IMPACTS OF COMPUTING

After completing this lesson, you will be able to:

- understand and apply safe and responsible use of computers (responsible use of hardware, appropriate use of software, and safe use of digital platforms like data searches, social networking, etc.)
- analyze the beneficial and harmful effects of computing innovations such as social networking, fake news, etc.
- evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.

UNIT INTRODUCTION

Computers are an essential part of both our personal and professional lives in the modern digital world. They make it simple for us to interact with others, get information, and complete a variety of jobs. To safeguard your privacy, data, and general wellbeing when using computers, it is crucial to put safety and security first.

6.1 Safe and Responsible Use of Computer

An essential component of our contemporary digital world is the safe and ethical use of computers. Computers now play a crucial role in every aspect of our life, from personal to professional uses, and their influence on society is evident. However, it is imperative to stress the significance of using computers safely and responsibly given their great power and connectivity.

Fig.6.1Safe and Responsible Use of Computer

The main focus of computer safety is safeguarding a computer system's hardware and software components. It entails providing protection from material loss, data loss, and cybersecurity risks. For one's own wellbeing, online security, and the general wellbeing of our networked society, it is essential to use computers safely and responsibly. The use of computers carries a number of hazards.

6.1.1 Keep Your System Updated

Consistently update the computer operating system, software, and antivirus software. Important security areas that assist protect the computer system from flaws are frequently included in updates. Computer can be protected against malware with security software. Maintain the most recent virus definitions in the security program.

Fig. 6.2 Keep Your System Updated

6.1.2 Use strong and unique password

For all online accounts, create strong, one-of-a-kind passwords. A mix of letters—both capital and lowercase—numbers, and special characters make up a good password. Do not use data that can be easily guessed, such as names or birthdays. Turn on two-factor authentication for all of your online accounts.

Fig. 6.3 Use strong and unique password

Never reveal your passwords to anyone; keep them private and secure.

6.1.3 Beware of phishing Attacks

Receive emails, messages, or pop-ups asking for your personal info or login details, be careful. Sometimes, scammers pretend to be official and try to trick you. Don't click on weird links and check if the sender's email address looks right. To protect your computer from viruses and bad software, use good antivirus software. Keep it updated and do regular scans.

Fig. 6.4 Beware of phishing Attacks

6.1.4 Backup your Data

Always save copies of your important files and information in a safe place, like an external hard drive, the cloud, or another secure location. This ensures that even if your computer stops working or something unexpected happens, you would not lose your important data. If your computer gets stolen or damaged, having backups will help you recover your files.

6.1.5 Use Secure Wi-fi Connection

Use strong passwords on protected Wi-Fi networks when accessing the internet. Avoid using public Wi-Fi networks for private tasks like online banking since they are more susceptible to hackers.

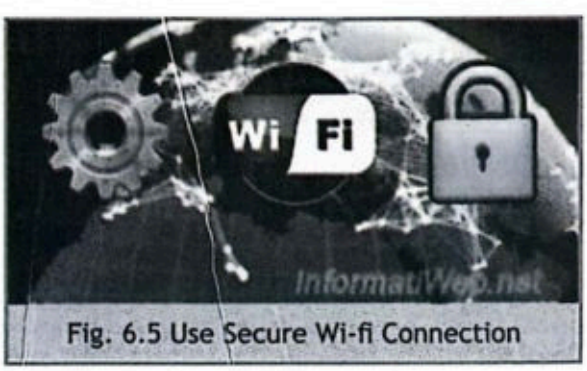

Fig. 6.5 Use Secure Wi-fi Connection

6.1.6 Be careful what you download

Download apps, programs, and files only from reliable websites. Downloading files from untrusted websites should be avoided as they can include viruses or malware. Be especially careful about opening attachments in emails from people you do not know.

6.1.7 Privacy settings

Review and adjust privacy settings on your computer social media accounts, apps, and devices. Limit the amount of personal information you share publicly. Keep your computer physically secure. Lock your computer when you are away from it and ensure that your workspace is inaccessible to unauthorized individuals. Stay informed about the latest cybersecurity threats and best practices.

Fig. 6.6 Privacy settings

6.1.8 Be Mindful of Public Wi-Fi

Public Wi-Fi networks may not be as secure, leaving your data open to interception. When using public Wi-Fi, avoid accessing private data or doing financial activities online. If necessary, encrypt the wifi connection using a virtual private network (VPN).

6.1.8 Practice Safe Online Shopping and Banking

Only use secure websites with URLs beginning with "https://" and a padlock symbol when making purchases or sending money online. Take care not to divulge unneeded personal details.

Fig. 6.7 Practice Safe Online Shopping and Banking

6.2 Responsible use of hardware and software

It is important to address security, efficiency, sustainability, and ethical considerations when using physical computer equipment. In our technologically advanced society, responsible hardware use has grown more crucial whether it comes to smaller, more personal devices like smartphones or laptops or larger systems like servers and industrial machinery. To ensuring that technology benefits people and society while causing the least amount of harm, responsible usage of software is crucial.

6.2.1 Responsible hardware use

This refers to the use of physical computer devices in a way that prioritizes security, sustainability, effectiveness, and ethical issues. A thorough discussion of prudent hardware use is provided below.

