EasyBusiness

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A project report submitted in partial fulfilment for the degree of

**Bachelor of Science in Computing**

**School of Sciences**

**University of Central Lancashire—Cyprus (UCLan Cyprus)**

Abstract

Your are aiming for around 50 pages of report content, this count starts at Chapter 1 and does not includes your references or appendices.

The abstract is the summary of the project report within one page (aim for about 500 words). Unnumbered chapter headings, as above, are entered using the ‘Heading (Unnumbered)’ style, which automatically starts a new page.

This template starts the page numbering at the foot of this page. That is, the first page does not have a number.

It is suggested that the abstract be structured as follows:

Problem: What you tackled, and why this needed a solution

Objectives: What you set out to achieve, and how this addressed the problem

Methodology: How you went about solving the problem

Achievements: What you managed to achieve, and how far it meets your objectives.

Attestation

I understand the nature of plagiarism, and I am aware of the University’s

policy on this.

I certify that this document reports original work by me during my University project.

**Signature**  **Date**

Acknowledgements

Acknowledge anyone who has helped you in your work such as your supervisor, technical support staff, fellow students or external organisations. Acknowledge the source of any work that is not your own.

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The table of contents below is automatically generated from the paragraphs of style ‘Heading 1’ to ‘Heading 3’ and ‘Heading (Unnumbered)’. To update this after revisions, right-click in the table and choose ‘Update Field’ for the entire table. It is also possible to left-click the table and press F9 to update the entire table. Delete this paragraph before submission.

Sometimes Word does not automatically update references to other parts of the document, such as captions, Table of Contents and cross-references. To update everything, select the whole document by pressing Ctrl+A and then either press F9 or right-click anywhere and click on ‘Update Field’. Confirm all prompts by selecting ‘Update entire table’ and clicking OK.

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Similarly, you can automatically generate a list of ‘Figures’. Right-click a figure (e.g. image or diagram) and add a caption labelled ‘Figure’ and ‘below selected item’. To update this after revisions, right-click in this table and choose Update Field (or use F9) and then choose to update the entire table. Delete this paragraph before submission.

[Figure 1 - Highly Technical Diagram 3](#_Toc476373580)

List of Tables

Similarly, you can automatically generate a list of ‘Tables’. Select a table, right-click it and add a caption labelled ‘Table’ and ‘above selected item’. To update this after revisions, right-click in this table and choose Update Field (or use F9) and then choose to update the entire table. Delete this paragraph before submission.

[Table 1 - Test Results 6](#_Toc476373581)

List of Listings

This list only applies to you if you use code snippets in your report. If you don’t have any listings, remove this whole section including the heading ‘List of Listings’.

You can automatically generate a list of ‘Listings’. After formatting your Code, move the cursor to the first line below your code block and click ‘References’ -> ‘Insert Caption’ in the ribbon menu. Select the label ‘Listing’ or add a new Label called ‘Listing’ if it does not yet exist. To update this after revisions, right-click the table and choose ‘Update Field’ (or use F9) and then choose to update the entire table. Delete this paragraph before submission.

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# Introduction

## Background and Context

In Cyprus, there are many businesses, which most of them are small companies, those face problems such as economic uncertainties. Such businesses do not have a specific size or manpower, but usually have a common problem: spending large amounts of money due to inefficiencies. These inefficiencies can range from the way the company is managed by its director to the routes taken by its salesmen to sell products. Many directors are ignorant of these inefficiencies and as a result struggle to make profits, while they could easily make ends meet by improving the way they are managed. Also, these companies are usually poorly equipped and they do not have the suitable employment, such as accountants or businessmen that can help them to increase the wealth of the company.

According to … (“*Small firms need to upgrade their management skills, their capacity to gather information and their technology base*”). This means that small companies have to upgrade their computer system such us having a management system to help them control and improve the company’s finances. A system of computer is the perfect example that can help eliminate most of these inefficiencies, automate tasks and therefore cut costs.

The most important goal of this project is to finally increase the profits of a business, through computing solutions. Information gathered after a meeting with a potential customer reveals that these statements are true. In addition, and as the potential customer supports, businesses may like to monitor their employee’s performance during their working hours.

