

What is the IMAP4 protocol?

Student exercises and trainings

Training Kit



CyberEco

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الوكالة الوطنية للأمن السيبراني
National Cyber Security Agency

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Dear Student,

This booklet is specifically for you, and you must have it with you when you attend training sessions. Your trainer will guide you on how to use it. This booklet contains a collection of fun and useful exercises, which you will answer either during class or at home.

The booklet also contains a set of educational competitions and cards, as well as general information in which you will find useful and enjoyable. Your trainer will guide you on how to deal with these competitions, and at the beginning of each exercise or competition, we will provide you with general instructions on how to answer.

Dear Student's Parents,

This booklet is specifically for the student and will accompany them during the training they will receive at school. It contains a collection of exercises, training activities, competitions, training games, and training cards, all of which revolve around concepts related to the IMAP4 protocol

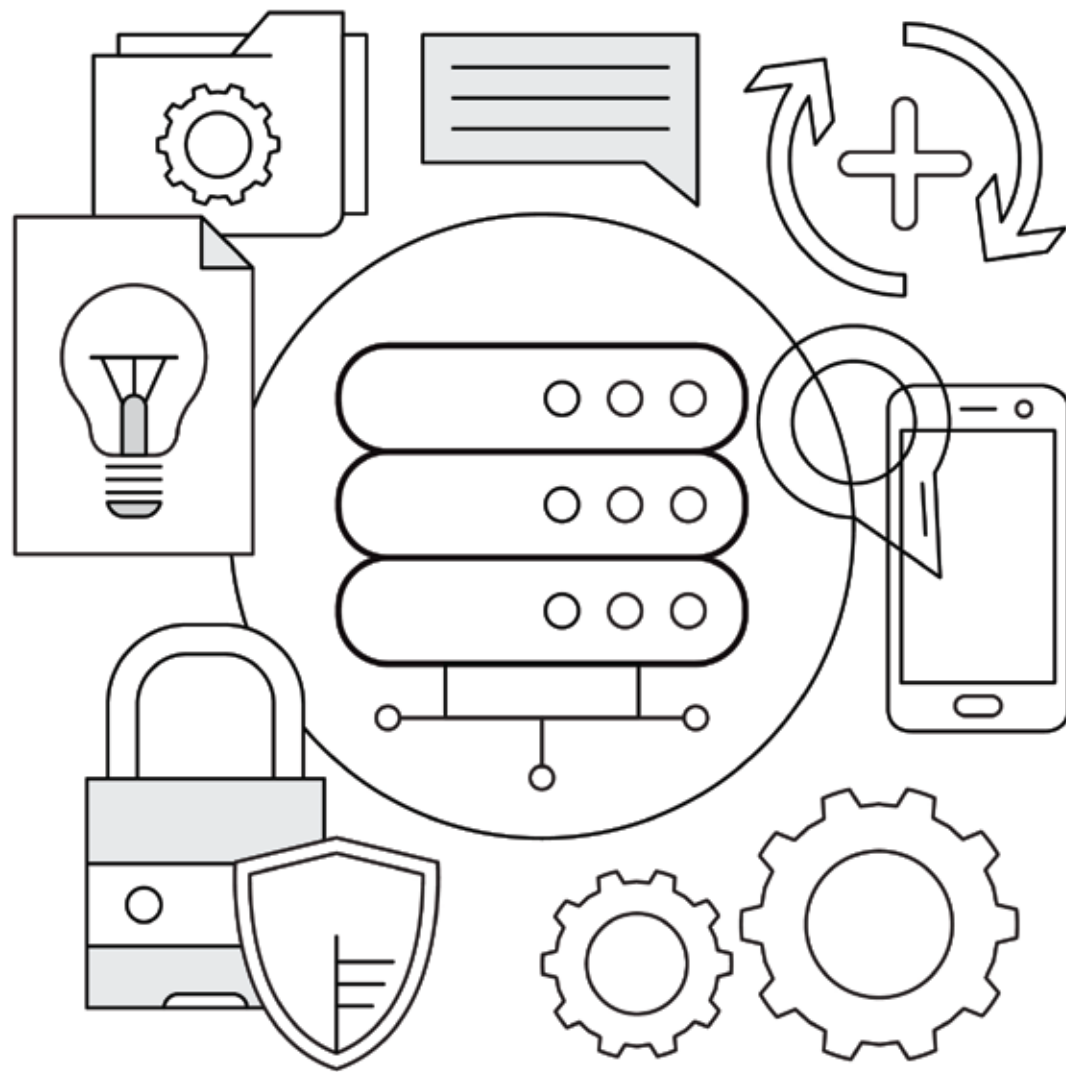
The purpose of this booklet and its included mental exercises and activities is to reinforce and solidify the information that the student receives during the training session with the primary goal of enhancing the student's ability to use the internet and technology effectively and safely and enable him to understand how the IMAP4 protocol works and what are its advantages and disadvantages.