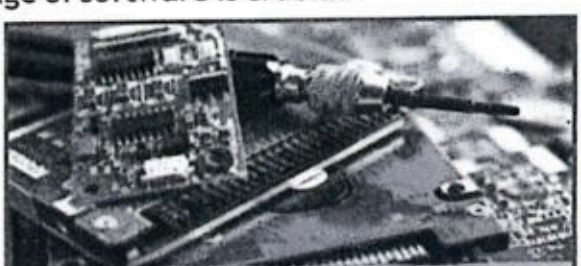

Fig. 6.8 Responsible hardware use

Extended Lifespan of Hardware

An ethical way to lessen technological waste is to extend the life of devices. This can be achieved by giving gadgets the correct care, preventing physical harm, and keeping them free of wreckages and dust. The lifespan of hardware is also increased by routine software upgrades and security patches.

Data Security and Privacy

Safeguarding sensitive data requires the use of encryption, strong passwords, and two-factor authentication. To address security flaws that could be used by malicious actors, software and firmware updates must be conducted on a regular basis. This safeguards not just your personal information but also stops hardware from being utilized in hacks.

Sensible Upgrades

When improving your computer or other electronic devices, it is important to be responsible. Ask yourself if the upgrade is really needed and think about how it might affect the environment. Do not upgrade just because there is a new version available - doing that can create more waste. Upgrading can be good if it makes your device work better and keeps it safe from online threats.

Fig. 6.9 Sensible Upgrades

Safe Hardware Use

Using hardware responsibly also involves ensuring safety. Following manufacturer guidelines for proper usage, handling, and maintenance of hardware prevents accidents and injuries. This is particularly important in industrial settings where improper hardware use can have serious consequences. Use hardware only for its intended purpose. Do not use hardware for anything that it is not designed to do.

Ethics in Hardware Use

Ethical issues are included in responsible hardware use. This entails abstaining from donating, paying attention to intellectual property rights, and not using hardware for illegal activities. Use only authorized software and hardware. Do not use it to visit websites that have been restricted by the IT authorities, such as PTA in Pakistan, or to download or share unlawful content. When using hardware that is not your own, be respectful of the owner's privacy and property. Do not install any software or make any changes to the settings without permission.

6.2.2 Appropriate and Responsible use of software

Responsible use of software is essential to ensure that technology benefits individuals and society while minimizing harm. Responsible software use requires a combination of legal compliance, ethical considerations, and awareness of the broader societal impact of technology. By following these principles, individuals and organizations can contribute to a safer, more ethical, and sustainable digital environment.

Fig. 6.10 Use software properly and responsibly

The following considerations must be made for proper and responsible software use.

Observing the Law

Fig. 6.11 Observing the Law

Always abide by all applicable legal requirements, including copyright and intellectual property laws, when using software. Respect software licenses and follow their guidelines. Using software not in a way that violates copyright or other intellectual property laws

Ethical Use

Avoid using software for unethical or malicious purposes, such as hacking, spreading malware, or engaging in cyberbullying. Consider the potential ethical implications of software use and strive to make choices that align with moral values. Using software only for its intended purpose and not use to harm or exploit others.

Privacy and Data Protection

When using software, be mindful of others and your own privacy. Pay attention to the personal information share and how it is used. Software privacy settings should be familiarized and set up according to the preferences. Respect the privacy rights of individuals when developing or using software that collects or processes personal information.

Intellectual Property

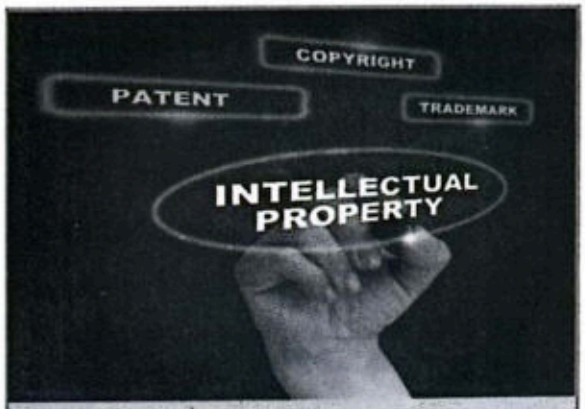

Fig. 6.12 Intellectual Property

Respect intellectual property rights when using or developing software, including patents, trademarks, and copyrights. Give due recognition to those who created and contributed to open-source software.

Proper Licensing

Be aware of the software's licensing terms and obey them. This includes understanding open-source licenses, commercial licenses, and their requirements.

User Education

Inform yourself and others about using software responsibly, including ethical issues, digital literacy, and the best practices for cybersecurity. Inform the proper authorities or service providers of any unauthorized use of software or online platforms.

6.2.3 Irresponsible use of software

- Using a program to break into someone else's computer.
- Using a program to disseminate malware.
- Employing a program to produce child pornography.
- Cyberbullying someone by using a program.
- Using a piece of software to steal someone else's ideas.

Teacher's Guide

An educational webpage on internet safety is available to students through the National Cyber Security Alliance. It includes advice on how to use software and hardware safely as well as techniques for utilizing digital platforms safely, such as netiquette and preventing cyberbullying.
(https://staysafeonline.org/)

6.3 Safe use of digital platform

Safe use of digital platforms is vital in today's interconnected world. Whether you are using social media, online banking, email, or any other digital service, it is important to follow best practices to protect your personal information and privacy.

