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in partnership with

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ICT40515 Certificate IV in Programming

Develop a UI to interact with a database

**SP6/Module 9 Assessment**

ICTPRG403 Develop data-driven applications

ICTICT420 Develop client user interface

ICTPRG410 Build a user interface

Assessment: 33130/01

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**Assessment task 33130/01**

## Introduction

This assessment will test your skills and knowledge gained through completing the learning and activities in **Module 9: Develop a UI to interact with a database.**

**This is a three-part assessment – this first assessment (33130/01) will need to be completed and submitted to your trainer for marking and feedback *before* you move onto the second assessment (33130/02).**

In the first part of the assessment, you will analyse a requirements brief to design and develop user interfaces for a number of screens.

In the second part, you will write code for the screens developed in the first part of the assessment to connect and interact with a database.

In the third part of the assessment, you will answer a number of questions, which will test your knowledge on developing and building a user interface, and developing a data driven application.

**Note – you must successfully complete ALL assessments (33130/01, 33130/02 and 33130/03) to achieve competency in:**

***ICTPRG403 Develop data-driven applications***

***ICTICT420 Develop client user interface***

***ICTPRG410 Build a user interface***

**CASE STUDY**

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| **Acme Insurance Company**  https://s-media-cache-ak0.pinimg.com/564x/11/c2/92/11c29263df7ad88a1047a0bb9e5dab02.jpg  **Source:** [**Pinterest**](https://au.pinterest.com/pin/411657222161967801/)  **Outline**  The Acme Insurance Company sells a range of insurance products, from life insurance to car insurance to home and contents insurance. You have previously done some work for the company by developing a tax calculator to calculate the tax payable by their employees.  Mr Wile E., the CEO of the Acme insurance Company, has decided that he would like a database developed to store details of his customers, their insurance products and which products have been purchased by each of their customers. Each sale can only have one product associated to it. He would like an application developed so that information is easily maintained in the database.  The database, which includes relevant stored procedures and data, has already been developed. You can download the database script [here](https://app.box.com/s/opfswywdnrcm9zw4epbzhuzw3dsk4c6t/1/12036199155/100808205215/1). You could either use the stored procedures that are already developed or create new procedures as per your requirements. In SQL Server Management Studio, run this script to create the Acme Database, tables, stored procedures and populate the tables with data. Below is the data schema:    Your first task is to design and develop the user interface for the Customers, Categories, Products, ProductTypes and Sales tables. You are to create a maintenance screen for each of these tables. That is, to list rows from the table and allow the user to add, update, delete and search for rows. You are to create the add/update and search UI for each of these. Design appropriate screen dialogues to confirm and convey critical information. You are also to design and develop a main form to access these screens as well as an About screen and a Tutorial screen which will provide a brief overview on how to use the system. These screens are to be accessed by a menu from the main form. The Main form is to display a dashboard (use a ListView control) which will list each product, the product type and the number of customers that have purchased the product.  The client wants the ability to search for records using two criteria for the Customers, Products and Sales records.  The menu structure is as follows:   |  |  | | --- | --- | | **File** | **Help** | | Categories | Tutorial | | Customers | About | | Products |  | | Product Types |  | | Sales |  |   An Exit button is to be displayed to close the application.  The Acme Insurance Company has a style guide to help you in designing and developing your screens. You can download a copy of the style guide [here](https://app.box.com/s/opfswywdnrcm9zw4epbzhuzw3dsk4c6t/1/12036199155/100815134004/1).  The only code which needs to be written at this stage is that to facilitate content flow and the presentation of dialogue screens. Screen dialogues are to be designed in accordance with the style guide.  Your screen designs are to be placed in a report to be submitted to Mr Wile E. for approval. You can download a template of the report [here](https://app.box.com/s/opfswywdnrcm9zw4epbzhuzw3dsk4c6t/1/12036199155/100811554517/1). Rename the UI Design document to *UI Design Requirements\_yourName\_studentNumber.docx* (For example, *UI Design Requirements\_ JohnSmith\_17756433.docx*). |

**Tasks 1–4**

**Design and develop UI screens**

Read the case study above thoroughly. Highlight, make notes, or extract the important information about the requirements put forth by the Acme Insurance Company. In the following tasks, you will need to use this information to create the requested application and associated documentation.