All the exercises and training in the booklet will be accompanied by general instructions on how to answer them. As for the training competitions, the trainer will provide guidance on how to solve them. The booklet also includes some non-classroom exercises, which the student will answer at home. These exercises will also be accompanied by trainer for the solving.

We kindly request your indirect supervision as the student interacts with this booklet. If the student has any question or inquiry about any of the exercises or training activities, please read the specific instructions for each exercise and provide assistance to student in light of these instructions



First:
In-Class Exercises



Pay Attention!

(IMAP4)

IMAP4 stands for Internet Message Access Protocol. It is a program that is used to access incoming email. It stores email messages on a remote server, away from users, and then allows them to view and manage messages as if they were stored on their personal computer.



Exercise 1

Complete the following sentences:

- 1 Email is a means of exchanging digital through or interconnected networks.
- 2 Instant messaging means the transmission of at the same time of sending them, while relies on and forwarding, and messages can be saved in mailboxes for users to access at any time.
- 3 A protocol is rules and sending regulations that a particular process and using these enables us to organize the process of of email messages between users.
- 4 There are three basic protocols currently in use, which are the SMTP system, the POP3 system, and the system.
- 5 The protocol is used for sending, while the and are used for receiving email

Pay Attention!

The (IMAP4) protocol acts as an intermediary between the email server and the email user. This is done by reading the messages through the protocol outside of the server without the need to download or store email messages on their personal devices.



Instructions:

Read the sentences in the table carefully, start with the first sentence in column (A), and search in column (B) for the sentence that completes its meaning. Below is an example of the connection between two sentences.

Exercise 2

Match the terms from column (A) with their corresponding meanings in column (B):



| Column (A) | Column (B) |
|--|---|
| IMAP4 <input type="radio"/> | <input checked="" type="radio"/> The latest and specialized in receiving messages |
| The IMAP4 protocol is used for <input type="radio"/> | <input type="radio"/> Keeping messages in email without deletion |
| The IMAP4 protocol allows users to <input type="radio"/> | <input type="radio"/> Receive messages |
| The IMAP4 protocol helps with <input type="radio"/> | <input checked="" type="radio"/> Internet Message Access Protocol 4 |
| The IMAP4 protocol is considered <input type="radio"/> | <input type="radio"/> Accessing the server and selecting the messages to be read |





Do you know that...?

There are two types of HTTP messages: the request message and the response message.

Pay Attention!

Email Protocol

An email protocol is a program that connects one computer to another to exchange email messages.



Exercise 3

Mark (✓) or (✗) in front of the following sentences:

- 1 One of the important features of the IMAP4 protocol is that it allows users to access text messages.
- 2 The IMAP4 protocol acts as an intermediary between email servers and email clients.
- 3 The IMAP4 protocol saves you the trouble of downloading email messages from the server to the email client.
- 4 The IMAP4 protocol allows users to access their email from any device.
- 5 The IMAP4 protocol automatically updates itself when the user makes any changes to the files on the email.
- 6 Users cannot access their email accounts when using a different device.
- 7 The IMAP4 protocol and other protocols work to divide technical processes, preventing computers and servers from connecting to each other.
- 8 The IMAP4 protocol is used to send email messages.
- 9 The IMAP4 protocol is a paid protocol.
- 10 You can only use the IMAP4 protocol on one device without others.



Pay Attention!

Email Protocol

When sending an email, there are three elements in the exchange equation (two devices + server) ; One of the devices sends the email to the other (the recipient), while the mail server's task is to store the messages and allow the receiving device to access and download them when needed.

Exercise 4

Complete the following sentences:

1

the main feature of IMAP4 is that it **allow** users to access their **electronic** mail **messages** from **another** device

2

The IMAP4 protocol acts as an intermediary between the email and the email, instead of email messages from the server to client.

3

Through the protocol, users can access their email from any different without any problem.

4

IMAP4 protocol users do not need to connect to the same where they originally read the

5

The IMAP4 protocol is used for email messages.

Instructions:

Carefully read the sentences in the table and determine whether each sentence refers to the IMAP4, SMTP, or POP3 protocols.