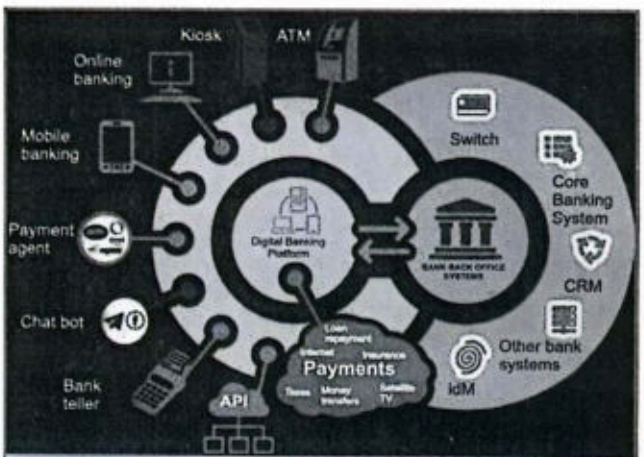

Fig. 6.13 Safe use of digital platform

By following safety guidelines, you can significantly enhance your online safety and minimize the risks associated with using digital platforms. It is important to remain vigilant and proactive in protecting your digital identity and personal information. The safe use of digital platforms is the practice of using them in a way that protects your privacy, security, and well-being.

6.3.1 Safe use of data searches

Using digital platforms for data searches can be a valuable tool, but it is important to prioritize safety and privacy. Stick to well-known and trusted platforms for your data searches. Popular search engines like Google, Bing, and data repositories like government websites or academic databases are usually safe choices. Avoid sharing sensitive personal information when conducting searches. Most searches do not require you to provide your personal details.

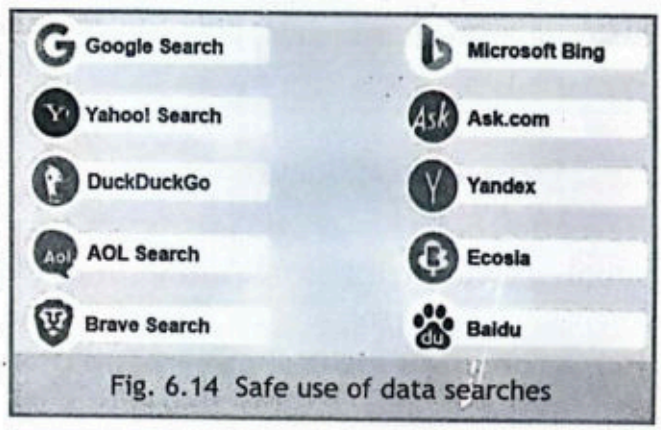

Fig. 6.14 Safe use of data searches

Avoid entering sensitive personal information (e.g., Social Security numbers, credit card details) into search engines. If you must search for such information, use secure and official websites.

6.3.2 Safe Use of Social Networking

Safe use of digital platforms like social networking is essential to protect your personal information, privacy, and overall online security. Social media can be a great way to connect and share, it is important to use these platforms responsibly and safely to protect your personal information and privacy. Only share personal information that you are comfortable sharing with the public. Be especially careful about sharing financial information, medical information, or your home address.

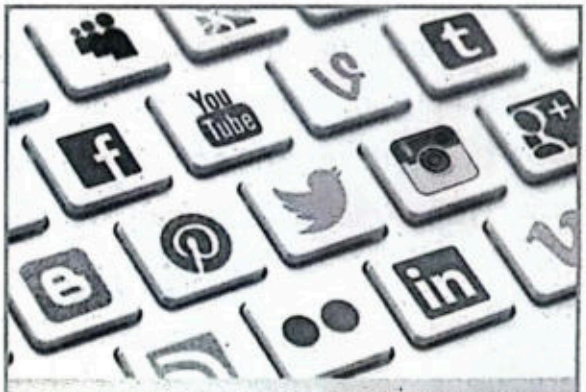

Fig. 6.15 Safe Use of Social Networking

6.4 Laws to protect user privacy and intellectual property

In the digital age, where private information and original work are shared and kept online progressively, rules protecting user privacy and intellectual property are crucial. In order to protect people's rights and promote a just and progressive society, these laws are essential.

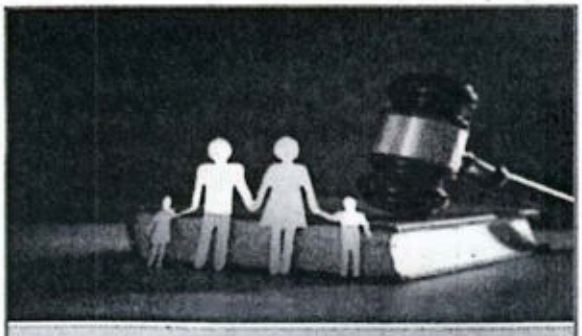

Fig. 6.16 Protection of Individual Rights

6.4.1 Protection of Individual Rights

Protection of individual rights means safeguarding a person's personal information, freedom, and privacy. It ensures that no one can misuse or share their data without permission and that everyone is treated fairly and equally. Keeping personal details like phone numbers, addresses, and online activities safe from being shared or accessed without consent.

6.4.2 Prevention of Unauthorized Use

Prevention of unauthorized use means stopping people from using something like ideas, inventions, or personal information without the permission of the rightful owner. This protects both privacy and intellectual property. It ensures that no one can copy or use someone else's work (like books, music, or software) without permission.

