Omni Channel Loyalty Application

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# 

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Omni Channel Loyalty Application:

Automated Loyalty Solution for Multiple Groups of Products

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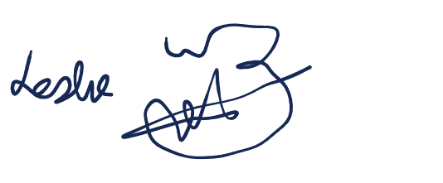
June 2021

# Declaration

I hereby certify that the material, which l now submit for assessment on the programmes of study leading to the award of Bachelor of Science in Applied Computing, is entirely my own work and has not been taken from the work of others except to the extent that such work has been cited and acknowledged within the text of my own work. No portion of the work contained in this thesis has been submitted in support of an application for another degree or qualification to this or any other institution. I understand that it is my responsibility to ensure that I have adhered to ATU’s rules and regulations.

I hereby certify that the material on which I have relied on for the purpose of my assessment is not deemed as personal data under the GDPR Regulations. Personal data is any data from living people that can be identified. Any personal data used for the purpose of my assessment has been psudonymised and the data set and identifiers are not held by ATU. Alternatively, personal data has been anonymised in line with the Data Protection Commissioners Guidelines on Anonymisation.

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Signature of Candidate: Date:

# Acknowledgements

I would like to thank…

# Abstract

Written here is no more than 250 words of summary of the problem, hypothesis and main conclusions. The abstract will entice people to read the rest of the document.

# Acronyms

*Acronyms should be added in page order*

|  |  |  |
| --- | --- | --- |
| Acronym | Definition | Page |
| SSA | Some Silly Acronym | 12 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

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# Introduction

An increase in customer retention can have a big effect on profits . One of the leading tools used by retail companies are loyalty programs. Loyalty programs can reward a customer in several ways and can lead to higher retention rates by enticing the customer to return to a company rather than shop with competitors.

## Purpose

The text for each section should begin exactly under the section title. The text should wrap around at that same point as can be seen from this sample paragraph. A black line should follow every paragraph.

## Background

This document is provided to demonstrate the layout for headings, image captions, etc. Where third level headings are required a further numbered list may be used providing that the items constitute more than one line per section.

### One liner

Where one line of text is required a bulleted list should replace the heading. This is done to aid the legibility of the final document.

### Sub-Item

If only one sub-item is required neither a bulleted nor numbered list is required.

## Aims & Objectives

This is where information on the research question might be presented. Remember that the headings presented here are exemplars only. Select the most appropriate heading for the given data being presented.

## Report Outline

Provide a summary of what each of the following chapters will entail

Figure 1.2 Letterkenny Institute of Technology Logo

# Another Chapter

The chapters should all begin on a new page. Each chapter should contain an Introduction and a Conclusion for that chapter. Page numbers appear at the bottom right of each page. Page numbers appear from Chapter 1 and onwards. Appendices should be paginated using roman numerals (I, II, etc.).

* Bullets should be aligned with the text.
* Bulleted items should have one blank line above and below.
* If there are only 1 or 2 items a bulleted list is not required.

Any paragraph after the list, image or table should resume its normal position for the given header. When using any acronym such as Some Silly Acronym (SSA) it must be expanded on its first occurrence within the text. All acronyms should appear in an acronyms list preceding the main chapters.

## Additional Chapters guide

Additional chapters may include but not be limited to:

Chapter 2 – Design

* System requirements – Functional, Non functional requirments/user stories, software and hardware requirments
* UML Diagrams, application structure, flowchart, storyboards

Chapter 3 – Implementation

* Environment set up, technologies used
* Building the application piece by piece
* UI Design
* Connecting the front end to the backend

Chapter 4 – Testing

* Method of testing (White box, black box, unit tests, manual user tests, automated tests)
* Test Cases including test results

Chapter 5 – Conclusion and Future work

* Results and outcomes
* Future work
* Issues found and addressed

# 2.2 Images

In some sections of the project an image may be required. Any image utilised must be referred to within the main body of text. In Figure 1.1 the ATU logo can be seen with an appropriate caption.

Text

Description automatically generated

Figure 1.1 Letterkenny Institute of Technology Logo

In order to provide a caption for an image, table or equation the item should be selected. The Microsoft References ribbon should be selected. From there the Insert Caption button should be selected. The label should be set to the most appropriate one. In this example the Figure label was selected. New labels can be created as necessary. Remember not to simply copy and paste from above. Instead insert the image into the file and select it. Add the caption as described.