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| **Task 1: Analyse requirements, create application content flow diagram and UI Prototypes.**   1. In section one of the UI Design document, write a requirements brief as given to you by the Acme Insurance company. In this brief, detail:  * A high level overview of the user requirements. * A list of the system environment and any impacts this will have on designing the UI. * How you will use the Acme style guide to design and develop the UI * The application development language and IDE that you will use to develop the UI * A definition of data query and report formats for the user interface design where appropriate, such as how you will access data from the database and present the information.  1. In section two of the UI Design document, display an application content flow diagram detailing the flow between the Main form and the following forms:  * categories form and corresponding add/update and search forms * customers form and corresponding add/update and search forms * product Types form and corresponding add/update and search forms * products form and corresponding add/update and search forms * sales form and corresponding add/update and search forms * tutorial form * about form.  1. Before you actually develop the application, the client would like to review a few of the screen prototypes. Using Visual Studio, or any other prototyping tool, develop the UI interface prototypes for all forms required for the **'Customers'** and **'Sales'** entity. Attach images of the Prototype you have developed. 2. Review the UI Prototypes with the client.   An important part of being a successful IT professional is the ability to communicate with your client. This includes encouraging them to provide details which may help you better understand their needs. Many clients are not accustomed to verbalising technical requirements, so you need to be able to guide them in a face-to-face situation. In this task, you will perform a review meeting with ‘your client’ to demonstrate your skills in communication.  Ask a friend, family member, colleague, or peer to act as Mr Wile E., the client. Have them read the case study so they can get a clear idea of what Mr Wile might be looking for.  Present the application content flow along with the Prototypes that you have created and seek feedback from the client. Attach a 3-5min video recording of your review meeting.    **Submit:**   * **Completed Requirements Brief in the UI Design document.** * **Completed Application Content Flow diagram in the UI Design document.** * **Images of the prototypes.** * **3-5min Video recording of the reviewing meeting with the client.** |

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| **Task 2: Design and Develop the UI**   1. Design all the forms and their corresponding components and events. For the Search forms, provide in the design a minimum of two search criteria as well as the list all option for the Customer, Product and Sales forms.   This will involve attaching a brief description of the form, with a list of the components and their corresponding details.  Complete the section 5 in the UI Design Template with all the required information.   1. Now to develop the UI based on the above design. Write appropriate code to facilitate the flow between the various forms. For the Delete event of each maintenance form, begin by writing the code to ask if they wish to continue with the deletion. Place a screen shot of the message box with the screenshot of the maintenance form.   **Submit:**   * **Completed Form Designs in the UI Design document.** |

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| **Task 3: Testing the UI**  You are required to test your UI design to ensure correct content flow. In recording this, you are to complete the [testing template](https://app.box.com/s/opfswywdnrcm9zw4epbzhuzw3dsk4c6t/1/12036199155/100809063251/1) provided. Rename the testing template document to TestCase\_yourName\_studentNumber.docx. (For example, TestCase\_JohnSmith\_17756433.docx).  For the testing document, include the name of the application, your name, the date of when the test was carried out and a brief description of what you are going to test in *Test Specifications*. For each test, assign a sequential number to the ID column, what you are testing, how you are going to perform the test, the steps in performing the test, what you will be inputting, the expected and actual result and if the test passed or failed.  Create at least four test cases using the testing template to test the outcomes of the following:   * display and closing of the Main form * display and closing of the Customers form * display and closing of the Customers Add/Update and Search forms, ensuring correct tabbing. * display of the confirmation message box to delete a Customer.   You can do other test cases.  **Submit:**   * **Testing document with results** |

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| **Task 4: Review and Sign-off**  Your assessor will act as the client to review the UI you have created and provide final sign-off approval. Any requested changes will be relayed back to you for updating.  **Submit:**   * **UI Design Document** * **Developed UI** |

**Next steps for you:**

You have now reached the end of this assessment.

Ensure that you have completed all of the above tasks. Use the checklist to double check that you have submitted everything required for this assessment.

Zip all your files (including your Visual Studio project files) and upload to OpenSpace. Name your file 33130-01\_yourName\_studentNumber.zip. (For example, 33130-01\_JohnSmith\_17756433.zip).

Your trainer will provide you with feedback for this assessment – ensure that you read this feedback carefully.

**Checklist of items to submit as evidence for this assessment:**

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| **PART A** | | |
| TASK 1 | Requirements brief (UI Design document) | ⌧ |
| TASK 1 | Application content flow diagram (UI Design document) | ⌧ |
| TASK 1 | Screen Prototypes (UI Design document) | ⌧ |
| Task 1 | Review the UI Prototypes with the client (Video Recording). | ⌧ |
| TASK 2 | Design and Develop the UI (UI Design document) | ⌧ |
| TASK 3 | Testing the UI (Testing Template) | ⌧ |
| TASK 4 | Submit Assessment for grading | ⌧ |
| **Name each assessment file appropriately and submit for marking.** | | |