

## Packet #5: 5.1 to 5.6

Name \_\_\_\_\_

1. Which of the following actions is most likely to help reduce the digital divide?
- (A) Adding a requirement that all users of a popular social media site link their accounts with a phone number.
  - (B) Deploying satellites and other infrastructure to provide inexpensive Internet access to remote areas of Earth
  - (C) Digitizing millions of books from university libraries, making their full text available online
  - (D) Offering improved Internet connections to Internet users who are willing to pay a premium fee for more bandwidth
2. Which of the following actions is most likely to raise legal or ethical concerns?
- (A) An analyst writes a program that scans through a database of open-access scientific journals and creates a document with links to articles written on a particular topic.
  - (B) A computer scientist adds several features to an open-source software program that was designed by another individual.
  - (C) A musician creates a song using samples of a copyrighted work and then uses a Creative Commons license to publish the song.
  - (D) A public interest group alerts people to a scam that involves charging them for a program that is available for free under a Creative Commons license.
3. Which of the following activities is most likely to be successful as a citizen science project?
- (A) Collecting pictures of plants from around the world that can be analyzed to look for regional differences in plant growth.
  - (B) Designing and building a robot to help with tasks in a medical laboratory.
  - (C) Sorting scientific records and removing duplicate entries in a database with a large number of entries.
  - (D) Using a simulation to predict the impact of a construction project on local animal populations.



**Packet #5: 5.1 to 5.6**

---

4. Many Web browsers allow users to open anonymous windows. During a browsing session in an anonymous window, the browser does not record a browsing history or a list of downloaded files. When the anonymous window is exited, cookies created during the session are deleted. Which of the following statements about browsing sessions in an anonymous window is true?
- (A) The activities of a user browsing in an anonymous window will not be visible to people who monitor the user's network, such as the system administrator.
  - (B) Items placed in a Web store's shopping cart for future purchase during the anonymous browsing session will not be saved on the user's computer.
  - (C) A user will not be able to log in to e-mail or social media accounts during the anonymous browsing session.
  - (D) A user browsing in an anonymous window will be protected from viruses launched from any Web sites visited or files downloaded.
5. The developers of a music-streaming application are updating the algorithm they use to recommend music to listeners. Which of the following strategies is LEAST likely to introduce bias into the application?
- (A) Making recommendations based on listening data gathered from a random sample of users of the application
  - (B) Making recommendations based on the most frequently played songs on a local radio station
  - (C) Making recommendations based on the music tastes of the developers of the application
  - (D) Making recommendations based on a survey that is sent out to the 1,000 most active users of the application
6. A researcher wants to publish the results of a study in an open access journal. Which of the following is a direct benefit of publishing the results in this type of publication?



**Packet #5: 5.1 to 5.6**

---

- (A) The researcher can allow the results to be easily obtained by other researchers and members of the general public.
- (B) The researcher can better anticipate the effect of the results and ensure that they are used responsibly.
- (C) The researcher can ensure that any personal information contained in the journal is kept private and secure.
- (D) The researcher can prevent copies of the research from being accessed by academic rivals.

MeeReader is an e-reading application that allows users to download and read books and articles on a device. Each user creates a profile with the following personal preferences.

Screen brightness and contrast  
Choice of typeface and font size  
Amount of spacing between lines of text  
Activation of a text-to-speech feature that reads the text out loud

When the user launches the application, the application scans the user's face and uses facial recognition software to determine the user's identity. Once the user has been identified, the user's personal preferences are applied to whatever book or article the user chooses to read.

The application stores all user information in a database, including personal preferences and a record of previously read books and articles.

---

7. From the perspective of the application's developers, which of the following is most likely to be a benefit of storing all user data in a database?
- (A) The developers can analyze the data to make improvements to the application based on user behavior.
  - (B) The developers can analyze the data to ensure that no patterns emerge in the data.
  - (C) The developers can reduce the amount of data storage required to support the application.
  - (D) The developers can reduce the need for data encryption.



