

11. A shop sells a range of 80 different washing machines. Sample data about the washing machines is shown below:

MARKS

DO NOT  
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MARGIN

Brand	RefNo	Maximum wash load (kg)	Spin speed (rpm)	Price (£)	Number in stock
Doolton	D120	11	1400	389.99	34
Hisky	H873	10	1400	289.99	42
Aarch	A423	10	1500	279.00	3
Doolton	D232	12	1500	279.29	22
Aarch	A189	12	1600	349.99	12
Doolton	D387	10	1500	299.00	36
...	...	...	...	...	...

A program is designed to help customers decide which washing machine to buy.

- (a) (i) Using a programming language of your choice, define a suitable record data structure for the washing machine data above.

The record data structure should be called **feature**.

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- (ii) Using a programming language of your choice, declare the variable called **machines** which can store the details of the 80 washing machines. Your answer should use the record data structure created in part (i).

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## 11. (continued)

- (b) Customers often ask questions about the washing machines.

For example:

*'How much is the cheapest washing machine that can do a wash load of 11 kg or more and a spin speed of 1500 rpm or more?'*

The top-level design for the algorithm to answer this question is shown below:

1. Read data from text file into data structure.
2. Ask user to enter the smallest wash load and the slowest spin speed required.
3. Find the price of the cheapest washing machine(s) if there is one that meets the entered criteria.
4. Display the price of the cheapest washing machine(s) that meets the entered criteria or a message stating 'No washing machine meets the criteria'.

Complete the table below to show the missing data flow for steps 3 and 4.

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Step	IN/OUT	Data flow
1	IN	
	OUT	machines()
2	IN	
	OUT	smallestWash, slowestSpin
3	IN	
	OUT	cheapestPrice, found
4	IN	
	OUT	



\* X 8 1 6 7 6 0 1 1 4 \*

11. (continued)

- (c) Step 3 finds the price of the cheapest washing machine(s) that meets the entered criteria. If there is not a washing machine that meets the criteria then found is set to false.

Using a programming language of your choice, write the code for step 3. Your answer should use the data structure created in part (a).

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