

Exercise walk-through

5.5

Legal and Ethical Concerns

AP Computer Science Principles

Legal & ethical concerns

Intellectual property and **copyright** protect a creator's work, so using it may need permission or a licence – **open-source** and Creative Commons licences grant that permission in advance. **Plagiarism**, passing off someone's work as your own, is unethical and often illegal. Collecting personal data raises **privacy** questions about consent and misuse.

Copyright

protects creators

Creative Commons

permission in advance

Open-source

free to use & improve

Beyond the law lies **ethics**: using data legally is not always ethical – surveillance is the standing example. Respect **privacy**, be honest, and credit others.

Legal, ethical, and safe – three different questions

the principle

just because something is **technically possible** does not make it legal or ethical

intellectual property

copyright covers code and content; **Creative Commons** licences state in advance what reuse is allowed

open source

source made freely available under a licence – free to use is not the same as free of conditions

PII

personally identifiable information – name, address, ID numbers – shared carefully, because it enables **identity theft**

protecting it

strong unique passwords, **multifactor authentication**, and **encryption** in transit and at rest

Answer with the **specific** risk, not “it is dangerous”: what could be taken, by whom, and what stops them.

Safe computing

Guard your **personally identifiable information** (PII). Threats: **phishing**, **malware**, social engineering.

Symmetric

one shared key locks
& unlocks – fast

Asymmetric

public key locks, private
key unlocks – secure sites

Encryption

plus strong **authentication**
(login) keep data safe.

(two-factor



*Hardware has
environmental costs*

Key points

Innovations bring **benefits, harms** & unintended effects

The **digital divide** & **computing bias** raise fairness

Copyright, Creative Commons & open-source; ethics

Encryption & authentication for safe computing

Worked example – naming a bias, and its cause

A hiring algorithm trained on past hires (mostly one group) now rejects qualified applicants from other groups

Name it: this is **computing bias**, caused by **biased training data** – the model learned the **historical pattern** instead of a fair rule.

A full-mark answer states the **harm** (qualified people are unfairly rejected) **and** its **cause** (the bias came from the **data**, not the code).

Exercises 2.1-2.3

2.1 State what copyright protects.

[1]

2.2 State what a Creative Commons license does.

[1]

2.3 State the difference between using material legally and using it ethically.

[2]

Exercises 2.1-2.3

2.1 State what copyright protects.

[1]

2.1

- the work of a creator (their original creative work)

2.2 State what a Creative Commons license does.

[1]

2.2

- it grants others permission to use the work under stated conditions

2.3 State the difference between using material legally and using it ethically.

[2]

2.3

- legal use follows the law; ethical use also respects fairness, privacy, and honesty even where the law allows it

Exercises 3.1-3.2

3.1 Copyright protects the

[1]

☐

- A** hardware
- B** work of a creator
- C** Internet itself
- D** processor

3.2 A Creative Commons license

[1]

☐

- A** blocks all use of a work
- B** grants permission to use a work under conditions
- C** deletes files
- D** encrypts data

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- work of a creator.

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- A blocks all use of a work
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3.2 B

- grants permission to use a work under conditions.

Exercise 3.3 (a)

3.3 A student copies an image into a school project.

(a) Name what protects the original creator's work.

[1]

Exercise 3.3 (a)

3.3 A student copies an image into a school project.

(a) Name what protects the original creator's work.

[1]

(a)

- copyright (intellectual property)

Exercise 3.3 (b)

3.3 A student copies an image into a school project.

(b) Name a license type that might permit reuse.

[1]

Exercise 3.3 (b)

3.3 A student copies an image into a school project.

(b) Name a license type that might permit reuse.

[1]

(b)

- a Creative Commons or open-source license

Exercise 3.3 (c)

3.3 A student copies an image into a school project.

(c) State one responsibility toward others' work.

[1]

Exercise 3.3 (c)

3.3 A student copies an image into a school project.

(c) State one responsibility toward others' work.

[1]

(c)

- credit the creator and respect the license terms