



F2.4 Nested selection and match

Decisions and loops · GCSE · OCR J277 2.2.1, AQA 8525 3.2.2, Edexcel
1CP2 6.2.2 · about 15 min

Name _____

Class _____

Date _____

What this lesson is about

Decisions inside decisions, and choosing by exact value with a case statement.

- A decision inside a decision
- Tracing a nested decision
- Nested or joined?
- match: choosing by exact value

Questions

6 marks in all

1. What does this program print?

[1 mark]

```
d = 60
b = 10
if d < 30:
    if b < 20:
        print("stuck and flat")
    else:
        print("stuck")
else:
    if b < 20:
        print("free but flat")
    else:
        print("free")
```

2. Which `else` does an `else` belong to in nested selection?

[1 mark]

- ☐ A The if it lines up with
- ☐ B Always the first if in the program
- ☐ C Always the nearest if above it, whatever the indentation
- ☐ D The last if in the program

3. What does this program print?

[1 mark]

```
command = "left"
match command:
    case "forward":
        print("f")
    case "left" | "right":
        print("sideways")
    case _:
        print("unknown")
```

4. What does `case _:` do in a match? [1 mark]
- ☐ A Matches any value not matched above, like else
 - ☐ B Matches an empty string
 - ☐ C Ends the match
 - ☐ D Causes an error
5. OCR's Exam Reference Language writes a case statement with which keyword? (one word) [1 mark]
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6. Which is the same as `if a > 30: if b > 50: print("go")` (with no else parts)? [1 mark]
- ☐ A `if a > 30 and b > 50: print("go")`
 - ☐ B `if a > 30 or b > 50: print("go")`
 - ☐ C `if not a > 30: print("go")`
 - ☐ D `if a > 30: print("go")`

The task: command mode

The robot asks `Which way?` and then `How far?`. Use `match` (or `elif`) on the direction to drive that far: `forward`, `back`, `left` or `right`. For any other word, print `unknown` and do not move. The task answers `right` and `20`; your program must work for any answers, so do not type them in.

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

command = input("Which way? ")
far = float(input("How far? "))
```

Plan your program here, then type it in and press Run.



Do it on the robot

www.bugbotlab.com/learn/f2-4-nested-selection-and-match/

The simulator checks it and tells you when it passes. Nothing to install, no account.

Challenges

1. Add a `stop` command that turns the LED red and does not move.
2. Make the robot refuse to drive forward when there is less than 30 cm of room, using a nested `if` inside that `case`.

3. Rewrite the command program with `elif` instead of `match` . Which is easier to read?