

Exercise walk-through

5.1

The internet and the world wide web

IGCSE Computer Science

Cookies

	session	persistent
kept on close?	no	yes
used for	basket, short-term	remembering you between visits

A **cookie** is a small text file a site stores on your device to remember things – logins, preferences, basket contents.

Session cookies die when you close the browser; **persistent** ones survive to recognise you next time.

A cookie is a small text file



a cookie

a small text file
stored on your computer
remembers settings / login

A small text file the site stores on [your](#) computer. It can hold your preferences, the contents of a basket, or [personal details](#) such as a login or address, so you do not type them again – and it can also track what you look at.

What a cookie is for

What it holds

A small text file the site stores in your browser – a session id, a language choice, items in a basket.

Track user preferences

Sites use them to **track user preferences** between visits, so you stay logged in and the settings persist.

The other use

Third-party cookies follow a visitor *between* sites to build an advertising profile – the reason for consent banners.

Privacy settings

Privacy settings in a browser control which cookies are accepted, and clearing them logs you out of everything.

A cookie cannot run code. What makes it sensitive is not what it does, but what it lets a site *remember*.

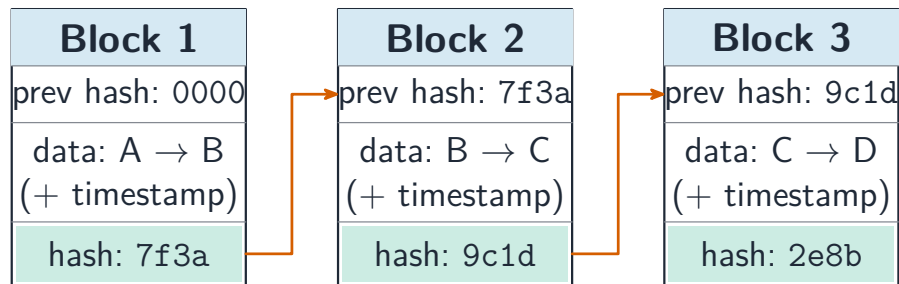
Digital currency

A **digital currency** is money that exists only in **electronic form** .

Stored and moved by computer, and spendable online. The problem is **trust**: what stops someone spending the same money twice, or editing the records? That is the question blockchain exists to answer.

Blockchain

each block stores the previous block's hash



A **blockchain** is a shared **digital ledger** of every transaction. Each block holds the data, a **timestamp**, a **hash**, and the hash of the block before.

Change one old block and its hash changes – breaking every block after it. That chained hash is what makes tampering **obvious**.

Exercises 2.1-2.3

2.1 State the difference between the internet and the world wide web. [2]

2.2 State the purpose of a DNS. [1]

2.3 Identify the three parts of the URL `https://www.school.org/exams/paper1.html`. [3]

Exercises 2.1-2.3

2.1 State the difference between the internet and the world wide web. [2]

2.1

- the **internet** is the worldwide network (infrastructure)
 - the **web** is the collection of websites you view on it
-

2.2 State the purpose of a DNS. [1]

2.2

- DNS stores the IP address for each web address
 - it **turns a URL into an IP address**
-

2.3 Identify the three parts of the URL `https://www.school.org/exams/paper1.html`. [3]

2.3

- protocol: **https**
- domain name: **www.school.org**
- file path: **/exams/paper1.html**

Exercises 2.4-2.5

2.4 Give two uses of a persistent cookie.

[2]

2.5 Explain how a blockchain makes it hard to change a past transaction.

[2]

Exercises 2.4-2.5

2.4 Give two uses of a persistent cookie.

[2]

2.4

- any **two** of: remember log-in / store preferences / save a basket between visits / targeted advertising

2.5 Explain how a blockchain makes it hard to change a past transaction.

[2]

2.5

- each block stores a **hash of the previous block**
- changing one block changes its hash, so later blocks no longer match and the **tampering is visible**

Exercise 3.1

3.1 A cookie deleted when you close the browser is a:

[1]

☐

A persistent cookie

B session cookie

C firewall

D proxy

Exercise 3.1

3.1 A cookie deleted when you close the browser is a:

[1]

☐

A persistent cookie

B session cookie

C firewall

D proxy

3.1 B

- a cookie deleted when the browser closes is a **session cookie**
- A survives between visits; C and D are not cookies

Exercise 3.2 (a)

3.2 A user types a URL and presses enter.

(a) Describe the steps that load the web page.

[3]

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(a) Describe the steps that load the web page.

[3]

(a)

- the browser asks a **DNS** for the site's IP address
- it contacts the web server using that IP
- the server returns the HTML, which the browser **renders**

Exercise 3.2 (b)

3.2 A user types a URL and presses enter.

(b) State one use of a persistent cookie.

[1]

Exercise 3.2 (b)

3.2 A user types a URL and presses enter.

(b) State one use of a persistent cookie.

[1]

(b)

- remembering you / your details **between visits**

Exercise 3.3 (a)

3.3 A student uses a browser to visit an online shop.

(a) Complete the table by identifying each part of the URL `https://www.shop.co.uk/cart/checkout.html`. [3]

Part	Value
protocol	
domain name	
web page or file path	

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(a) Complete the table by identifying each part of the URL `https://www.shop.co.uk/cart/checkout.html`. [3]

Part	Value
protocol	
domain name	
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(a)

- protocol: **https**
- domain name: **www.shop.co.uk**
- file path: **/cart/checkout.html**

Exercise 3.3 (b)

3.3 A student uses a browser to visit an online shop.

(b) Describe how the web page is retrieved and displayed, from the moment the student presses enter. [5]

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(b) Describe how the web page is retrieved and displayed, from the moment the student presses enter. [5]

(b)

- the browser sends the domain name to a DNS server
- the DNS returns the matching IP, passing on if it does not hold the name
- the browser requests the web server at that IP
- the web server sends back the HTML
- the browser **renders** the HTML

Exercise 3.3 (c)

3.3 A student uses a browser to visit an online shop.

(c) The shop stores the contents of the basket in a session cookie. Explain why a session cookie is suitable, and state one thing the shop should use a persistent cookie for instead.^[3]

Exercise 3.3 (c)

3.3 A student uses a browser to visit an online shop.

(c) The shop stores the contents of the basket in a session cookie. Explain why a session cookie is suitable, and state one thing the shop should use a persistent cookie for instead.[3]

(c)

- a session cookie is **deleted when the browser closes**
- that suits a basket that only needs to last for one visit
- use a **persistent cookie** for log-in details or preferences that must survive between visits

Exercise 3.3 (d)

3.3 A student uses a browser to visit an online shop.

(d) The student notices the protocol is **https** and not **http**. Explain the benefit of **https** for this website. [2]

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(d)

- data between browser and server is **encrypted**
- payment and log-in details cannot be understood if intercepted

Exercise 3.3 (e)

3.3 A student uses a browser to visit an online shop.

(e) Explain the difference between the internet and the world wide web.

[2]

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3.3 A student uses a browser to visit an online shop.

(e) Explain the difference between the internet and the world wide web.

[2]

(e)

- the **internet** is the worldwide network of connected networks
- the **world wide web** is the collection of pages and resources accessed using it