



GCSE

4343/01

**COMPUTER SCIENCE CS3
CONTROLLED ASSIGNMENT**

For submission in May 2016

(15 hours)

INSTRUCTIONS TO CANDIDATES

This is one of two scenarios available. Each scenario is available separately. You may choose either of the two scenarios. You will have 15 hours to complete your chosen task.

Research tasks can be carried out outside timed conditions.

Read the scenario carefully to make sure that you understand what is needed.

It is important that you work independently from other candidates and make sure that what you hand in is your own unaided work.

Your report should be about 2,000 words.

Make sure that you check your work carefully to ensure that the work you produce is accurate and correct.

Save your work regularly.

INFORMATION FOR CANDIDATES

Teachers and candidates will be required to sign a declaration that all work presented is the work of the candidate alone. Failure to authenticate the work may result in grades being delayed or refused.

The quality of written communication will be assessed in your evaluation.

Betty's Best Ever Bakery

A new business has opened in your local area that provides materials and ingredients for home bakers to create cakes and other baked items in their own kitchens.

The owner has decided to extend the business by allowing customers to purchase cake kits over the Internet. Customers will be able to select the items they wish to make and the owner will send them all the **basic ingredients** that they will need.

To make sure that the business runs efficiently the owner needs a system to work out the basic ingredients for each of the recipes chosen and calculate the total of each basic ingredient needed.

<p>Chocolate Cupcakes (makes 10 cakes)</p> <p>120g plain flour 140g sugar 1 teaspoon baking powder 40g unsalted butter 50g dark chocolate 1 free-range egg 125ml milk 1 orange juice only</p>	<p>Lemon Drizzle Cake (makes 1 cake)</p> <p>4½ free-range eggs 300g sugar 140ml double cream 3 lemons, zest only 1 pinch salt 80g unsalted butter 240g plain flour ½ teaspoon baking powder</p>
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For example, if a customer wanted to make 20 cupcakes and a lemon drizzle cake they would need:

- $280 + 300 = 580$ grams of caster sugar
- $240 + 240 = 480$ grams of plain flour
- $80 + 80 = 160$ grams of unsalted butter
- $2 + 4\frac{1}{2} = 6\frac{1}{2}$ free-range eggs

The owner will not have time to weigh out these ingredients individually and therefore wants to send out bags of each ingredient. The bakery has a range of bag sizes for the standard ingredients such as sugar and flour. Sometimes customers will want to make more cakes, for example, 2 drizzle cakes or 15 cupcakes.

Basic Ingredients

Basic Ingredient	Small	Medium	Large
Plain flour	250 grams	500 grams	750 grams
Sugar	200 grams	400 grams	600 grams
Unsalted butter	125 grams	250 grams	500 grams
Free-range eggs	Box of 6 eggs	Box of 10 eggs	Box of 12 eggs

The owner wants you to write an application that will:

- Input a customer's order which may include ingredients for more than one recipe
- Calculate and display the total quantity for each ingredient
- Calculate the fewest required number of bags and boxes of each basic ingredient
- Produce and display a list of all bags and boxes of each basic ingredient to be sent to a customer

Produce a report fully documenting your solution to automate this process. Credit will be given for the quality of your solution. Your report should be about 2,000 words.