Fig. 6.17 Intellectual Property

6.5 Computing innovation

Computing innovation means creating and using new or better computer stuff like processes, technologies, systems, and software. This can really change how society does things and how people live. It's all about making computers and related technologies better by coming up with new ideas or ways of doing things. This includes making improvements to computer hardware, software, networking, and using computer technology in different parts of our daily lives and industries.

Hardware Advancements:

Innovation in computing often begins with the development of new hardware components and systems. This includes the creation of faster and more energy-efficient processors, high-capacity storage devices, and cutting-edge networking technologies. These advancements enable the foundation for further innovation in software and applications.

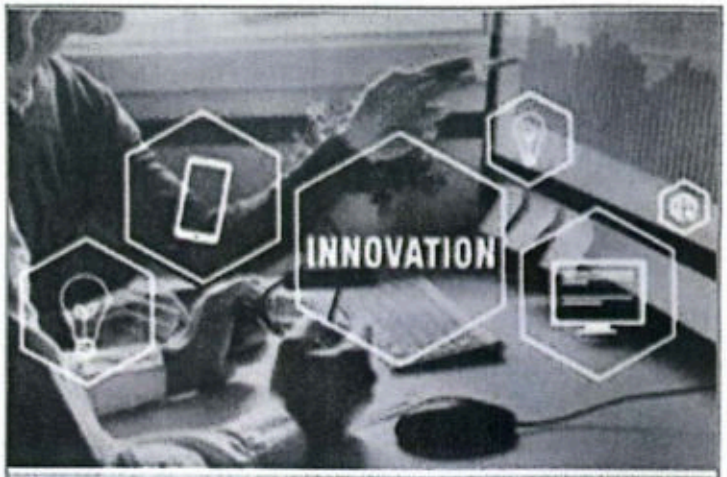

Fig. 6.18 Computing innovation

Software Development:

Computing innovation also heavily relies on the creation of innovative software solutions. This ranges from operating systems and productivity software to specialized applications in fields like artificial intelligence (AI), machine learning, data analytics, and more. Software innovations often lead to enhanced user experiences and improved efficiency.

Fig. 6.19 Software Development

Teacher's Guide

Understanding the timeline of computer innovation and helps students see how technology has evolved, from the first computer in the 1940s to modern advancement like artificial intelligence and cloud computing. How this progression highlights the impact of computers on our daily lives and future possibilities.

Emerging Technologies

Revolutions in areas like artificial intelligence, blockchain, quantum computing, virtual reality (VR), and the Internet of Things (IoT) are constantly pushing the boundaries of what is possible in computing. These emerging technologies open up new avenues for innovation, creating opportunities for entirely new applications and industries.

Human-Computer Interaction (HCI):

Innovations in HCI focus on improving the ways humans interact with computers and digital systems. This includes advancements in user *interfaces*, accessibility features, and the integration of natural language processing and gesture recognition into everyday computing.

Fig. 6. 20 Computer-Human Interaction

6.5.1 Benefits of computing innovation

Nearly every element of our life has been profoundly and significantly impacted by technological advancements. Here are a few positive outcomes of computer innovation:

Increased productivity

The ability to automate many operations because to advancements in computing has enhanced efficiency in corporations and organizations. For instance, today's manufacturers use robots to carry out hazardous or repetitive activities, while software is used to automate accounting and other administrative work.

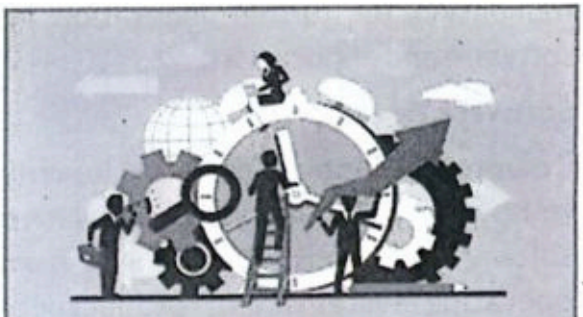

Fig. 6.21 Enhanced Efficiency

Improved Communication:

The development of the internet and related technologies has completely changed how people communicate. Through email, social media, video calls, and other internet platforms, we may now interact quickly with individuals anywhere in the world.

For instance, email, text messaging, and video conferencing have made it feasible to communicate with loved ones, work together on projects, and conduct worldwide commerce.

Information Access

The internet provides easy access to a vast amount of information. This has empowered individuals to educate themselves, stay informed, and conduct research more effectively.

Medical Advancements

Fig. 6.22 Medical Advancements

Computing innovations have greatly advanced the field of medicine. From medical imaging to drug discovery, computers have accelerated research and improved patient care.

Computing innovations have been used to develop new medical treatments, diagnose diseases more accurately, and deliver personalized care. For example, artificial intelligence (AI) is being used to develop new cancer drugs, and virtual reality (VR) is being used to help people with phobias and other mental health conditions.

Transportation

Innovations in computing have led to the development of autonomous vehicles, which have the potential to make transportation safer and more efficient.

Entertainment

Computer advances have completely changed the gaming and entertainment industries. The entertainment experience has been improved through high-quality graphics, virtual reality, and interactive narrative.

Education

Education has been transformed by computers and the internet. Education is now more readily available to people all around the world thanks to online courses and e-learning platforms. Education may now be delivered more effectively and efficiently thanks to advances in computing. For instance, online learning platforms let students' study at their own pace, and immersive learning experiences can be created with virtual reality.

