

Exercise walk-through

Libraries ■ 3.14

eXercise

You must be able to

- explain how a **library** 库 is a collection of reusable procedures
- describe how an **API** 应用程序接口 documents how to use a library
- call library procedures to add **functionality** 功能 without writing it from scratch
- select an appropriate library for a problem

Method — Library and API

A **library** is a collection of procedures that can be reused across programs. An **API** (application program interface) documents **how to use** the library — what procedures exist and what they need.

Method — Why use one

Calling library procedures adds **functionality without writing it from scratch**, and libraries support **abstraction** by hiding complex implementation detail.

Practice 2.1 ■ 1 mark

Define a software library.

Solution 2.1

Worked steps

a collection of procedures that can be reused across programs **B1**.

Practice 2.2 ■ 1 mark

State what an API documents.

Solution 2.2

Worked steps

how to use the library (its available procedures and how to call them) **B1**.

Practice 2.3 ■ 1 mark

State one benefit of using a library.

Solution 2.3

Worked steps

it adds functionality without writing it from scratch **B1**.

Exam-style 3.1 ■ 1 mark

A library is a collection of

- A** variables
- B** reusable procedures
- C** errors
- D** bytes

Solution 3.1

Method: Library and API

A variables

B reusable procedures



C errors

D bytes

Worked steps

B.

Exam-style 3.2 ■ 1 mark

An API is used to

- A** store data
- B** document how to use a library
- C** compress files
- D** sort a list

Solution 3.2

- A store data
- B document how to use a library
- C compress files
- D sort a list



Worked steps

B.

Exam-style 3.3 ■ 1 mark

A developer needs graph-drawing features for a program.

- (a) State whether to write them from scratch or use a library.
- (b) Name what documents the library's use.
- (c) State how libraries support abstraction.

Solution 3.3

Method: Why use one

Worked steps

(a) use a library **B1**. (b) the API **B1**. (c) they hide the complex implementation detail **B1**.