Exercise walk-through

Nested Conditionals ▪ 3.7

eXercise

You must be able to

- explain how a **nested conditional** 嵌套条件 places one conditional inside another
- use nested conditionals to select among **three or more** outcomes
- describe how an **else-if** structure tests conditions in sequence
- trace the path of execution for given inputs

Method — Nested conditionals

A **nested conditional** is a conditional **inside** another. An **else-if** structure tests conditions **in sequence**, taking the first one that is true.

Method — Choosing among many outcomes

`if score >= 90: "A" else if score >= 80: "B" else: "C"` selects one of three grades.

Method — Tracing

Follow the tests in order and stop at the first true branch.

Practice 2.1 ▪ 1 mark

State what a nested conditional is.

Solution 2.1

Method: Nested conditionals

Worked steps

a conditional statement placed inside another conditional B1.

Practice 2.2 ▪ 1 mark

State what an else-if structure does.

Solution 2.2

Method: Nested conditionals

Worked steps

it tests conditions in sequence and runs the first true one B1.

Practice 2.3 ▪ 1 mark

For `if s >= 90: "A" else if s >= 80: "B" else: "C"`, state the grade when `s` is 85.

Solution 2.3

Worked steps

B ($85 < 90$ but $85 \geq 80$) B1.

Exam-style 3.1 ▪ 1 mark

A nested conditional is

A a loop

B a conditional inside another conditional

C a variable

D a string

Solution 3.1

Method: Nested conditionals

A a loop

B a conditional inside another conditional ✓

C a variable

D a string

Worked steps

B.

Exam-style 3.2 ▪ 1 mark

An else-if structure is used to select among

A one outcome

B exactly two outcomes

C three or more outcomes

D no outcomes

Solution 3.2

A one outcome

B exactly two outcomes

C three or more outcomes 

D no outcomes

Worked steps

C.

Exam-style 3.3 ▪ 1 mark

A program runs: `if m >= 50: (if m >= 75: print "distinction" else: print "pass") else: print "fail"`.

(a) State the output when `m` is 80.

(b) State the output when `m` is 60.

(c) State the output when `m` is 40.

Solution 3.3

Worked steps

(a) `distinction` B1. (b) `pass` B1. (c) `fail` B1.