6.5.2: Harmful effects of computing innovation

Fig. 6.23 Harmful effects of computing

While computing innovation has brought about numerous benefits to society, it has also been associated with some harmful effects. It is important to recognize that these harmful effects are often the result of how technology is used rather than inherent flaws in computing itself. Here are some of the harmful effects of computing innovation:

Privacy Concerns

Computing innovation has led to the collection and analysis of vast amounts of personal

data, often without individuals' informed consent. This has raised serious concerns about privacy, data breaches, and the potential for misuse of personal information. Computing innovations have made it easier for companies and governments to collect and store personal information about individuals.

Digital Addiction

The widespread use of smartphones, social media, and online entertainment has led to concerns about digital addiction and its impact on mental health. Excessive screen time and constant connectivity can lead to anxiety, depression, and social isolation.

Environmental impact

The production and use of computing devices has a significant environmental impact, including the emission of greenhouse gases and the production of electronic waste.

Fig. 6.24 Environmental Impact

It is important to be aware of the potential harmful effects of computing innovations so that we can use them in a responsible way. We need to find ways to protect our privacy, prevent cybercrime, and reduce our dependence on technology.

6.6 Malicious software and Key concept

Malware

Malicious software designed to harm or exploit computers or networks are called malware. Example of malwares are computer virus, ransomware, or trojan horse.

Fig. 6.25 beware of malware

Phishing

Attempting to trick individuals into revealing sensitive information, often through fake emails or websites are called phishing. Example: A fraudulent email claiming to be from a bank, asking for login credentials.

Hacking

Unauthorized access or manipulation of computer systems or networks is called hacking.

Example: A person gaining unauthorized access to a company's database to steal information.

Spam

Unsolicited and often irrelevant or inappropriate messages sent over the internet, typically via email is called a spam. Example of spam is unwanted promotional emails or messages.

Spyware

Software that secretly collects user information without their knowledge or consent is called a software. Example of spyware is software tracking your online activities and sending the data to advertisers.

Fig. 6.26 spyware

Pharming

Redirecting website traffic to a fake site without the user's knowledge is called pharming. Example of Users intending to visit a legitimate banking site are redirected to a fraudulent site.

Cookies

Small text files stored on a user's device, containing information about their interactions with a website is called cookies. Example of cookies is saving login information or preferences on a website for a more personalized user experience.

Scams

Deceptive schemes designed to trick people for financial gain or personal information is called scam. Example of scam is email claiming you have won a lottery but asking for your bank details to transfer the prize.

Software Piracy

Unauthorized copying, distribution, or use of software without proper licensing is called software piracy. Example of software piracy is downloading a cracked version of a paid software instead of purchasing it.

Freeware

Software that is free to use without any payment is called freeware. Example of freeware is Mozilla Firefox, a free web browser.

Shareware

Software distributed on a trial basis with the option to purchase for full functionality is called shareware. Example of shareware is WinRAR, a file compression tool with a free trial period.

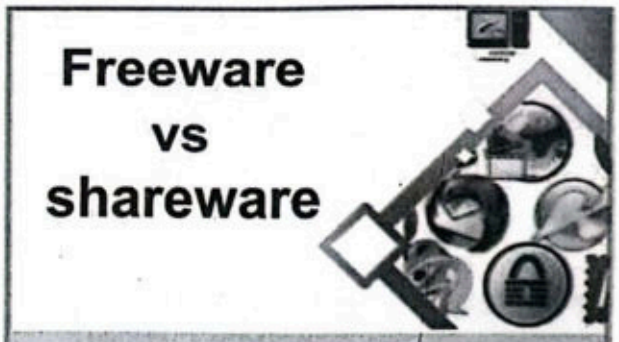

Fig. 6.27 freeware and shareware

Open Source

Software with a publicly accessible source code that anyone can view, modify, and distribute is called open source. Example of open-source software is Linux operating system.

6.7 Information privacy, system security, and usability trade-offs

Information Privacy

Keeping personal information safe and not letting unauthorized people access it is called information privacy.

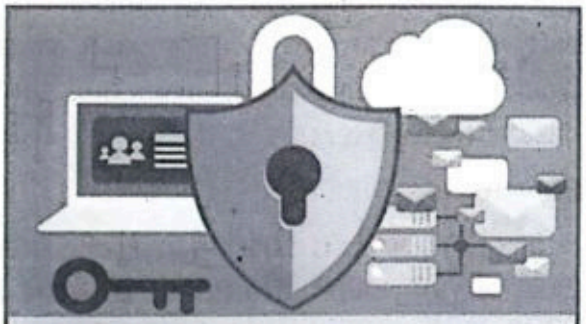

Fig. 6.28 System security

Tradeoff

To enhance privacy, you may need stricter controls and restrictions on accessing and sharing information. Example: Using complex passwords or encryption to protect your data.

System Security

System security refers to the measures and mechanisms implemented to protect computer systems, networks, and data from unauthorized access, attacks, damage, or theft. The primary goal of system security is to ensure the confidentiality, integrity, and availability of information and resources. Firewall, encryption, antivirus software and access control are examples of system security.

6.8 Disinformation and Fake News:

Disinformation and fake news are two terms that are often used interchangeably, but they have distinct meanings. Disinformation is false or misleading information that is deliberately spread to deceive people. Fake news is false or misleading information that is created to deceive people, but it is not necessarily done with the intention of harming them. The ease of spreading information on the internet has led to the propagation of disinformation and fake news. This can have serious consequences for public discourse and decision-making.

