



<b>SUBJECT &amp; GRADE</b>	Computer Applications Technology Grade 12	
<b>TERM AND WEEK</b>	Term 1 Week 3	
<b>TOPIC</b>	Systems Technologies: Software; Social Implications	
<b>AIMS OF LESSON</b>	This lesson aims to place concepts related to computer software into a real-world context, further developing the learners' ability to make informed choices regarding the suitability of applications. The lesson will also provide insights into environmentally friendly ways of using computer equipment and how the end user determines the interfaces for content delivery.	
<b>RESOURCES</b>	<b>Paper-based resources</b>	<b>Digital resources</b>
	<i>DBE Theory Textbook; Unit 2.1-2.2 (p. 21 – 35) (Use school issued textbook for the same content)</i>	<i>Links on the WCED ePortal OR The <b>E-RESOURCES</b> below has the actual URL to the websites</i>
<b>INTRODUCTION</b>	A computing device would be a dead brick to the end user if it were not for software that imparts practical meaning to machines. To make the most of these devices, we have to be able to navigate a myriad of software applications available from a variety of sources for a vast array of purposes. The understanding that the end user is often the reason for the content format and its look and feel could serve as a revelation, helping create better solutions for presentation of content. As anything made by humans, though, software may have flaws that can be exploited by criminals, and it is important to mitigate this through enhanced awareness of such threats.	
<b>CONCEPTS AND SKILLS</b>	<u>Systems technologies: Software</u> <ul style="list-style-type: none"> <li>• Software that enhances             <ul style="list-style-type: none"> <li>○ accessibility;</li> <li>○ efficiency;</li> <li>○ productivity</li> </ul> </li> <li>• Uses of common applications</li> <li>• Web-based applications vs installed applications</li> <li>• Interpret system requirements</li> <li>• Common software problems and upgrades</li> <li>• Risks of using flawed software</li> </ul>	<b>CAN YOU...</b> <ul style="list-style-type: none"> <li>• make a list of applications that make you or your friends much faster in the way you do things, compared to people not using them?</li> <li>• name applications that enable people with physical challenges to remain productive in spite of their disability?</li> <li>• prove that your web-browser can be used for more than just browsing the web?</li> </ul>

	<p><u>Social Implications of:</u></p> <ul style="list-style-type: none"> <li>• environmental issues</li> <li>• user-centred design in software applications such as: <ul style="list-style-type: none"> <li>○ website</li> <li>○ database form</li> <li>○ presentations</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• tell when a computer will not be able to run a certain application?</li> <li>• name the term for a software flaw?</li> <li>• give some hints and tips to help convey your message better in presentation of your content?</li> </ul>
<p><b>ACTIVITIES / ASSESSMENT</b></p>	<p><b>Activity 1</b></p> <p>Voice recognition and note-taking software are a boon to productivity for all end users, including those with disabilities. These and other types of software that make life easier are given a quick overview in the textbook. (DBE, 2019, pp. 76-78)</p> <p>Voice recognition technology creates a new relationship between humans and digital devices. We are making computers more human and having them interact with us the way we interact with other humans. (Kulshreshtha, 2020) Read about further interesting uses of voice recognition technology at the following link:</p> <p><a href="https://blogs.fireflies.ai/uses-of-voice-recognition-software/">https://blogs.fireflies.ai/uses-of-voice-recognition-software/</a></p> <p>After reading up on productivity software using the references above, test yourself by answering the following questions:</p> <ul style="list-style-type: none"> <li>• Give TWO examples of how software makes life easier for users with disabilities.</li> <li>• Explain what a software Personal Assistant is.</li> <li>• How can voice recognition be used for security purposes?</li> <li>• Explain the use of voice recognition in connection with video content.</li> <li>• Give TWO advantages of note-taking software.</li> <li>• Explain the advantages of Evernote over Notepad.</li> </ul> <p><b>Activity 2</b></p> <p>Common applications typically found on a personal computer and their uses would be like what is described in the textbook. (DBE, 2019, pp. 67-73)</p> <p>Based on what you have read in the textbook, answer the questions that follow:</p> <ul style="list-style-type: none"> <li>• List THREE features of word-processing software.</li> <li>• What are the advantages of using database over spreadsheet applications?</li> <li>• Which spreadsheet feature is not usually part of database applications?</li> </ul>	

- What is an address book and which software application is it found in?
- Why would one use presentation software instead of a word processor?
- Give TWO features of document management software.
- Make an argument for web browsing software being a "swiss-army knife" of all software.

