

Exercise walk-through

Program Design and Development ■ 1.3

eXercise

You must be able to

- describe the **iterative** 迭代 and incremental nature of development
- use a process to investigate, design, **prototype** 原型, and test
- create a **program requirements** 程序需求 description
- document a program with clear **comments** 注释

Method — Iterative development

Programs are built in **repeated cycles**: design → prototype → test → refine, again and again, improving each time.

Method — Requirements and planning

A **requirements** description captures what the user needs. Good practice is to **plan** the program before writing code.

Method — Comments

Comments are notes in the source code that explain **how and why** it works, helping others (and your future self) understand it.

Practice 2.1 ■ 1 mark

State what “iterative” development means.

Solution 2.1

Method: Iterative development

Worked steps

developing in repeated cycles, refining the program each time **B1**.

Practice 2.2 ■ 1 mark

State the purpose of a program requirements description.

Solution 2.2

Method: Requirements and planning

Worked steps

to capture what the user needs the program to do **B1**.

Practice 2.3 ■ 1 mark

State why programmers add comments to their code.

Solution 2.3

Method: Comments

Worked steps

to explain how and why the code works **B1**.

Exam-style 3.1 ■ 1 mark

An iterative development process is one that

- A** never changes
- B** repeats and refines
- C** skips testing
- D** has no plan

Solution 3.1

Method: Iterative development

A never changes

B repeats and refines 

C skips testing

D has no plan

Worked steps

B.

Exam-style 3.2 ■ 1 mark

Comments in a program are used to

- A** make it run faster
- B** explain how and why the code works
- C** store data
- D** create loops

Solution 3.2

- A** make it run faster
- B** explain how and why the code works 
- C** store data
- D** create loops

Worked steps

B.

Exam-style 3.3 ■ 1 mark

A student plans, builds, tests, then improves a program over several cycles.

- (a) Name this kind of process.
- (b) State one step done before writing code.
- (c) State one benefit of adding comments.

Solution 3.3

Method: Requirements and planning

Worked steps

(a) an iterative (and incremental) process **B1**. (b) investigate needs / write requirements / design or plan (any one) **B1**. (c) it makes the program easier to understand and maintain **B1**.