Fig. 6.29 Disinformation and Fake News

6.9 Social networking

Social networking refers to the practice of using online platforms and websites to connect with other people, build relationships, share information, and engage in various forms of communication and interaction. These platforms are designed to facilitate the exchange of

ideas, interests, and personal updates among users. Social networking has become an integral part of many people's lives, both for personal and professional purposes.

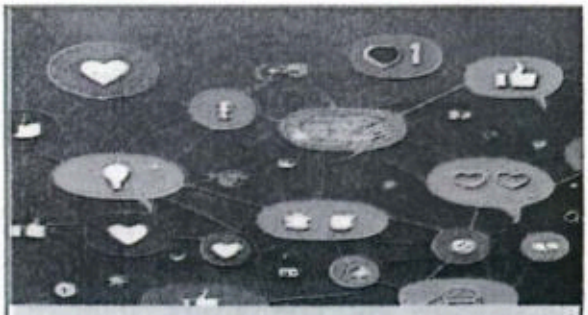

Fig. 6.30 Social networking

Some of the most popular social networking sites include Facebook, Twitter, Instagram, YouTube and WhatsApp.

6.9.1 Social networking harmful effects

Social networking platforms have become an integral part of modern life, providing opportunities for communication, information sharing, and entertainment. However, they also have harmful effects on individuals and society. Excessive use of social media can lead to addiction, which can negatively impact mental well-being.

Social media platforms can facilitate cyberbullying, where individuals are harassed, threatened, or humiliated online. This can have severe psychological consequences for victims. Many social networks collect vast amounts of personal data, sometimes without users' full awareness or consent. This data can be misused or exposed in security breaches. Social media can spread false information rapidly, contributing to the dissemination of misinformation and conspiracy theories, which can have real-world consequences.

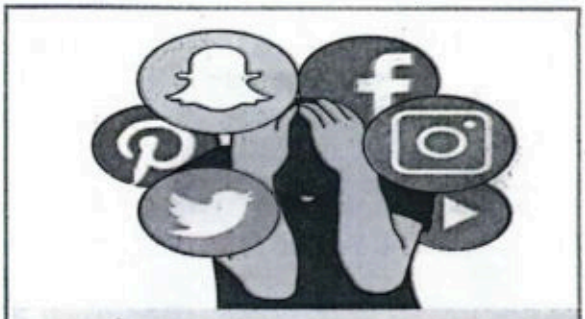

Fig. 6.31 Social networking harmful effects

6.9.2 Social networking and fake news

Social networking platforms have played a significant role in the spread of fake news and misinformation in recent years. Fake news refers to false or misleading information presented as factual news. Social networking platforms make it incredibly easy for users to share information with their networks. While this can be beneficial for spreading important news, it also means that fake news can spread rapidly and widely. Social networks often do not have mechanisms in place to verify the accuracy of the information shared on their platforms. While some platforms have implemented fact-checking programs, they are not foolproof and may not catch all instances of fake news.

Fig. 6.32 Social networking and fake news

6.10 Approaches to computing effects

Computing has had a deep impact on personal, ethical, social, economic, and cultural practices.

6.10.1 Personal Impact:

Computing has made life easier with devices like smartphones and computers. It helps manage tasks, communication, and entertainment efficiently. It also supports online learning, remote work, health monitoring, and secure digital payments, improving everyday convenience and access to services.

Fig. 6.33 Personal Impact

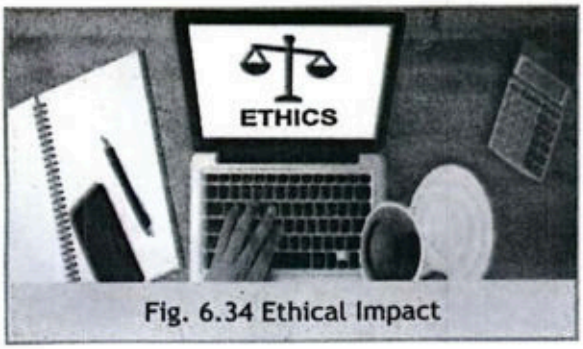

Fig. 6.34 Ethical Impact

6.10.2 Ethical Impact:

As businesses and governments collect personal data, concerns about privacy and cybersecurity grow. Issues like hacking and data breaches highlight the need for ethical practices to protect information. Computing impacts ethics in both good and bad ways, evolving with technology.

6.10.3 Social Impact:

Computing has transformed how we connect and learn. Social media and messaging apps make communication fast and easy, while search engines like Google simplify finding information. Online education allows people worldwide to learn new skills anytime, anywhere.

Fig. 6.35 Social Impact

Fig. 6.36 Economic Impact

6.10.4 Economic Impact:

The economic impact of computing is significant. It has created new industries like software development and e-commerce, boosting job opportunities. Automation and technology improve business efficiency, reducing costs. Computing also enables global trade by connecting businesses and customers worldwide.

Fig. 6.37 Cultural Impact

6.10.5 Cultural Impact:

The cultural impact of computing has changed how people interact, share ideas, and express themselves. Social media platforms connect cultures globally, promoting diversity and understanding. Digital tools help preserve traditions through online archives and videos. At the same time, computing influences lifestyles, blending local and global cultures.

6.10.6 Impact on globalization

The globalization impact of computing connects people and businesses worldwide. It enables instant communication, making global collaboration easier. Computing supports international trade through e-commerce and digital payments. It also spreads ideas and cultures across borders, creating a more connected world.


