

2.1 COMPUTATIONAL THINKING · 2.1.2

Thinking ahead

Original practice questions · 30 marks · about 40 minutes · spec 2.1.2(a)–(d)

Instructions. Answer all questions. The number of marks is shown in brackets []. The extended question is marked for quality of written communication.

1 Total: 6 marks

A website lets users book cinema tickets, choosing a film, a showing and the number of seats.

(a) Identify **three** inputs to this booking system. [3]

(b) Identify **two** outputs the system would produce. [2]

(c) State what is meant by an *input*. [1]

2 Total: 5 marks

(a) State what is meant by a *precondition*. [1]

(b) State a precondition of a binary search, and explain why it is needed. [2]

(c) State a precondition for a routine that withdraws money from an account. [1]

(d) State a precondition for a function that divides two numbers. [1]

3 Total: 4 marks

(a) Give **two** examples of reusable program components. [2]

(b) Give **two** advantages to programmers of using reusable components. [2]

- (a) State what is meant by *caching*. [2]
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- (b) Describe how a cache responds to a cache **hit** and a cache **miss**. [2]
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- (c) State one benefit of caching. [1]
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- (d) State one drawback of caching. [1]
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A web browser stores copies of recently visited pages and images so they load faster on a return visit.

Evaluate the use of caching by a web browser. Consider its benefits and drawbacks and reach a justified conclusion.

[9]

END OF QUESTIONS