### Activity 3

Long gone are the days when most applications had to be installed on the user's computer. Because of increased user mobility, the current trend is heavy on web-based applications. Although the practice of using web-based applications is on the increase, one must take their advantages and disadvantages into account, before making any decisions. The basics are explained in the textbook. (DBE, 2019, p. 68)

Read the real-world example article that evaluates both types of applications at the link below and answer the questions that follow:

<https://www.excellerate.com/products/check-in-system/checkin-features/web-based-vs-installed-software-pros-and-cons/>

- Which TWO advantages of web-based software are most important in your opinion?
- Give ONE reason to use an installed application instead of its web-based counterpart.
- Is Office 365 a web-based or installed application? Motivate.

Do the activity on page 74-75 of the textbook (DBE, 2019) for a wider variety of questions on the topic.

### Activity 4

System requirements are used to determine whether a given computer can run a software application. Read the information on pages 80-81 of the textbook (DBE, 2019) for an overview with an example. Real-world examples of system requirements are easily found on the web if you google for specific software.

- Download a sale catalogue from any of the online stores that sell computers.
- From the catalogue, select a computer that will be able to run the software at the link below: <https://support.activision.com/call-of-duty-warzone/articles/minimum-and-recommended-specs-for-call-of-duty-warzone>
- Explain what components, and why, in the computer you chose from the catalogue, enable the software at the link above to run.
- What is the difference between minimum and recommended system requirements?

- What is a possible disadvantage of going for the minimum instead of recommended system requirements when buying a computer?

### **Activity 5**

Software is written by humans and therefore it almost always contains small errors called bugs that may lead to unexpected behaviour in the program. Computer criminals prey on bugs and if they discover them before a software developer can fix them, these bugs can be weaponised as exploits and cause damages to the end user. (Please note that viruses and software bugs are not the same.)

Risks of using flawed software may be manifold as described in the article below:

<https://softwaretesting.news/what-is-the-real-impact-of-software-bugs/>

Along with the bugs, there are many types of problems associated with software, and the article at the link below gives you a sense of the scope of these problems:

<https://www.riceconsulting.com/home/index.php/General-Testing-Articles/the-20-most-common-software-problems.html>

While some bugs are found through testing software by the developer, the common practice is for the end users to report bugs to the developer through day-to-day use of the software. When the developer makes changes to the program code in order to fix a bug, the software is updated via a new version (build) or a patch.

Regular software updates are of utmost importance for system security, and they may not be neglected by end users and system administrators. Study the relevant textbook chapter on general information regarding software problems before answering the questions that follow. (DBE, 2019, p. 84)

- Give TWO real-world examples of how flawed software caused big problems.
- Explain how a bug is different from a virus.
- When is software considered obsolete and why is it important to avoid it?
- What are the possible security implications of software bugs?
- What is meant by read-only in the handling of files?
- Explain the process of correcting software flaws.

### **Activity 6**

Cloud computing was made possible with the advent of a mushrooming array of data centres all over the world. The sheer volume of production, operation and waste disposal of ICTs, including mobile electronics, is staggering. It is also set to grow exponentially in the coming years. This has an enormous negative effect on environment, and such byproduct of human activity should be mitigated in every

possible way. A way to address environmental damage is through responsible use of ICTs that is promoted in green computing, as described on page 12 of the textbook. (DBE, 2019)

Read an in-depth take on green computing as laid out at the link below, and answer the questions that follow:

[https://en.wikipedia.org/wiki/Green\\_computing](https://en.wikipedia.org/wiki/Green_computing)

- What is the purpose of a data centre?
- How much electricity is used by data centres?
- Give TWO negative effects of computers on environment.
- Define green computing.
- Explain how the following can promote green computing:
  - printing;
  - hibernating your PC;
  - disposal of computer equipment;
  - display technology;
  - cloud computing;
  - telecommuting.

