



Rewarding Learning

ADVANCED

General Certificate of Education

2022

Centre Number

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Candidate Number

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Software Systems Development

Unit AS 1

Introduction to Object Oriented Development



SDV11

[SDV11]

WEDNESDAY 25 MAY, AFTERNOON

TIME

2 hours.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Write your answers in the spaces provided in this question paper.

Answer **all seven** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 100.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

ADVICE TO CANDIDATES

You are advised to take account of the marks for each part question in allocating the available examination time.

For Examiner's use only			
Question	Marks available	Marks	Remark
1	9		
2	13		
3	10		
4	16		
5	27		
6	15		
7	10		
Total	100		

(iv) Give an example of how the class method, Cost(), would be **called** from an instance of the class Order.

[2]

Examiner Only	
Marks	Remark

4 A designer offers a range of items made up in different styles and fabric patterns.

A class, Item, has been devised to handle details of an item.

```
public class Item{  
    private String    itemID;  
    private String    styleID;  
    private String    patternID;  
    private char      material;    //cotton, silk, linen, velvet  
    private double    price;
```

(a) (i) What process should be used in the class to ensure that the program will not crash if an invalid price is entered to an object of type Item?

_____ [1]

(ii) An efficient placement of the process in the class, Item, would be in the

field constructor

Property /Set method

Complete the statement above by circling one of the options in **bold**.

[1]

(b) Considering this requirement, write the parameterised **field constructor** code for the class Item.

_____ [3]

Examiner Only	
Marks	Remark

5 A fabric designer uses cotton, silk, linen or velvet, printed with uniquely designed patterns, to create a range of items as follows:

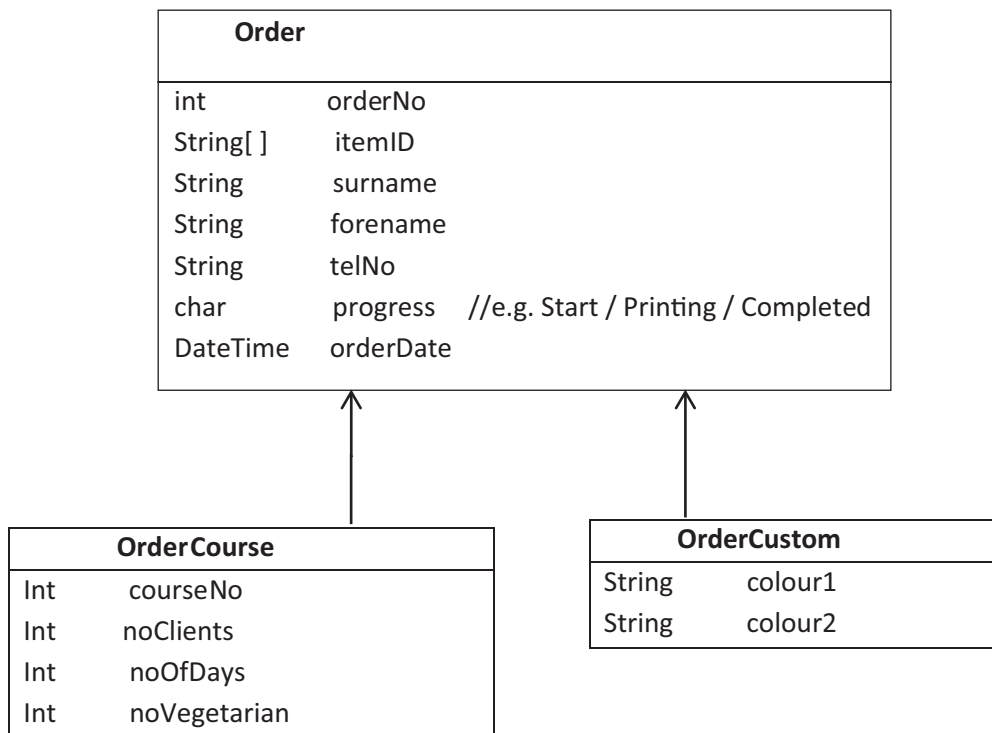
- Lamps (round, square, rectangular)
- Wall hangings (portrait, landscape)
- Scarves (square, rectangular)

These are offered for sale through craft shops and shows.

Items can be ordered from a catalogue for delivery.

Customised orders may also be taken. These allow two alternative colours to be used in the selected pattern. Samples are printed and the sample agreement date is recorded.

Inheritance Diagram for ADDesignStudio



Courses are also run for schools and other organisations. A maximum of six clients is allowed to attend each course. Each course may cover the production of several items.

Examiner Only	
Marks	Remark

- (a) To facilitate the business operation, additional fields should be included in the Inheritance Diagram for ADDesignStudio.

Identify the relevant class for each field given in the table below and the reason for its inclusion in the class.

field	class	Reason
Address1		
startDate		
agreementDate		

[6]

- (b) Giving a reason for your answer, indicate if the header for the class **Order** should be defined as an **abstract** class.

