



# INTERNATIONAL ADVANCED DIPLOMA IN COMPUTER STUDIES



## MODULE: SYSTEMS ANALYSIS & DESIGN ASSIGNMENT TITLE: Jewellery Store SEPTEMBER 2009

### **Important Notes:**

- ❖ Please refer to the Assignment Presentation Requirements for advice on how to set out your assignment. These can be found on the NCC Education *Campus*. Scroll down the left hand side of the screen until you reach Personal Support. Click on this, and then on Policies and Advice. You will find the Assignment Presentation Requirements under the Advice section.
- ❖ You must familiarise yourself with the NCC Education Academic Dishonesty and Plagiarism Policy and ensure that you acknowledge all the sources which you use in your work. The policy is available on *Campus*. Follow the instructions above, but click on Policies rather than Advice.
- ❖ You must complete the '**Statement and Confirmation of Own Work**'. The form is available on the Policies section of *Campus*. Scroll down the left hand side until you reach Personal Support. Click on this and then click on Policies and Advice.
- ❖ Please make a note of the recommended word count. You could lose marks if you write 10% more or less than this.
- ❖ You must submit a paper copy and digital copy (on disk or similarly acceptable medium). Media containing viruses, or media which cannot be run directly, will result in a fail grade being awarded for this module.
- ❖ All electronic media will be checked for plagiarism.

**Marker's comments:**

**Moderator's comments:**

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**Moderated  
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**Final  
Mark:**

## Introduction

This assignment will allow you to demonstrate an understanding of the modelling of a data-driven system. You will analyse and design a system for a jewellery store including the creation of a prototype user interface for the new system.

## The Scenario

A new jewellery store will stock jewellery from around the world. The display area of the store will not be very large and will only display a small section of the jewellery items that the store holds in its storeroom. The store wishes to install a computer system that will allow customers to search for jewellery items and view images and descriptions of the items. This will allow customers to request items that are not on display.

The public side of this system will work in the same way as typical e-commerce solutions on the Internet but in the initial phase of its operation purchases will only be made in the store, via the sales staff. If the store is successful, they would like the system to expand and power an online store where customers can make purchases from home via their browser.

The jewellery store will be installing a system consisting of several workstations, 4 of which are for use by the public:

- The public workstations will be solely used for searching the catalogue for the availability of items for sale. It is intended that customers will be able to search the catalogue by category (e.g. ring, bracelet, etc), keyword, and price range.
- The remaining workstations will be behind the counter for staff use only. These will have all the facilities available on the public workstations as well as allowing for the recording of sales and customers. There is also a requirement for providing an office software suite for the general needs of the business (word processing, etc.).

The system will also be used for stock control and reporting. Therefore, it must be able to flag up reorder levels for items of jewellery and also be able to generate sales figures (numbers sold, money received, etc) for individual jewellery items. The system must also be able to produce monthly total sales figures for the whole store.

The store will be staffed by 4 people at any time; three sales assistants and a manager. The sales assistants will be responsible for maintaining the display of the store, registering customers and registering the sale of jewellery. The manager will help with these duties during busy periods and will also be responsible for general management duties (accounting, correspondence, staffing, etc.). The manager will also order new jewellery from a number of sources and will decide which of the older items will be sold at discount prices to customers.

## **Task 1 – 20 Marks**

Create a process model for the jewellery store system comprising:

- a) A Context Diagram of the jewellery store system.
- b) A statement of the aims and objectives of the jewellery store system.
- c) A Data Flow Diagram for the jewellery store system including:
  - Process descriptions
  - Dataflow descriptions
  - Data store contents
  - External entity definitions

## **Task 2 – 20 Marks**

Create a data model detailing the data structure required to support the information and process requirements of the jewellery store system including:

- An Entity Relationship Diagram for the system.
- Entity descriptions for all entities in the diagram.
- Appropriate attributes for all entities including primary and foreign keys.
- Relationships detailing optionality and degree of relationships between entities.

## **Task 3 – 5 Marks**

Create an Entity Life History for a jewellery item.

## **Task 4 – 20 Marks**

Create a database design for the jewellery store system including:

- A set of fully normalised tables showing the normalisation process for each.
- Data Dictionary entries for all items included in the database design.

## **Task 5 – 15 Marks**

Create a prototype user interface for the jewellery store system including, as a minimum, the following functions:

- Searching for an item of jewellery.
- Processing the purchase of an item of jewellery.
- Adding a new item of jewellery to the system.

Print screenshots of the user interface for the functions above. Where necessary, describe where validation rules are applied and the reasons for this.

## Task 6 – 20 Marks

Create a comprehensive, professional standard report describing your system design for the jewellery store. This should include the details of Tasks 1 – 5 and details of site preparation for the installation of the system plus details of the hardware to be installed.

The report should be approximately 4500 words in total (+/- 10%) and should include an appendix of not more than 500 words reviewing your work. Your review should include any assumptions you have made and any changes you would make to improve your work.

## Guidance

Work through each task, making copies of the diagrams and code as you complete them. These will be required in your submission. The diagrams should be produced using appropriate tools.

Take regular backups of your work. This will enable you to recover quickly should the system fail and also will allow you to backtrack if your development goes badly wrong.

Discuss your designs, giving the reasons for the choices you are making, with your tutor who may give advice. Document your choices as you progress. Update all your documentation as changes are made. Any refinement process should produce a series of improved designs.

## Submission Requirements

A word-processed report of professional standard covering tasks 1 – 6 and an electronic copy of all work.

### **Warning: All media must be virus free!**

Media containing viruses, or media which cannot be run directly, will result in a FAIL grade being awarded for this module.

**You must read and understand NCC Education's policy on 'Academic Dishonesty and Plagiarism'.  
You must complete the 'Statement and Confirmation of Own Work' form and attach the  
completed form to your assignment.**