An example provided below

Exercise 5

Identify which of the following sentences relate to the **IMAP4** protocol and which ones belong to the **SMTP** and **POP3** protocols:

| | Protocol Type |
|--|---------------|
| 1. You can access your email messages from any device. | IMAP4 |
| 2. Used to transfer simple mail from a local client to the recipient's address. | |
| 3. Email messages can only be accessed from the device they were downloaded on. | |
| 4. Email messages cannot be accessed in offline mode. | |
| 5. Messages are downloaded into the device, which takes longer to display messages. | |
| 6. Once downloaded, email messages are deleted from the server. | |
| 7. Protects devices by filtering messages. | |
| 8. The server stores email messages as intermediaries between the server and the client. | |

| | Protocol Type |
|---|---------------|
| 9. Subject lines and sender names are quickly filled in email. | |
| 10. The number of messages an account can send within a specific timeframe is regulated. | |
| 11. Email messages can be accessed in offline mode. | |
| 12. Message groups are not downloaded until the user clicks on them. | |
| 13. Preserves the same storage space for emails by automatically deleting messages. | |
| 14. Requires more server space as it does not automatically delete messages. | |
| 15. Works in conjunction with MTA software to transfer messages to the right destination. | |

Pay Attention!

Email is an electronic communication method for sending and receiving messages over the internet, currently the most common form of communication. It features functionalities like synchronization and security, as well as features related to spam mail.





Exercise 6

Identify the true and false statements in the following sentences:

| | | |
|---|---|-------|
| 1 | Users can access and read their email from any device. | false |
| 2 | Users can open email messages even when not connected. | |
| 3 | When a user logs into their email, the email server retrieves all their email messages. | |
| 4 | Email users cannot see any data related to the email until they open a message. | |
| 5 | Email deletes old messages periodically. | |



Pay Attention!



POP3

POP3 is a simple and old protocol designed for use on a single computer, supporting only one-way email synchronization, which means allowing users to download email messages from the server to the client only on their own computer.

IMAP4 Protocol

.....
.....
.....
.....
.....

POP3 Protocol

.....
.....
.....
.....
.....

