

Exercise walk-through

Anatomy of a Class ■ 3.3

eXercise

You must be able to

- identify the parts of a **class** 类: instance variables, constructors, and methods
- declare **instance variables** 实例变量 to hold each object's state
- use `private` and `public` to control **encapsulation** 封装

Method — Parts of a class

- **Instance variables** — hold the object's **state** (data).
- **Constructors** — set up a new object.
- **Methods** — the object's behaviour.

Method — Encapsulation

Declaring instance variables `private` **hides** them, so they can only be changed through `public` methods — this is **encapsulation**, which protects an object's data.

Practice 2.1 ■ 2 marks

Name the three parts of a class.

Solution 2.1

Method: Parts of a class

Worked steps

instance variables, constructors, methods **B1** **B1** *for any two; for all three.*

Practice 2.2 ■ 1 mark

State what instance variables hold.

Solution 2.2

Method: Parts of a class

Worked steps

the state (data) of each object **B1**.

Practice 2.3 ■ 1 mark

State the access modifier used to hide data.

Solution 2.3

Worked steps

```
private B1.
```

Exam-style 3.1 ■ 1 mark

The state of an object is held in its

- A** methods
- B** instance variables
- C** constructors
- D** comments

Solution 3.1

A methods

B instance variables 

C constructors

D comments

Worked steps

B.

Exam-style 3.2 ■ 1 mark

To hide a class's data, declare it

A public

B private

C static

D void

Solution 3.2

Method: Parts of a class

A public

B private



C static

D void

Worked steps

B.

Exam-style 3.3 ■ 1 mark

A `BankAccount` class stores a balance.

- (a) Name what the balance is (which part of the class).
- (b) State the modifier to keep it hidden.
- (c) Name the idea of hiding data behind methods.

Solution 3.3

Method: Parts of a class

Worked steps

(a) an instance variable **B1**. (b) private **B1**. (c) encapsulation **B1**.