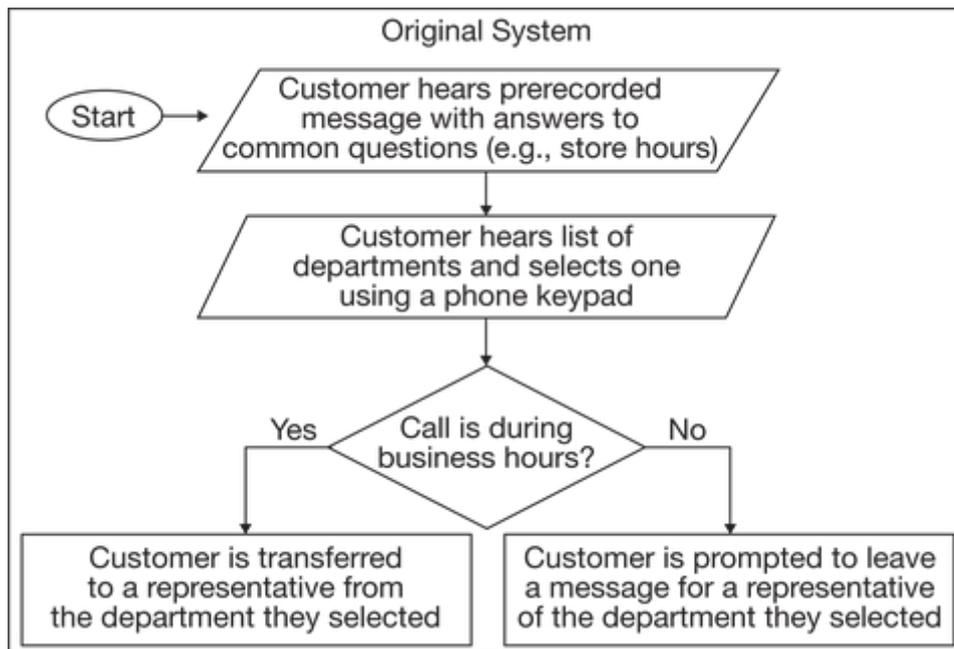
**Packet #5: 5.1 to 5.6**

A chain of retail stores uses software to manage telephone calls from customers. The system was recently upgraded. Customers interacted with the original system using their phone keypad. Customers interact with the upgraded system using their voice.

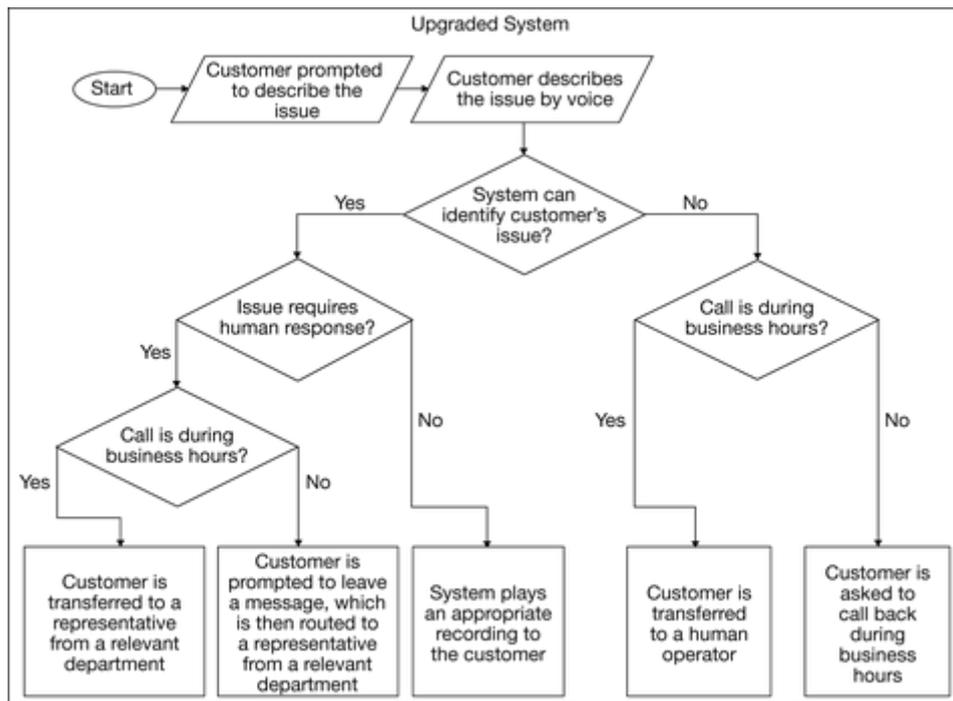
The upgraded system (but not the original system) stores all information from the calling session in a database for future reference. This includes the customer’s telephone number and any information provided by the customer (name, address, order number, credit card number, etc.).

The original system and the upgraded system are described in the following flowcharts. Each flowchart uses the following blocks.

Block	Explanation
Oval	The start of the algorithm
Parallelogram	An input or output step
Diamond	A conditional or decision step, where execution proceeds to the side labeled “Yes” if the answer to the question is yes and to the side labeled “No” if the answer to the question is no
Rectangle	The result of the algorithm



## Packet #5: 5.1 to 5.6



8. Of the following potential benefits, which is LEAST likely to be provided by the upgraded system?

- (A) Human representatives will not be needed to respond to some inquiries.
- (B) The company will be able to provide a human representative for any incoming call.
- (C) Customers are likely to spend less time listening to information not relevant to their issue.
- (D) Customers will be unable to mistakenly select the incorrect department for their particular issue.

9. A city government is attempting to reduce the digital divide between groups with differing access to computing and the Internet. Which of the following activities is LEAST likely to be effective in this purpose?