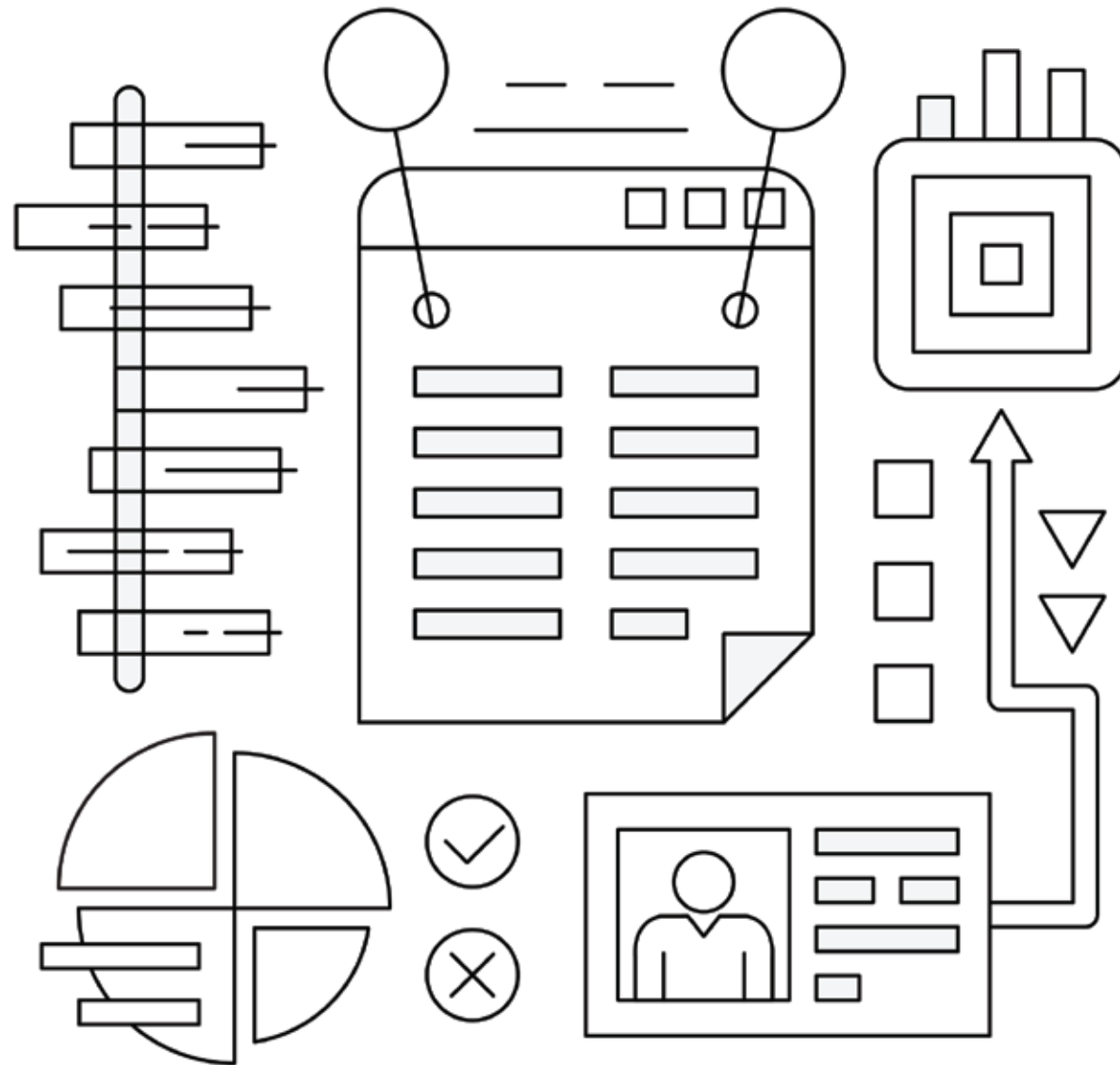
SMTP Protocol

.....
.....
.....
.....
.....

Exercise 1

Write 3 features for each of the following:







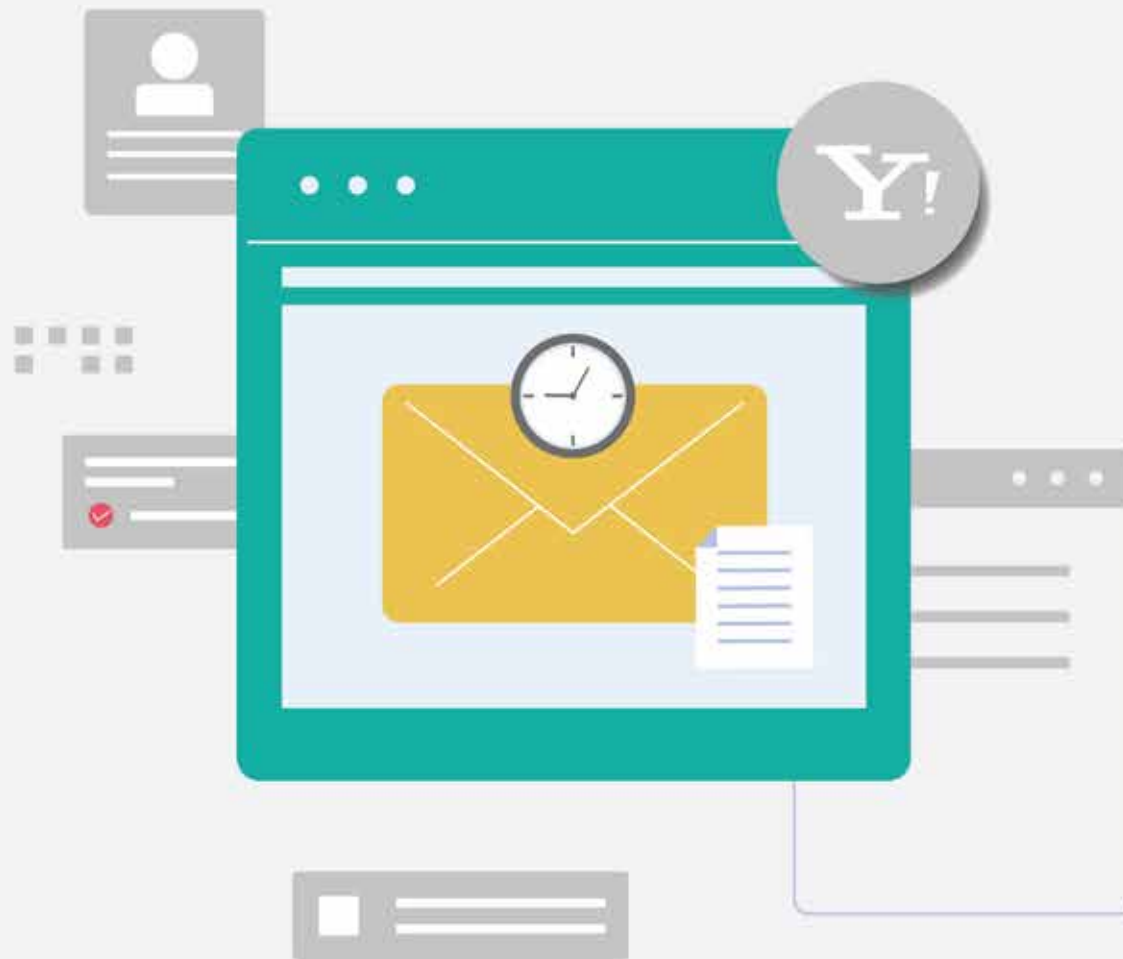
Do you know that...?

All HTTP pages are stored in what is known as the page cache on the internet when you visit them for the first time, which makes loading the content faster when you visit the pages again.

Pay Attention!