Circle your answer **Yes / No**

Reason: _____

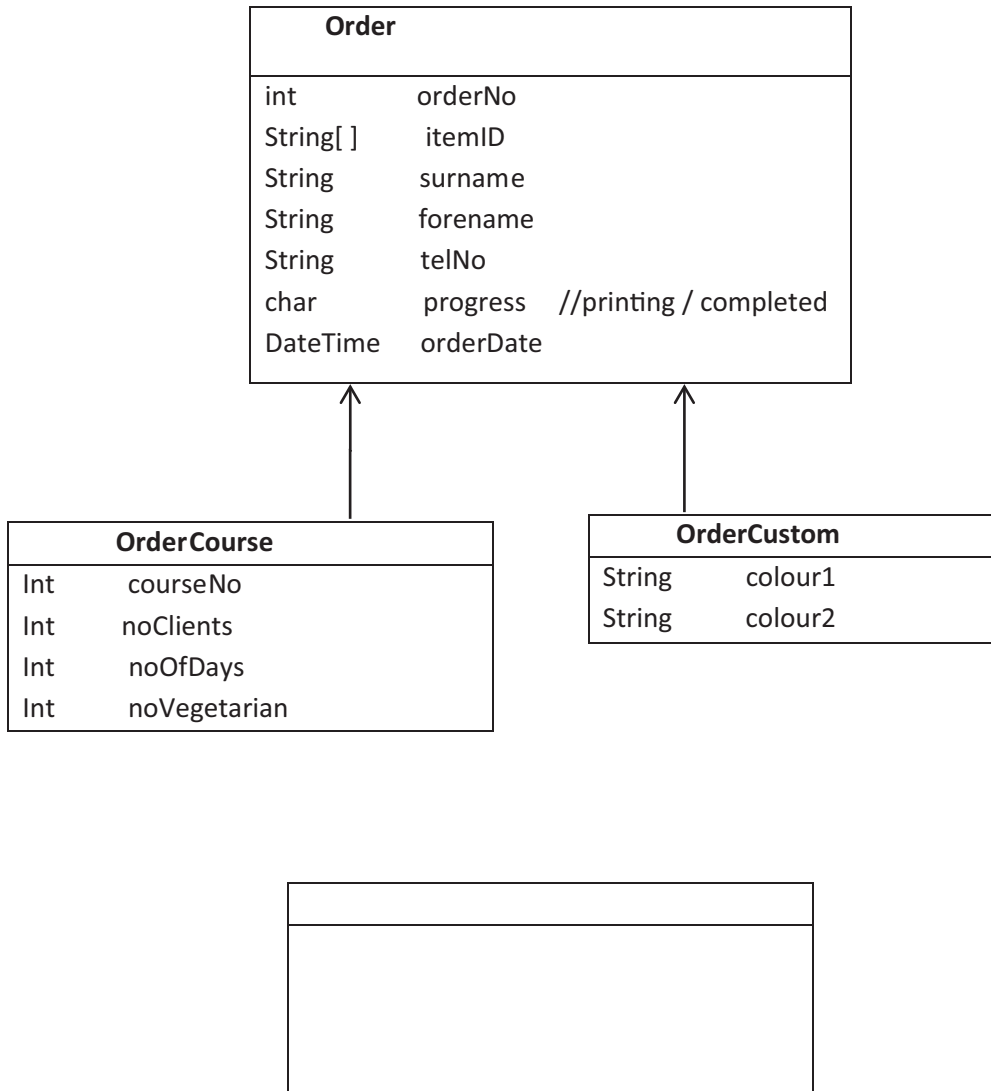
_____ [3]

Examiner Only	
Marks	Remark

6 A barn has been converted to provide accommodation for residential courses. There are six ensuite double bedrooms and an open-plan kitchen diner. The charge each night is £25 **per client sharing**. Single occupancy has a 30% reduction on the charge for a room.

Courses are available as either self-catering or catered. Clients are charged an additional £7.50 each day for catered accommodation.

Inheritance Diagram for ADDesignStudio



(a) Clearly identifying the inheritance, complete the **Inheritance Diagram for ADDesignStudio** above by adding the class name and two essential fields that will handle residential requirements. [4]

Examiner Only	
Marks	Remark

- 7 An analysis of order sales is required to determine the success of each item. There are currently 56 items in the catalogue.

```
class Item{
    private String    itemID;
    private String    styleID;
    private String    patternID;
    private char      material;    //cotton, silk, linen, velvet
    private double    price;
```

An array has been formed to hold details of all types of order for the current year. This array is declared as type Order to allow the analysis of sales to be determined for shop, customised or course orders only.

- (a) Complete the following paragraph.

The inheritance term that best describes this is _____
and the type of an Order can only be determined

at _____.

[2]

- (b) A class ItemSales has been created to hold the total shop sales for each item:

an object of type Item, itemS, and
the total number sold, totSold.

Write the code that will create an array, ArrayItemSales, to hold the 56 items.

[2]

Examiner Only

Marks Remark

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