**Packet #5: 5.1 to 5.6**

---

- (A) Holding basic computer classes at community centers
- (B) Providing free wireless Internet connections at locations in low-income neighborhoods
- (C) Putting all government forms on the city Web site
- (D) Requiring that every city school has computers that meet a minimum hardware and software standard
10. Both online newspapers and social media sites are used to distribute information on the Internet. Which of the following best describes an advantage that online newspapers have over social media sites?
- (A) The ability to distribute information instantaneously
- (B) The ability to provide credibility to the information distributed
- (C) The ability to provide information that is widely accessible
- (D) The ability to provide media-rich content for low cost
11. Which of the following has the greatest potential for compromising a user's personal privacy?
- (A) A group of cookies stored by the user's Web browser
- (B) The Internet Protocol (IP) address of the user's computer
- (C) The user's e-mail address
- (D) The user's public key used for encryption



**Packet #5: 5.1 to 5.6**

---

12. Which of the following is LEAST likely to be a contributing factor to the digital divide?
- (A) Some individuals and groups are economically disadvantaged and cannot afford computing devices or Internet connectivity.
  - (B) Some individuals and groups do not have the necessary experience or education to use computing devices or the Internet effectively.
  - (C) Some parents prefer to limit the amount of time their children spend using computing devices or the Internet.
  - (D) Some residents in remote regions of the world do not have access to the infrastructure necessary to support reliable Internet connectivity.
13. Which of the following are true statements about digital certificates in Web browsers?
1. Digital certificates are used to verify the ownership of encrypted keys used in secured communication.
  2. Digital certificates are used to verify that the connection to a Web site is fault tolerant.
- (A) I only
  - (B) II only
  - (C) I and II
  - (D) Neither I nor II
14. A Web site uses several strategies to prevent unauthorized individuals from accessing user accounts. Which of the following is NOT an example of multifactor authentication?



**Packet #5: 5.1 to 5.6**

---

- (A) Each employee for a company is issued a USB device that contains a unique token code. To log into a company computer, an employee must insert the USB device into the computer and provide a correct password.
- (B) After logging into an account from a new device, a user must enter a code that is sent via e-mail to the e-mail address on file with the account.
- (C) In order to log into an account, a user must provide both a password and a fingerprint that is captured using the user's device.
- (D) When a user enters an incorrect password more than two times in a row, the user is locked out of the account for 24 hours.
15. A user unintentionally installs keylogging software on a computer. Which of the following is an example of how the keylogging software can be used by an unauthorized individual to gain access to computing resources?
- (A) The software gives an unauthorized individual remote access to the computer, allowing the individual to search the computer for personal information.
- (B) The software installs a virus on the computer and prompts the user to make a payment to the unauthorized individual to remove the virus.
- (C) The software prompts the user to enter personal information to verify the user's identity. This personal information is recorded and transmitted to an unauthorized individual.
- (D) The software records all user input on the computer. The recorded information is transmitted to an unauthorized individual, who analyzes it to determine the user's login passwords.
16. An individual receives an e-mail that appears to be from an insurance company. The message offers a low insurance rate, and prompts the recipient to click a link to learn more. Which of the following is most indicative that the e-mail is part of a phishing attempt?



**Packet #5: 5.1 to 5.6**

---

- (A) After clicking the link, a browser cookie is downloaded to the recipient's computer.
- (B) After clicking the link, a Web page opens that prompts the recipient for personal information.
- (C) After clicking the link, the recipient's private network becomes publicly visible via a rogue access point.
- (D) After clicking the link, software is installed on the recipient's computer that records every keystroke made on the computer.
17. A user purchased a new smart home device with embedded software and connected the device to a home network. The user then registered the device with the manufacturer, setting up an account using a personal e-mail and password. Which of the following explains how a phishing attack could occur against the user of the smart home device?
- (A) A vulnerability in the device's software is exploited to gain unauthorized access to other devices on the user's home network.
- (B) A vulnerability in the device's software is exploited to install software that reveals the user's password to an unauthorized individual.
- (C) The user is sent an e-mail appearing to be from the manufacturer, asking the user to confirm the account password by clicking on a link in the e-mail and entering the password on the resulting page.
- (D) The user's account is sent an overwhelming number of messages in an attempt to disrupt service on the user's home network.
18. A city's police department has installed cameras throughout city streets. The cameras capture and store license plate data from cars driven and parked throughout the city. The authorities use recorded license plate data to identify stolen cars and to enforce parking regulations.

Which of the following best describes a privacy risk that could occur if this method of data collection is misused?



**Packet #5: 5.1 to 5.6**

---

- (A) The cameras may not be able to read license plates in poor weather conditions.
- (B) Local business owners could lose customers who are unwilling to park in the city.
- (C) Traffic personnel who work for the city could lose their jobs if their services are no longer needed.
- (D) The vehicle location data could be used to monitor the movements of city residents.