Fig. 6.38 Impact on globalization


Fig. 6.39 Impacts on e-commerce

6.10.7 Impact on e-commerce:

E-commerce, driven by computing, has transformed shopping and business. It allows people to buy and sell products online from anywhere, anytime. Businesses can reach global customers, reducing the need for physical stores. Computing also makes transactions faster and more secure, boosting convenience for buyers and sellers.

6.11 intellectual property protection key terms

Intellectual property protection involves safeguarding creations of the mind, such as inventions, designs, and artistic works, through key terms like patents (for inventions), copyrights (for original works), and trademarks (for distinctive symbols identifying products or services). These legal tools provide exclusive rights to creators, fostering innovation and preventing unauthorized use.

Patents

A patent is a legal document that grants its holder the exclusive right to make, use, and

sell an invention for a specified period, usually 20 years. Example of patent is if someone invents a new and useful gadget, they can apply for a patent to protect their invention from being made or sold by others without permission.

Trademarks

A trademark is a recognizable sign, design, or expression that distinguishes products or services of a particular source from those of others. Example is the Apple logo is a trademark that identifies products like iPhones and MacBooks. Trademarks help consumers associate a particular quality or reputation with the goods or services.

Copyrights

Copyright is a legal right that grants the creator of an original work exclusive rights to its use and distribution, usually for a limited time, with the intention of enabling the creator to receive compensation for their intellectual investment. An author who writes a book automatically holds the copyright to that work. This means others cannot reproduce, distribute, or perform the work without the author's permission.

Summary

- **Responsible Computer Use:** Using computers responsibly means abiding by rules, regulations, and moral principles and making sure that your actions don't disrupt the system or hurt other people.
- **Safe Hardware Use:** Safe Hardware Use is the careful handling of computer hardware and peripherals to avoid accidents or damage, such as not pouring liquids on them.
- **Appropriate Software Use:** Utilizing software appropriately means sticking to licensing restrictions, using it for its intended purpose, and avoiding any illegitimate or unlawful software-related activity.
- **Safe Digital Platforms:** Being careful when using digital platforms to safeguard personal data and information, avoiding hazardous websites, and being aware of online security.
- **Data Searches:** Making responsible use of the internet by confirming the accuracy of information sources, abstaining from plagiarism, and adhering to copyright regulations.
- **Social Networking:** Engaging in online social networking with consideration for privacy settings, sharing suitable information, and avoiding cyberbullying or harassment.

- **Ethical Digital Behavior:** Digital ethics refers to acting morally online through upholding others' rights, abstaining from crimes like identity theft or hacking, and fostering a supportive online community.
- **Cybersecurity Awareness:** Cybersecurity awareness is the knowledge about and application of cybersecurity defenses against online dangers like malware and phishing.
- **Data Privacy:** Data privacy is the practice of protecting sensitive and private information by encrypting it, employing strong passwords, and avoiding the indiscriminate sharing of private information.
- **Digital Footprint:** Understanding that one's online behavior leaves a digital trail and taking into account how it may affect future prospects and reputation.
- **Fake News:** False information that is misrepresented as news is referred to as fake news spreads quickly across digital networks, has potentially catastrophic real-world repercussions, and calls into question the reliability of information.
- **Privacy worries:** Concerns about online information security and the protection of personal data constitute privacy concerns.
- **Cybersecurity Challenges:** Threats and weaknesses in the digital world are among the challenges of cybersecurity. Don't forget to mention cyberattacks like hacking, phishing, and hacking, which might affect the accuracy of internet information.
- **Digital Divide:** Access to technology and the internet varies widely, creating a "digital divide."
- **Personal Practices:** The distinctive ways that people use computers and technology in their day-to-day lives.
- **Ethical Practices:** Ethical practices are the moral tenets and standards that guide the ethical and responsible application of computing technologies.
- **Social Practices:** The ways that computing technologies affect and alter people's interactions, relationships, and societal standards are known as social practices.
- **Economic Practices:** How computing has affected company strategies, markets, and economic systems, encompassing elements like automation, job growth, and market dynamics.
- **Cultural Practices:** The influence of computing on cultural norms, traditions, and manifestations in fields including media, art, and communication.

Exercise

Q1. Select the best answer for the following (MCQs).

i. What does responsible use of hardware entail?

a) Using outdated software
b) Treating computer equipment with care and respect
c) Ignoring software updates
d) Sharing passwords with friends

ii. Which of the following is an example of appropriate use of software?

a) Downloading and using cracked software
b) Regularly updating software to the latest version
c) Sharing software licenses with multiple users
d) Disabling antivirus software for faster performance

iii. Safe use of digital platforms includes:

a) Sharing personal information with anyone online
b) Using strong, unique passwords for each online account
c) Downloading files from unknown sources without scanning for malware
d) Accepting friend requests from strangers without verifying their identity

iv. Which of the following is an example of inappropriate software use?

a) Using licensed software for personal projects
b) Respecting software copyrights and licenses
c) Modifying software code without permission from the developer
d) Updating software regularly to improve its performance

v. Which of the following is a potential harmful effect of social networking?

a) Promoting social awareness and activism
b) Facilitating cyberbullying and harassment
c) Fostering offline community engagement
d) Enhancing critical thinking skills

vi. How can fake news be harmful in the context of computing innovations?

