**Look for software patches,** because software vendors may also fix bugs by small software updates which are called software patches.
3.**Undo any recent hardware or software changes,** because newly installed software may conflict with other software.
4.**Free up RAM by closing other open programs**, because every piece of software uses RAM and the more software that's running on your computer, the more RAM it uses.
5.**Shut down and restart your computer,** once the computer fully restarted,relaunch the application in question and see if the problem has been resolved.
6.**Boot up in safe mode,** because some problem with software may caused by OS settings or system problems. Safe-mode disabled non-critical applications and processes, which makes it easier to isolate problems.
7.**Uninstall software,then reinstall it.**
8.**Restart the software**,because software problem can stem from a conflict with other programs or simply from difficulties the software encountered when starting up.
9.**Scan for viruses and malware,** because they can cause software to freeze,crash or working entirely.

12.Definition of software piracy,types of software piracy.

Software piracy - is copying the **software** and sharing it with other people for free.
1.**Softlifting** - means sharing a program with someone who is not authorized by the license agreement to use it,often involves purchasing a single licensed copy of software and then loading the software onto several computers, in violation of licensing terms
2.**Hard disk loading** often committed by hardware dealers, this form of piracy involves loading an unauthorized copy of software onto a computer being sold to the end user.
3.**Client-server overuse** is when too many people on a network use one main copy of the program at the same time.
4.**Counterfeiting** means producing fake copies of a software, making it look authentic. This involves providing the box, CDs, and manuals, all designed to look as much like the original product as possible.

5.**Online piracy** is the fastest-growing form of piracy is Internet piracy. With the growing number of users online, and with the rapidly increasing connection speeds, the exchange of software on the Internet through these "warez" sites with cracked software.

13.Dangers of software piracy.

1. Pirated software is **more likely to crash,lose files and even corrupt files**, because it is cracked and this process affects its performance, making it different from the original.
2. If the **software malfunctions,**you will not be able to know this and it **may be detrimental to the quality of your work,** because you don't know who developed pirated software and where they came from.
3. You will not be able to do updating of the software, which can lead to malware attacks and it can become susceptible.
4. The company suffers losses in sales and has to retrench some of its employees.
5. Pirated software is designed with backdoors which give easy access to your device and networks.

14.State of the issue globally nowadays.

Software piracy has become a worldwide issue with China, the United States and India being the top three offenders.More than a quarter of software installed globally is in fact pirated software. Software piracy doesn't require a hacker or skilled coder. Any normal person with a computer can become a software pirate if they don't know about the software laws. With such a widespread impact, it's important to understand what software piracy is and the dangers it presents. Pirated software is sold in retail stores and online auctions. Often the packaging looks so realistic that buyers have no idea they have purchased illegal goods.

15.Preventive measures against using pirated software.

1.Legal protection. Letting consumers know that making copies is against the law helps prevent people from breaking piracy laws.
2.Product key - is a unique combination of letters and numbers used to indicate that products are not illegal copies.
3.Online verification. Some companies moved their software into the cloud and require online verification. Before using software, you must log into your account.
4.Tamperproofing. Some software have built-in protocols to shut-down the program if the source-code is modified.
5.Watermarking. Special marks,company logos are often placed on software interfaces to indicate illegal software.