POP3 enables email users with temporary internet access to access their messages, read them, or compose new messages or reply to them even if they are not connected to the internet, and then send them when they reconnect to the internet. Examples of this type of email protocol include Yahoo.

The IMAP4 protocol supports users' access to their email messages, whether they are connected to the internet or not, just like POP3.Protocol.



Exercise 2

There is more than one fundamental security issues - three problems - in the operation of the IMAP4 protocol.
Could you discuss them and provide practical solutions?

1

2

3





Do you know that...?

To overcome the security concerns of protocol IMAP4, you should use encryption, two-factor authentication, and strong passwords.



Pay Attention!

SMTP is a simple text-based protocol that works well when devices are connected to each other. It is only specific to sending email messages, unlike the protocol of both POP3 and IMAP4, which provide message retrieval from the server. This is why reliance on it has declined.



Instructions:

Read the words below carefully and search the table for consecutive letters that form these words. Below is an example of the word "protocol" and how to find its letters in the table:

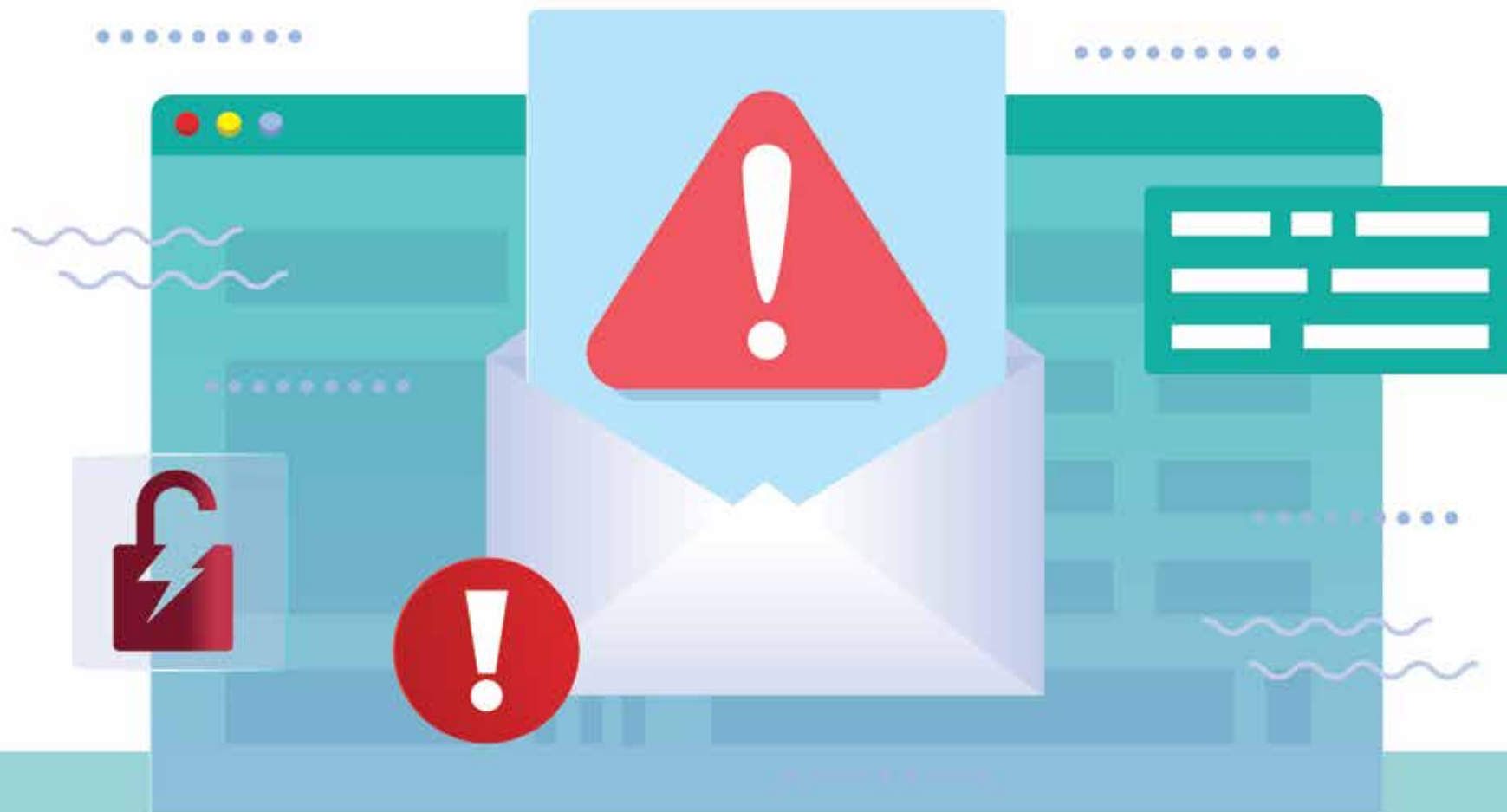
Exercise 3

Extract the following words from the table.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| a | s | v | e | p | r | o | t | o | c | o | l |
| s | e | t | t | i | n | g | s | p | o | r | t |
| a | r | c | h | i | v | e | e | r | a | s | e |
| m | e | s | s | a | g | e | s | b | l | k | s |
| i | n | b | o | x | w | h | s | e | n | t | y |
| s | t | o | r | a | g | e | n | m | o | v | e |
| d | e | v | i | c | e | d | e | l | e | t | e |
| e | m | a | i | l | b | u | s | e | r | s | a |

