MODULE M PROGRAMMING · M27

Records

Original practice questions · 20 marks · ~25 minutes · OCR J277 spec 2.2.3, 2.2.2

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**. Code on this sheet is written in OCR Exam Reference Language. OCR Exam Reference Language has no keyword for records, so in Question 3 a field is written as `recordName.fieldName`.

A tool-hire shop lends out tools such as hedge trimmers and floor sanders by the day. Its program stores the details of each tool as a **record**.

1

Total: 5 marks

(a) Describe what is meant by a **record**. **[2]**

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

(c) Give **two** differences between how data is stored in a record and how data is stored in a 1D array. **[2]**

2 **Total: 4 marks**

One tool record is shown. Complete the table to give the most appropriate data type for each field. The first row has been done for you. **[4]**

Field	Example data	Data type
`toolID`	TH204	String
`description`	Pressure washer	
`dailyRate`	24.00	
`minDays`	2	
`available`	True	

(`dailyRate` is the cost in pounds to hire the tool for one day. `minDays` is the smallest number of whole days the tool can be hired for.)

3 **Total: 4 marks**

This program stores one tool in a record called `hireTool` and decides whether a customer can hire it.

```
01 hireTool.toolID = "TH204"
02 hireTool.description = "Pressure washer"
03 hireTool.dailyRate = 24.00
04 hireTool.minDays = 2
05 hireTool.available = True
06 days = 3
07 if hireTool.available == True AND days >= hireTool.minDays then
08     print(hireTool.description)
09     print("Cost: " + str(hireTool.dailyRate * days))
10 else
11     print("Cannot hire")
12 endif
```

(a) State the output of the program. **[2]**

(b) Line 06 is changed to `days = 1`. State the output of the program. **[1]**

(c) The shop puts up the price of this tool. Write **one** statement that adds 1.50 to the daily rate stored in `hireTool`. **[1]**

4

Total: 7 marks

The shop stores the records of five tools in a 2D array called `tools`, like a table. Each row is one record and each column is one field. An array can only store one data type, so every value is stored as a string.

`tools[row, column]` gives the value in that row and column. Both indexes start at 0.

	Column 0 `toolID`	Column 1 `description`	Column 2 `dailyRate`	Column 3 `minDays`	Column 4 `available`
Row 0	`"TH118"`	`"Hedge trimmer"`	`"12.50"`	`"1"`	`"False"`
Row 1	`"TH204"`	`"Pressure washer"`	`"24.00"`	`"2"`	`"True"`
Row 2	`"TH311"`	`"Tile cutter"`	`"18.00"`	`"1"`	`"True"`
Row 3	`"TH427"`	`"Leaf blower"`	`"9.75"`	`"1"`	`"True"`
Row 4	`"TH509"`	`"Floor sander"`	`"31.50"`	`"2"`	`"False"`

(a) State the value stored in `tools[2, 1]`. **[1]**

(b) Write down all of the data in the record for the tool with the ID `TH427`. **[1]**

(c) The hedge trimmer (`TH118`) has been returned. Write **one** statement that updates `tools` to show that it is now available. **[1]**

(d) Use the contents of `tools` shown in the table (ignore the change in part (c)). **[4]**
Write an algorithm that outputs the description of every tool that is available **and** has a daily rate of less than 20.00.
You must use either: OCR Exam Reference Language, or a high-level programming language that you have studied.

Total for this worksheet: 20 marks