## Scope and Objectives

I have developed a program called EasyBusiness to help the local business to eliminate all the economic inefficiencies that may have. Easybusiness havea desktop management program an Enterprise Resource Planning (ERP) system and a mobile Android application. I have choose a small company making fresh juices to use this management system and test it to see if the technology can really help them.

Objectives:

Create a desktop business management application in the context of a small fresh juice company, which allows the director and other managers to overview and manage products, stocks, employees, customers, sales, products etc. and produce reports and possibly graphs related to them.

Create a mobile application for salesmen which displays customer locations which they have to sell products to by day. This application should also allow salesmen to record sales to each individual customer and allow printing of purchase receipts. Lastly, the mobile application could display a pre-defined list of products which the salesman sells to each customer weekly.

Create a web application which allows purchasing company products by customers online.

Improve the businesses’ competitiveness by decreasing costs related to management inefficiencies and increasing profits by creating an online store as a web application.

All of the data used by the three applications should be combined in a single database which is hosted online.

Define the scope and objectives of your project.

## Achievements

Summarise what you have achieved.

## Overview of Report

Briefly overview the contents of what follows in the report. Overview (1-2 lines per chapter):

'Chapter 3 describes the investigation of the problem and presents the top-level analysis as a Yourdon dataflow diagram. ... Chapter 4 contains an overview of the design architecture and examines the key design issues’.

# Literature Review

## Introduction

Each of your chapters should have an introduction to tell your readers what they will find in the chapter.

Summarise current knowledge and what others have done in the various topics of your dissertation – in the application area and in the various technologies that you might have used or did use. Write for someone familiar with computing, but not necessarily expert in the particular topics of your project. Give references to other work by using cross-references to entries in the References section, like this (Turner & Jennings, 2002).

## Section Heading

### First Subsection

If necessary, also use subsections. Subsections are entered using the ‘Heading 3’ paragraph style (all these heading styles are self-numbering).

‘Heading 4’ and ‘Heading 5’ are also styled but it is not recommended to use more than four levels of nesting. Bear in mind that the Table of Contents only contains the ‘Heading 1’ to ‘Heading 3’ styles and ‘Heading (Unnumbered)’.

As a continuation of what is explained on the previous page: Avoid writing text between a parent heading and its first sub-heading. As you can see, there is no text between ‘Section Heading’ (‘Heading 2’) and ‘First Subsection’ (‘Heading 3’).

### Second Subsection

And, as required, more subsections.

## Summary

Write a short summary at the end of each chapter.

# Project Planning

## Introduction

Each of your chapters should have an introduction to tell your readers what they will find in the chapter.

## Methodology

## Requirements

## Potential Solutions

## Tools and Techniques

The development of the Android mobile application will require Android Studio and the Android SDK. Also, for the maps displaying the customer locations, I will be using Google Maps which is included in the Android SDK. The mobile application will require the permission of the user to access the internet so that information can be sent or received from/to the database. The desktop application will be developed using NetBeans IDE and swing forms. Because the desktop application will need to create graphs using various statistics, the JFreeChart library will be used to achieve this. Both of these applications will be developed using Java and these mentioned free tools and libraries. To create and manage the database a database server will be used. Both applications will access the same database and will be able to share data online. I will use a free version of Navicat to connect to and manage this database. The transaction statements will be outputted in CSV or JSON format. This format can be viewed in Android using a default text editor and on desktop using notepad or Microsoft Excel which can also create custom charts. For this, Microsoft Office would be good to have but not necessary. In terms of hardware, the project requires using a wireless receipt printer. The users of the mobile application will print receipts instead of issuing a written statement. This kind of equipment is relatively cheap to buy (€20-€50) and saves time and paper. Moreover, for testing and deployment of the project a laptop or desktop PC is required so that the manager will be able to use the desktop application and mobile phones or tablets running Android are required for the employees to use the mobile application. Both of these applications will be developed incrementally so that it is easier to adjust to any feedback from the client. The focus will be on implementation instead of documentation to achieve a better quality product and make sure that all deadlines are met.

## Legal and Ethical Issues

This product will allow the director of a business to view what their employees at working on during the day. Because the activity of e.g salesmen could be tracked through the mobile application (i.e their location and route could be tracked using GPS) they need to be aware of such an activity taking place during their work hours. Additionally, customer information will be stored on the retail website which needs to be secured. In specific, the customer’s passwords and data should not be accessible by others or be easily hacked by an attacker. In addition, there may be some legal issues with taxes related to purchase tracking and receipts (hard-copy receipts need to be presented for tax payments even though the business will store it electronically).