~~Protocol~~ - Email - Messages-Users - Device- Settings- Inbox - Sent
Storage - Archive - Delete - Move - Port- Save - Erase

Pay Attention!



SMTP

One of the drawbacks of SMTP is the lack of email sender authentication, along with the absence of security features, leading to users receiving unwanted messages.

Do you know that...?

Email consists of: sender, recipient, email address, Mailer, mail server, SMTP.



IMAP4 protocol Advantages:

- Access to email messages from multiple devices.
- Quick and efficient access to email messages.
- Multiple users can share a mailbox.
- Organize email messages.
- Supporting email functionalities, such as search and sorting.
- Displaying unread emails in the inbox.

- Ideal for those who need to access their email while traveling or using different devices.
- Directly handling messages on the email server, instead of downloading them to the user's device.
- In IMAP4 protocol, providing email presence on the server ensures higher security in case the user loses or damages their device.
- Eliminating the need to re-download messages when transitioning between devices as they are stored remotely.



POP3 protocol Advantages:

Ability to store email on devices.

Access to email without an internet connection.

Provides space saving for users by deleting messages after downloading.

Users can leave copies of their email on multiple POP3 servers.

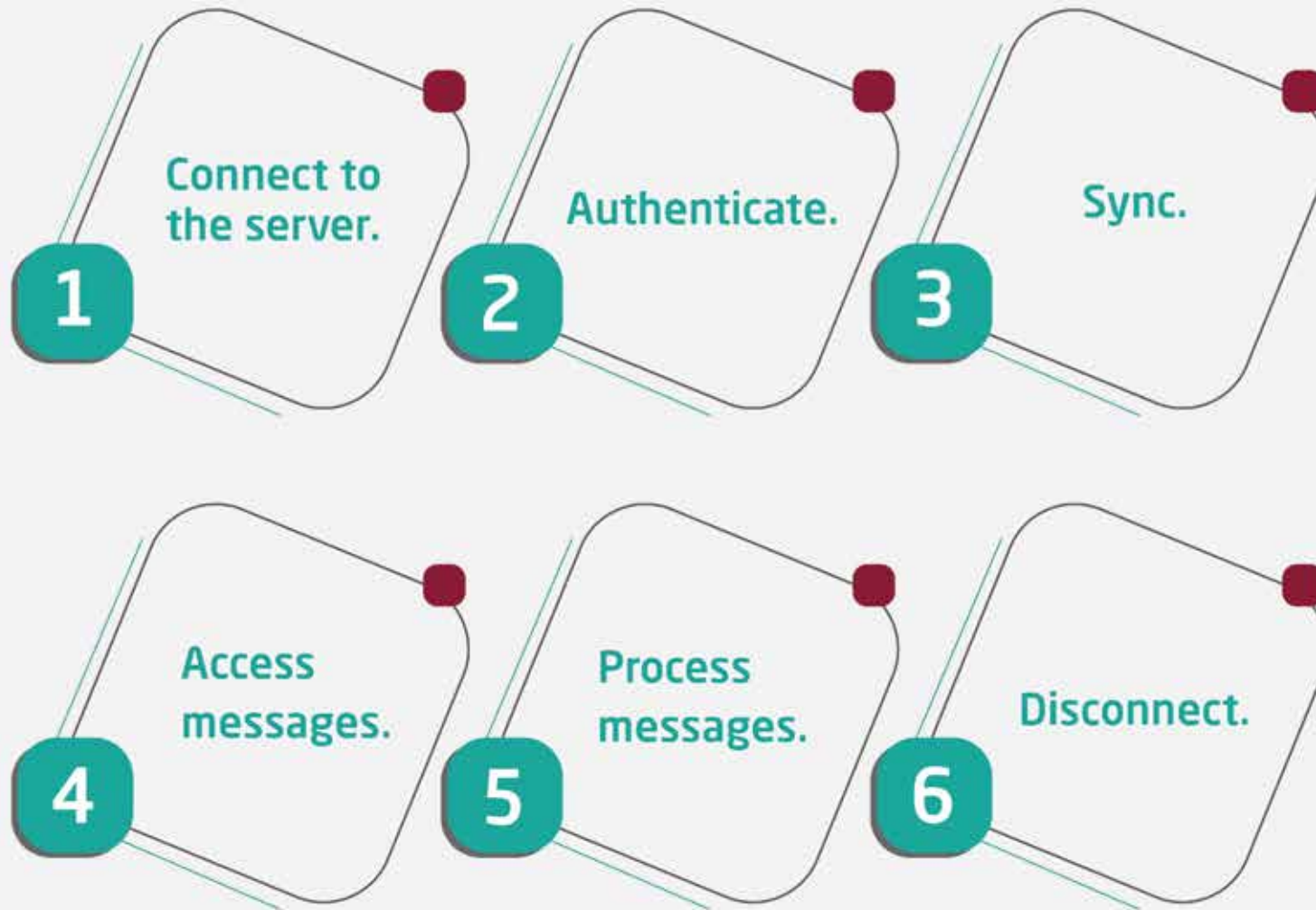
Users can consolidate multiple email accounts into one mailbox.

