

Exercise walk-through

Conditionals ■ 3.6

eXercise

You must be able to

- explain how a **conditional** 条件语句 runs a block only when a condition is true
- use an **if** statement with an **else** clause to choose between two paths
- describe how **selection** 选择 lets a program make decisions
- trace which branch executes for given inputs

Method — If and if-else

An **if** statement runs its block only when the condition is **true**. Adding an **else** gives the path taken when it is **false**.

Method — Selection

Selection is how a program **makes decisions** based on data. To predict behaviour, trace which branch runs.

Method — Example

```
if age >= 18: print "adult" else: print "minor" prints "adult" only when  
age is at least 18.
```

Practice 2.1 ■ 1 mark

State what a conditional (if) statement does.

Solution 2.1

Worked steps

it runs a block of code only when its condition is true **B1**.

Practice 2.2 ■ 1 mark

A program runs `if score >= 50: print "pass" else: print "fail"`. State the output when score is 40.

Solution 2.2

Worked steps

fail **B1**.

Practice 2.3 ■ 1 mark

State the term for a program making a decision based on data.

Solution 2.3

Method: Selection

Worked steps

selection **B1**.

Exam-style 3.1 ■ 1 mark

An if statement runs its block

- A** always
- B** only when the condition is true
- C** never
- D** exactly twice

Solution 3.1

Method: If and if-else

- A always
- B only when the condition is true
- C never
- D exactly twice



Worked steps

B.

Exam-style 3.2 ■ 1 mark

An else clause runs when the condition is

A true

B false

C zero

D missing

Solution 3.2

Method: If and if-else

A true

B false



C zero

D missing

Worked steps

B.

Exam-style 3.3 ■ 1 mark

A program runs `if temp > 30: print "hot" else: print "ok".`

- (a) State the output when temp is 35.
- (b) State the output when temp is 20.
- (c) Name the process of choosing between the two branches.

Solution 3.3

Worked steps

(a) hot **B1**. (b) ok **B1**. (c) selection **B1**.