### First Subsection

If necessary, also use subsections. Subsections are entered using the ‘Heading 3’ paragraph style (all these heading styles are self-numbering).

### Second Subsection

## Another Section

As an example of a figure, consider Figure 1.

To place a figure, insert the picture/diagram/etc. where you want it to be, make sure it is selected and then apply the ‘Figure Centre’ style which centres the figure horizontally.

Captions are entered through the ribbon menu under ‘References’ -> ‘Insert Caption’ or through right-clicking an image and selecting ‘Insert Caption’. Add the caption text in the box, separated with a dash as the example below shows.

Each figure is numbered automatically, and it is possible to make cross-references to figures.

diss-fig

Figure 1 - Highly Technical Diagram

## Summary

Write a short summary at the end of each chapter.

# Design

## Introduction

Each of your chapters should have an introduction to tell your readers what they will find in the chapter.

## System Design

Text goes here.

## User Interface Design

Text goes here.

## Summary

Write a short summary at the end of each chapter.

# Implementation

## Introduction

Each of your chapters should have an introduction to tell your readers what they will find in the chapter.

## Section

### Subsection 1

Code can be formatted using the ‘Code’ style. An example is shown below. It can be a little bit tricky to keep the formatting when pasting from an IDE but the following works for most IDEs: Copy the text from the IDE, paste it in Word, select the pasted code and change the style to ‘code’. It is worth noting that spell checking is deactivated for the ‘Code’ style.

public class Main {  
  
 public static void main(String[] args) {  
 System.*out*.println("Hello World!");  
 }  
}

Listing 1 - [Main.java] The main class of the program

Captions are entered through the ribbon menu under ‘References’ -> ‘Insert Caption’. Select ‘Listing’ (or add a new Label called ‘Listing’ if it does not already exist) and add the caption text in the white box, separated with a dash as the example above shows. Think about a naming convention for listings and stick to it throughout the report. For example, as seen above,  
‘[ClassName or Filename] Description’.

In case you are mixing multiple programming languages: Consider stating the language name in the caption if it is not obvious from the file name or when there is no file name to refer to. For example, when you use XML and HTML, JavaScript and TypeScript or other languages with similar syntax. A suggestion might be to add the language in parenthesis at the end.

It is also possible to use the ‘code’ style “inline” to highlight commands in normal text by selecting the words to highlight and choosing the ‘code’ style. For example:

This example demonstrates the ping 127.0.0.1 command.

Make sure to write the whole text first and select the part you want to highlight afterwards. When there is no selection, Word applies the selected style to the whole paragraph.

### Subsection 2

## Section

## Summary

Write a short summary at the end of each chapter.

# Test Strategy

## Introduction

Each of your chapters should have an introduction to tell your readers what they will find in the chapter.

## Section

To add a caption to a table, either select the whole table (e.g. by clicking on the + symbol in the upper left corner of the table), right-click it and choose ‘Insert Caption’ or click in any table cell and select ‘References’ -> ‘Insert Caption’ from the ribbon menu. Choose ‘Table’ as label and ‘above the item’ as position. Add the caption text in the box, separated with a dash as the example below shows.

Table 1 - Test Results

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Section

Text goes here.

## Summary

Write a short summary at the end of each chapter.

# Evaluation, Conclusions and Future Work

## Project Objectives

Summarise what you have achieved.

## Evaluation

Stand back and evaluate what you have achieved and how well you have met the objectives. Evaluate your achievements against your objectives in section 1.2. Demonstrate that you have tackled the project in a professional manner.

(The previous paragraph demonstrates the use of automatic cross-references: The ‘1.2’ is a Cross-reference to the text in a numbered item of the document, it is not literal text but a field. The number that appears here will change automatically if the number on the referred-to section is altered, for example if a chapter or section is added or deleted before it. Cross-references are entered using Word's **Insert** or **References** menu. Cross-references are set to update automatically when printed, but may not do so on-screen beforehand; you can update a field manually on-screen by right-clicking on it and selecting Update field from the pop-up menu or by selecting the whole document and pressing F9.)