Data is more secure because no email is stored on a POP3 server.

POP3 protocol Disadvantages:

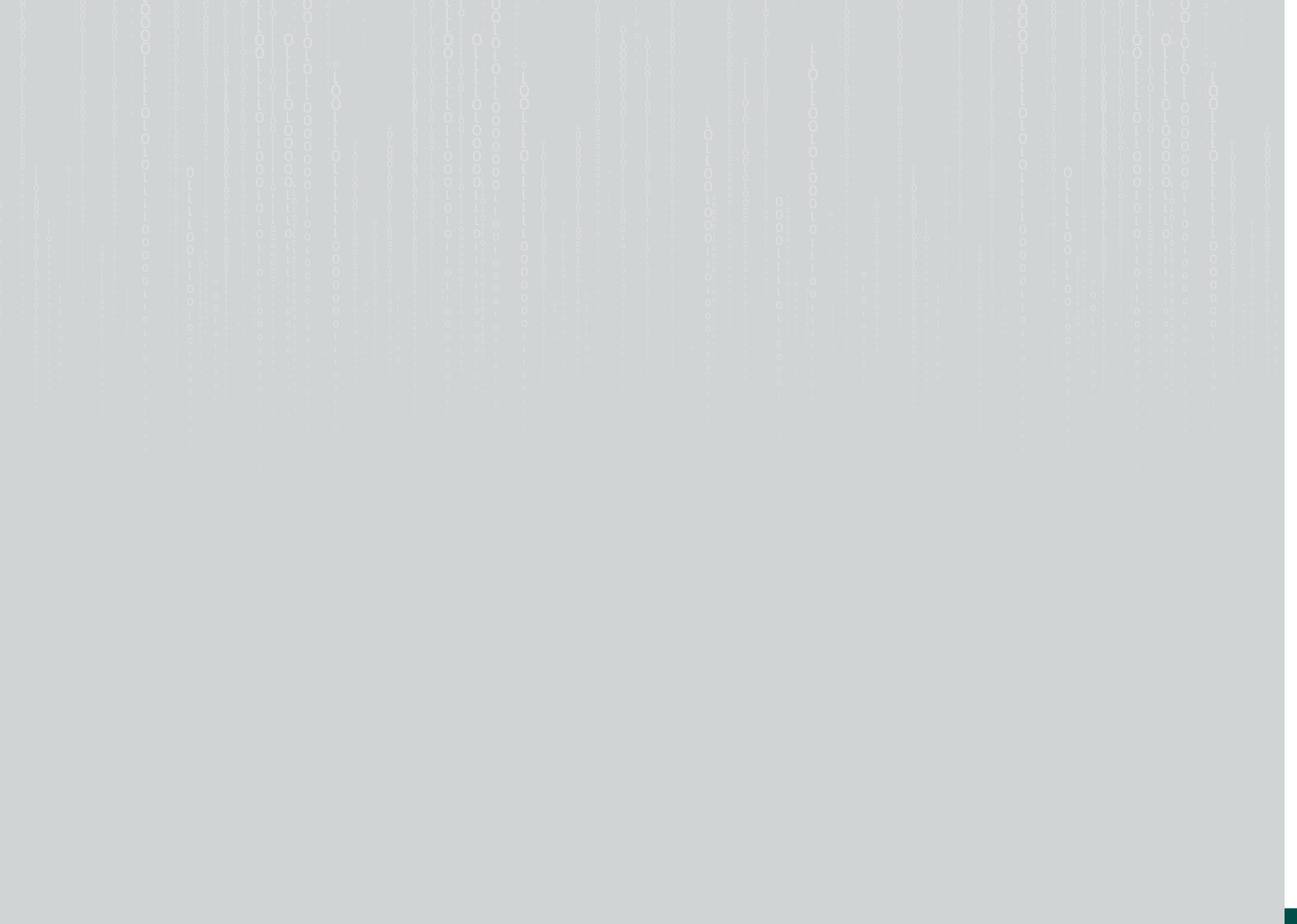
- 1 Marking messages as read on multiple devices.
- 2 Incapable of synchronizing sent items.
- 3 Users must continually set up their device to periodically check their email server to recognize newly received messages.
- 4 Users need to manually create items like personal folders or adjust settings individually on all devices.