a) It encourages fact-checking and critical thinking.
b) It can manipulate public opinion and spread misinformation.
c) It fosters trust in credible news sources.
d) It has no impact on society.

vii. **In what way can social networking platforms positively impact businesses and entrepreneurs?**

a) By decreasing the reach and visibility of businesses

b) By limiting customer engagement and feedback

c) By providing a platform for marketing, customer engagement, and networking

d) By increasing operational costs and inefficiencies

viii. **What is one potential beneficial effect of social networking platforms?**

a) Enhanced personal privacy

b) Improved offline communication skills

c) Increased connectivity and networking opportunities

d) Reduced exposure to diverse viewpoints

ix. **What is an ethical concern related to computing?**

a) Increased accessibility to information

b) Enhanced cybersecurity measures

c) Privacy breaches and data misuse

d) Improved healthcare through telemedicine

x. **What is a cultural impact of computing?**

a) Preservation of traditional cultural practices and customs.

b) Homogenization of global culture with a single dominant culture.

c) Elimination of the need for cultural preservation efforts.

d) Reduced cultural diversity and innovation.

xi. **How does computing contribute to economic practices?**

a) It increases manual labor jobs.

b) It has no impact on job markets.

c) It automates tasks, leading to job displacement but also creating new job opportunities.

d) It primarily benefits large corporations, neglecting small businesses.

xii. **Which of the following is a personal benefit of computing in healthcare?**

a) Reduced access to medical information

b) Increased medical errors

c) Improved telemedicine and healthcare accessibility

d) Lower healthcare costs

Q2. Write short answers of the following questions.

1) Illustrate the responsible use of computer hardware by an individual.
2) What does appropriate software use entail?
3) How do you stay safe while conducting data searches online?
4) Extract and enlist some key aspects of responsible social networking.
5) Sketch the positive impacts of social networking in today's society.
6) Relate fake news affecting our understanding of current events.
7) Summarize some of the adverse effects of social networking.
8) Interpret the dangers associated with the spread of fake news online.
9) Examine the computing influence on personal privacy.
10) Criticize about the role computing plays in shaping educational practices.

Q3. Write long answers of the following questions

1) Identify the precautions that need to be taken to ensure the physical safety of computer hardware.
2) Judge the meaning of using software legally and ethically.
3) Express the ways, users can recognize and protect themselves from online cheats and phishing attempts.
4) Comment on the key ways in which social networking platforms have revolutionized communication and connectivity in the digital age. Additionally, deduce the positive impacts of these changes on society.
5) Describe the risks associated with online gaming and social networking for children.
6) Devise steps for governments and businesses in leveraging computing to drive economic growth and innovation.
7) Compare the impact of online platforms and algorithms on cultural diversity and the spread of global or local culture?

Teacher's Guide

"Discuss how personal impact relates to the influence of technology on individuals' lives, including privacy concerns, mental health effects, and productivity changes.Explore ethical implications, focusing on issues such as digital rights, surveillance, and the responsibility of technology creators and users towards ethical behavior and decision-making.

Lab Activity

Activity 1

A Focus on Safe and Responsible Usage

The principles of "understanding and applying safe and responsible use of computers." The session will be divided into three key components: responsible use of hardware, appropriate use of software, and safe navigation through digital platforms. Through interactive discussions, real-life scenarios, and hands-on exercises, participants will gain practical insights into the responsible handling of computer hardware, ensuring its longevity and optimal performance. The appropriate use of software will be explored, emphasizing ethical considerations and legal implications. Additionally, participants will learn how to safely navigate digital platforms, including conducting data searches and participating in social networking. By the end of the activity, participants will have acquired a comprehensive understanding of the ethical and secure practices crucial for a responsible and proficient use of computers in today's digital landscape.

Activity 2

Analyzing Benefits and Pitfalls of Computing Innovations in a Classroom Setting

In this engaging activity, students will delve into the multifaceted realm of computing innovations by critically examining the beneficial and harmful effects of key phenomena, including social networking and the proliferation of fake news. The activity begins with a brainstorming session, encouraging students to list potential positive impacts such as enhanced communication, information dissemination, and connectivity, as well as negative consequences like privacy concerns, cyberbullying, and the spread of misinformation. Following this, students will be divided into small groups to conduct in-depth research on specific examples or case studies related to social networking and fake news. Each group will then present their findings, facilitating a classroom-wide discussion to explore the broader implications of these computing innovations. This activity not only promotes analytical thinking but also encourages students to reflect on the ethical considerations surrounding technological advancements."

Activity 3

Understanding the Impact of Computing on Human Life"

In this engaging activity, participants will delve into the multifaceted impact of computing on various aspects of human life. The session will commence with an exploration of how computing influences personal practices, ranging from daily routines to individual decision-making processes. Subsequently, participants will engage in discussions on the ethical implications of computing, contemplating issues such as privacy, security, and digital rights. The activity will also delve into the social sphere, examining how computing technologies shape interpersonal relationships, communication patterns, and societal dynamics. Moving on to the economic realm, participants will explore the role of computing in transforming industries, job markets, and economic structures. Lastly, the cultural impact of computing will be scrutinized, with participants reflecting on how technology influences cultural practices, norms, and expressions. Through group discussions, case studies, and reflective exercises, this activity aims to foster a comprehensive understanding of the intricate ways in which computing shapes our personal, ethical, social, economic, and cultural landscapes.