



F12.9 Project: an impact report

Technology and society · GCSE · OCR J277 1.6.1, AQA 8525 3.8, Edexcel
1CP2 5.1.1 · about 25 min

What this lesson is about

Read the trial log, anonymise it, cost its energy and carbon, and publish a report.

- The log
- What the report needs
- Reading the file
- Plan it first

Questions

5 marks in all

1. Why does the report use "student 1" instead of names? [1 mark]

- ☐ A So it holds no personal data and can be shared safely
- ☐ B To make it shorter
- ☐ C Because names are hard to print
- ☐ D To save electricity

Answer: A. It keeps the useful pattern without identifying anyone.

2. Which impacts does the report cover? [1 mark]

- ☐ A Privacy and the environment
- ☐ B Only cost
- ☐ C Only privacy
- ☐ D Only performance

Answer: A. It anonymises the data and costs the energy and carbon.

3. 170 minutes of a 60 W device. How many kWh? [1 mark]

Answer: 0.17. $60 \times (170 \div 60) \div 1000 = 0.17$.

4. Anonymised data can sometimes still identify someone. How? [1 mark]

- ☐ A By joining it with other data
- ☐ B By reading it twice
- ☐ C By compressing it
- ☐ D By encrypting it

Answer: A. A record of one person's exact route home is still that person.

5. What makes a good conclusion to an impact report?

[1 mark]

- ☐ A A judgement supported by the impacts you found
- ☐ B A list of every fact
- ☐ C Only the good news
- ☐ D No conclusion at all

Answer: A. Discuss and evaluate questions expect a supported judgement.

The task: write the report

Read `trial.csv` and print the report, in this order and these exact forms: - sessions: `<n>` - students: `<n>` - total minutes: `<n>` - one line per student, student `<n>`: `<minutes>` min, `<cm>` cm, numbered in the order they first appear - energy: `<kwh>` kWh rounded to 2 decimal places - cost: £`<n>` rounded to 2 decimal places - carbon: `<n>` g CO2 rounded to the nearest whole number - personal data in this report: none

```
# the two lines every program starts with: the commands, then the robot
from bugbot import *
connect()

WATTS = 60
PENCE_PER_KWH = 28
GRAMS_PER_KWH = 190
```

The hint students can ask for: Read the file and drop the header line. Give each new name the next number and keep its running totals, so the report can talk about students without naming them. Turn the total minutes into energy, then into money and carbon with the rates given.

A solution

```
from bugbot import *
connect()
WATTS = 60
PENCE_PER_KWH = 28
GRAMS_PER_KWH = 190

rows = open("trial.csv").read().strip().split("\n")[1:]
numbers = {}
minutes = {}
distance = {}
total_minutes = 0
for row in rows:
    name, email, mins, cm = row.split(",")
    if name not in numbers:
        numbers[name] = len(numbers) + 1
        minutes[name] = 0
        distance[name] = 0
    minutes[name] = minutes[name] + int(mins)
    distance[name] = distance[name] + int(cm)
    total_minutes = total_minutes + int(mins)
print("sessions:", len(rows))
print("students:", len(numbers))
print("total minutes:", total_minutes)
for name, n in numbers.items():
    print(f"student {n}: {minutes[name]} min, {distance[name]} cm")
kwh = WATTS * total_minutes / 60 / 1000
print(f"energy: {kwh:.2f} kWh")
print(f"cost: £{kwh * PENCE_PER_KWH / 100:.2f}")
print(f"carbon: {round(kwh * GRAMS_PER_KWH)} g CO2")
print("personal data in this report: none")
```

Any program that meets the task's checks is marked correct in the simulator; this is one way, not the only way.