Where an image does not have a clearly defined border, one should be added. Care should be taken to ensure that all details of images are clearly visible both when in print and when in electronic format. Careful selection of colours should be considered for this purpose. Images as shown in Figure 1.2 should always be referred to from the main text.



## Referencing

The text of any given chapter may refer to an interesting idea presented in another book, paper, journal or whitepaper. On-line sources should not normally constitute more than 50% of your references. ALL of your references must be peer-reviewed or whitepapers. Further details on this will be given in the Research Workshop and may be obtained from your supervisor. This is supported by research (Bloggs, 2012) carried out how best to reference. The idea is succinctly expressed by Murphy:

“A reference in a thesis should be of the previously demonstrated Harvard Style.” (Murphy, 2011a)

Notice that the quote has indentations on both sides and is surrounded by quotes. If the quote abstracts only part of a sentence double dots should be placed before or after to show where there is missing text. Further, where additions for clarification are used in the text square brackets should be used. According to Murphy:

“A reference in a thesis should be of… Harvard Style.” (Murphy, 2011b)

While the example above is provided for demonstration purposes it is obviously not a good idea to provide the same quote twice so for the purposes of this example we will assume this quote was taken from a different book by the same author. Further the general use of a single or a small number of sources multiple times is referred to as ‘over-reliance on a source’ and is deemed plagiarism.

## Tables

The text of any chapter may include tabular data. In order to aid legibility some simple guidelines should be adhered to. Refer to Table 2.1.

Table 2.1 Table Formatting Guidelines

|  |  |
| --- | --- |
| **Format** | **Description** |
| Size | The table should be able to fit into one page and should not overrun. |
| Margins | The table should not extend past the normal margins of the page |
| Colour | Colour may be used but consideration should be given to both on screen display and printed display. |
| Design | Simple designs are best. At all times consider that the information in the table is more important than the ‘flashy’ design. |

The title for an image or code must appear directly underneath and on the same page. If this is not possible then move the item within the text to ensure that the caption remains with the item. The title for a table must appear directly above the table.

Refer to Table 2.2 for the second short table sample.

Table 2.2 Second Sample Table

|  |  |
| --- | --- |
| **Format** | **Description** |
| Size | The table should be able to fit into one page and should not overrun. |

## Code and Formulae

Where code requires listing within the text it should be treated as an image in that it is sectioned off with a border and has a caption directly underneath. Refer to Code Listing 2.1 below.

…

TextMessage msg = null;

try {

if (message instanceof TextMessage) {

msg = (TextMessage) message;

System.out.println("A Message received in TMDB: "

+ msg.getText());

}

else {

System.out.println("Message of wrong type: "

+ message.getClass().getName());

}

} catch (JMSException e) {

e.printStackTrace();

mdc.setRollbackOnly();

} catch (Throwable te) {

te.printStackTrace();

}

…

Code Listing 2.1 MDBean Message Handling

Notice that only minimal commenting is provided within the text. The code is shown in Cambria, 10 point. This reduces the overall text size and clearly distinguishes it from the main text.

If a single line of formula is required it can be referred to within the text as formula (Equation 2.1) for example with the formula example shown slightly indented and with the formula number to the far right.

Equation 2.1

A single line space above and below the formula (Tsiolkovsky, 2000) also aids legibility. Note also that the font size is increased by one point. A further item to note is that equations may also be referenced.

# Appendices

# Appendix A: References

Berk, L., Mann, T. and Ogan, A. (2006). A Book Chapter called Make-Believe Play: Wellspring for Development of Self-Regulation. In: Singer, D., Golinkoff, D. and Hirsh-Pasek, K. *Play Learning: How Play Motivates and Enhances Children’s Cognitive and Social-Emotional Growth*. p74–100.

Bloggs, J. (2012). My Important Article Title. *The International Journal of ACM*. 10(12). p201-212.

Chia-Jung Lee. (2011). *A website about Technology Integration and Emotional Learning*. Available: http://teachteachtech.coe.uga.edu/index.php/2011/05/13/technology-integration-and-emotional-learning/. Last accessed 23rd July 2017.

Murphy, P. (2011a). *A Conference Paper*. Proceedings of The 5th Conference on Computing ACM, Paris. p123-132.

Murphy, P. (2011b). *A Book about* *Social Learning Theory*. Engle Cliffs NJ: Prentice Hall.

# Appendix B: Code Listing