## Applicability of Findings to the Commercial World

Summarise what you have achieved.

## Conclusions

Summarise what you have achieved.

## Future Work

Explain any limitations in your results and how things might be improved. Discuss how your work might be developed further. Reflect on your results in isolation and in relation to what others have achieved in the same field. This self-analysis is particularly important. You should give a critical evaluation of what went well, and what might be improved.

## Concluding Reflections

Summarise what you have achieved.

References

Cuevas, R. et al. (2010a) 'A collaborative P2P scheme for NAT Traversal server discovery based on topological information', *Computer Networks,* 54(12), pp. 120-122.

Cuevas, R. et al. (2010b) 'Book Section', in Kramer, J. D. (ed) *This is a another Book released in the same year,* London: PressAwesome, pp. 150-180.

Greene, D. & Williams, P. C. (1997) *'Linear Accelerators for Radiation Therapy',* 2nd edition, Bristol and Philadelphia: IOP Publishing Ltd.

Jacobson, J. & Andersen, O. (1997) 'Software Controlled Medical Devices', in *SP Report 1997:11,* Sweden: Swedish National Testing and Research Institute.

Ji, H. & Turner, K. J. (1999) 'Specification and Verification of Synchronous Hardware using LOTOS', in Wu, J., Chanson, S. T. & Gao, Q. (eds) *Formal Methods for Protocol Engineering and Distributed Systems (FORTE XII/PSTV XIX),* London: Kluwer Academic Publishers, pp. 295-312.

Turner, K. J. & Jennings, M. A. (2002) 'The Rules of Sailing Races for Hand-Held Devices', *J. Navigation,* 23(5), pp. 114-240.

University of Stirling (2002) *Computing Science and Mathematics Research,*   
http://www.cs.stir.ac.uk/research  
(accessed 01 March 2017).

The reference list above is generated by Word. Under ‘References’ -> ‘Manage Sources’ it is possible to add new references which can later be inserted in the report with ‘Insert Citation’. Example: (Cuevas, et al., 2010a)

Alternatively, you can add a new reference and immediately insert it as a citation by moving the cursor to the place where you want to insert the citation and then choosing ‘References’ -> ‘Insert Citation’ -> ‘Insert New Source’ from the ribbon menu.

You can hide parts of a citation by right-clicking on it, selecting ‘Edit Citation’ and ticking the checkboxes under ‘Suppress’. In the same dialog a reference to specific pages of the cited source can be added (which won’t be displayed in the references list). Example (same as above but with ‘Author’ suppressed and page 120 added): (2010a, p. 120)

Keep in mind that uncited sources will still appear in the references list above. Go to ‘References’ -> ‘Manage Sources’ to see which sources are cited and which aren’t. Sources in ‘Current List’ which have a checkmark are cited.

The UCLan styling for references is different than the default Harvard notation Word provides. Therefore, a custom style has been created. Download the file ‘HarvardUCLan2017.xsl’ and copy it to: %appdata%\Microsoft\Bibliography\Style.

Keep Word closed when doing this. To select the style click on ‘References’ -> ‘Style’ and select ‘Harvard – UCLan (2017)’. Tested with Word 2016 (Windows).

There might be some cases the Word bibliography function can’t handle. If you have a tool that suits you better such as ‘RefWorks’, ‘Citethisforme’ or ‘RefMe’ use that instead, then remove the list above and copy the references over. Don’t forget to use the correct Harvard notation style.

Appendix 1 – Title of Appendix

You may have one or more appendices containing detail, bulky or reference material that is relevant though supplementary to the main text: perhaps additional specifications, tables or diagrams that would distract the reader if placed in the main part of the dissertation. Make sure that you place appropriate cross-references in the main text to direct the reader to the relevant appendices.

Do not blindly include all of your code in the appendix or the body. Only include the parts you refer to in the report. You can put those parts either in the appendix or in the body (e.g. in the “Implementation” part).

Appendix 2 – Title of Appendix

You may have one or more appendices containing detail, bulky or reference material that is relevant though supplementary to the main text: perhaps additional specifications, tables or diagrams that would distract the reader if placed in the main part of the dissertation. Make sure that you place appropriate cross-references in the main text to direct the reader to the relevant appendices.

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Appendix 3 – Title of Appendix

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