How IMAP4 works:



IMAP4 disadvantages:

- Limiting message storage to 200 MB or 500 MB unless you purchase more professional email services.
- Storing all messages on the server increases the chances of E-mail theft and unauthorized access, especially if the user's password is insecure or weak.





Competitions

What is it ?



- A protocol that enables users to organize email messages in folders, mark messages for follow-up, and save message drafts on the server. Users can also display read or unread messages.
- It is a communication program between a computer and another to exchange email messages between them.
- Four different email protocols, in terms of features, uses, and importance.
- It is a simple and old protocol designed for use on a single computer, supporting only one-way synchronization of email..
- It is a simple text-based protocol that works well when devices are connected to each other, and only specializes in sending email messages.
- A protocol that enables users who use web browsers to access their email messages for sending or receiving, utilized by popular applications like Hotmail and Yahoo.
- It is responsible for sending, receiving, managing, and logging all the data that is done by its own E-mail programs, as well as processing them.

Mark (✓) or (✗) in front of the following sentences:

- 1 The IMAP4 protocol does not store email messages on a remote server away from users.
- 2 IMAP4 enables users to organize email messages in folders, and mark messages for follow-up.
- 3 IMAP4 users cannot access email messages from multiple devices.
- 4 The POP3 protocol is ideal for those who need to access their email messages while traveling or using different devices.
- 5 There are three similar mail protocols in terms of features, uses, and importance.
- 6 The POP3 protocol allows email users who have temporary internet access to access their messages, read them, or compose new messages or reply to them when they are not connected to the internet.

7

One of the advantages of protocol POP3 is the ability to store mail on users' personal devices.



8

One of IMAP4's features is time-saving for email users as it allows them to search for email messages on the server.



9

IMAP4 Protocol does not allow logging in via multiple email users on computers or mobile devices and reading the same messages.



10

IMAP4 transmits data, including login information and email content in plain text, which increases the risk of exposing sensitive information to spying or external attacks.



11

The SMTP protocol uses the internet to send and receive messages, and is used by each user's mail program such as Yahoo .



Complete the following phrases.

- 1 Email consists of: _____, _____, _____, Mailer, _____, and SMTP.
- 2 When the sender uses the mail program, it is redirected to _____ which verifies the validity of the recipient's email address.
- 3 The protocol stores the sent email on the server for later transfer using any of the basic protocols _____.
- 4 In case the recipient has a different domain address (for example, the sender's domain Gmail differs from the recipient's domain Hotmail), protocol _____ connects with server _____ which communicates with the other address used by the recipient and then SMTP of _____ starts connecting with SMTP of _____ to deliver the email.
- 5 In case both _____ of the sender and recipient are unable to communicate with each other due to internet problems for example, the mail intended for delivery to the recipient is placed in a queue specific to protocol _____ until the problem is solved.
- 6 In case the recipient uses protocol _____, then the mail he receives is deleted from the web server copy, while in case of using _____, a copy of the email is stored on the web server for interaction at any time desired by the recipient.

- 7 An example of an online attack using protocol IMAP4 that affected users of in 2018.
- 8 To overcome security concerns from protocol IMAP4, one should use, and, and strong and different.
- 9 Protocol causes more energy consumption as a result of using more system resources; therefore, it is not the best option for devicesthat contain wireless sensor networks.
- 10 All HTTP pages are stored within what is known as on the internet upon first visit, which makes loading content faster when visiting pages again.
- 11 There are two types of HTTP messages:, and
- 12 The user needs an address to access the desired document on the internet, here protocol HTTP uses ... to determine any type of information on the internet, where it defines four parts:, and,, and.....

Graduation Project

The graduation project is an assignment that you undertake on your own or in collaboration with one or two of your colleagues, under the supervision of the trainer. Through it, you are required to perform one of the following assignments:

Write a short story, report, or article about a protocol IMAP4.

The student takes on the role of a trainer and writes general guidelines to his colleagues or parents explaining the concept and importance of the IMAP4 protocol.

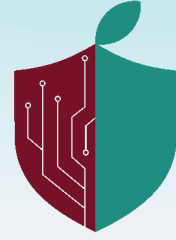


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