### **Activity 7**

User requirements are considered right from the beginning and included into the whole software or content creation process when it comes to User-centred Design (UCD). These requirements are noted and refined through a variety of investigative methods, making the final product as user-oriented as possible.

For websites, for instance, we speak of four main User-centred Design elements (principles):

- visibility;
- accessibility;
- legibility;
- language

Read more about the purpose and process of UCD at the link below:

[https://en.wikipedia.org/wiki/User-centered\\_design](https://en.wikipedia.org/wiki/User-centered_design)

	<p>After reading about some advantages and examples of UCD that can be found on pages 87-88 of the textbook (DBE, 2019), try to answer the following questions:</p> <ul style="list-style-type: none"> <li>• What is the role of a scenario in UCD?</li> <li>• Why is data validation in a database application an example of UCD?</li> <li>• Explain TWO methods to improve website: <ul style="list-style-type: none"> <li>○ accessibility;</li> <li>○ legibility.</li> </ul> </li> <li>• How would you use white space in a presentation?</li> <li>• Describe a situation when using high-quality images in a document might NOT be in line with the principles of User-centred Design.</li> </ul>
<b>CONSOLIDATION</b>	<p>In this lesson we looked at concepts related to computer software with regard to its suitability for purpose, common problems and ways to address them. The lesson also provided insights into environmental issues that sprout from the use of ICTs all over the world. Finally, we learned how end users determine the interfaces used for presentation of content.</p> <p><b>NOTE:</b> The questions given with the activities above are used for consolidation purposes.</p>
<b>VALUES</b>	<p>Digital citizenship: safe and responsible use of technology by anyone who uses computers, the Internet, and digital devices to engage with society on any level.</p>
<b>E-RESOURCES</b>	<p>Barnott, G. (2020, January 27). What is the real impact of software bugs? Retrieved from Softwaretesting.news: <a href="https://softwaretesting.news/what-is-the-real-impact-of-software-bugs/">https://softwaretesting.news/what-is-the-real-impact-of-software-bugs/</a></p> <p>DBE. (2019). CAT Grade 12 Theory Book. Pretoria: DBE. Retrieved from <a href="https://bit.ly/catgr12theory">https://bit.ly/catgr12theory</a></p> <p>Kulshreshtha, N. (2020, January 20). 15 Uses of Voice Recognition Software Today. Retrieved from Fireflies.ai: <a href="https://blogs.fireflies.ai/uses-of-voice-recognition-software/">https://blogs.fireflies.ai/uses-of-voice-recognition-software/</a></p> <p>Minimum and Recommended System Requirements for Call of Duty: Warzone on PC. (2020, March 10). Retrieved from Activision.com: <a href="https://support.activision.com/call-of-duty-warzone/articles/minimum-and-recommended-specs-for-call-of-duty-warzone">https://support.activision.com/call-of-duty-warzone/articles/minimum-and-recommended-specs-for-call-of-duty-warzone</a></p> <p>Rice, R. (n.d.). The 20 Most Common Software Problems. Retrieved from Riceconsulting.com: <a href="https://www.riceconsulting.com/home/index.php/General-Testing-Articles/the-20-most-common-software-problems.html">https://www.riceconsulting.com/home/index.php/General-Testing-Articles/the-20-most-common-software-problems.html</a></p> <p>Various. (n.d.). Green Computing. Retrieved from Wikipedia.org: <a href="https://en.wikipedia.org/wiki/Green_computing">https://en.wikipedia.org/wiki/Green_computing</a></p>

Various. (n.d.). User-centered design. Retrieved from Wikipedia.org: [https://en.wikipedia.org/wiki/User-centered\\_design](https://en.wikipedia.org/wiki/User-centered_design)

Web-based vs Installed software – Pros and Cons. (n.d.). Retrieved from Excellerate.com: <https://www.excellerate.com/products/check-in-system/checkin-features/web-based-vs-installed-software-pros-and-cons/>