Edexcel GCE

Applied Information and Communication Technology

Unit 7: Using Database Software

January 2009

Scenario

Please open this material immediately. It should be distributed to candidates at least three working weeks before the examination.

Note: There are no practice files for this examination.

The description overleaf will be used as the scenario for the above specification, and will be reissued with the examination paper. This scenario should be used for the purposes of preparing candidates for the examination. This material must not be taken into the examination.

Further details are in the Instructions for the Conduct of Examinations, available from the Edexcel website for this qualification and subject.

Edexcel will not accept any request for special consideration should candidates be given the incorrect scenario for the examination they are sitting.

Turn over

edexcel
advancing learning, changing lives

LAURA ELLE Range of Perfumes

Laura Lewis and Steven Gee are setting up a small business to produce and market perfumes.

Together they have developed recipes for eleven different perfumes.

The 11 perfumes are named

- Midnight Flight
- Aftermath
- Mirepoix
- Joix
- Sabre
- Clubbin
- Opus
- Gorgeous
- Crazy Knights
- Lotus Leaves
- Crystal Web

Laura has approached a large department store chain, which has agreed to provide an outlet for the Laura Elle range of perfumes. They have designed a different 30ml bottle for each of their perfumes.

Steven is concentrating on production. He believes you can advise him on the amount of each ingredient that should be bought and the amount of each perfume that should be produced in a process based on orders received.

The Production Process

The 11 perfumes are mixtures of 12 different ingredients and water in different proportions. Each recipe uses different proportions of the ingredients. The ingredients are supplied in one litre bottles. A production line has been set up.

The production line consists of 12, 15-litre vats, each containing a different ingredient. These vats are positioned above a conveyor belt onto which the perfume bottles are placed at regular intervals. The bottles pass under each of the vats in turn. Each vat has a control which can be set to deliver a fixed number of millilitres (ml) of the ingredient into each bottle as it passes. When a bottle reaches the end of the production line it is automatically filled to the brim with water, shaken and sealed. The bottles are packed in batches of 100.

A trial of the production process has identified a major problem – if a vat runs out of its ingredient in the middle of producing a particular perfume, it ceases to supply that ingredient. The consequence of this will be that the remainder of the perfume bottles in that run will not be filled with the correct proportions of ingredients.

Steven will control production. He requires a database system to enable him to monitor the production process and to ensure that sufficient ingredients are available to complete a production run.

Steven will receive orders for the 11 perfumes from individual stores in the department store chain. Orders for each perfume will be in batches of 100 bottles. For example, if a store orders two batches of Midnight Flight it is requesting 200 bottles. An order may include a request for batches of more than one perfume.

The production process can only produce one perfume at a time. For efficiency, Steven would like the database system to collect together all of the outstanding orders and to calculate how much of each perfume he must produce. He will then do production runs for each perfume in turn producing enough of each to fulfil all of the orders.

For each run Steven would like the system to calculate and display how much of each of the ingredients will be needed for that particular run. He would also like it to display how much of each ingredient (except water of which there is a constant flow) is currently in the vats. If there is enough of an ingredient in a vat for the run to be completed, the system should display that this ingredient is "OK". If there is not enough the system should display "Refill".

Before each run, Steven will look at the display and if any of the ingredients are marked "Refill", he will go into the store room. For each of the vats that need to be refilled, he will retrieve the appropriate number of litre bottles of the ingredient and empty them into the relevant vat. Steven will then input the number of litre bottles of each ingredient used into the system. The system will be updated to reflect the current amount of ingredient in each vat. It will also be adjusted to reflect the number of litre bottles remaining in the storeroom taking into account the number of litre bottles that have been removed. Once the system displays "OK" for all vats, Steven will start the run.

Steven will tell the system when the run has been completed. The system will be updated to reflect how much of each chemical has been used during the run.

As a perfume is produced, the orders on the system will be updated to reflect that the requirements for that perfume have been fulfilled. The run for the next perfume will then commence.

As each perfume production run is completed, the batches will be sent down to the dispatch department, where they will be arranged into orders. Dispatch will have a different interface to the system which will display the complete order for a particular store to ensure that they send the right number of batches, of the right perfumes, to the right stores. When a complete order has been collected together the dispatch manager will tell the system that this has happened and the system will mark the order as having been processed.

In summary, Steven wants a database where he can check the stock levels of ingredients and manage the production of each perfume. Laura is interested in a database which allows her to track the orders from the branches. A database to meet all these needs would be ideal. Being non-ICT specialists they need it to be user friendly and intuitive to use.

BLANK PAGE