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# **THE UNITED AFRICAN UNIVERSITY OF TANZANIA**

## **COLLEGE OF ENGINEERING AND TECHNOLOGY**

### **DEPARTMENT OF COMPUTER ENGINEERING AND INFORMATION TECHNOLOGY**



**[COURSE CODE] [COURSE NAME]**

**[PROJECT TITLE]**

**A Project Report in Partial Fulfilment for the Award of  
Bachelor of Science in [DEGREE PROGRAMME]**

**Name of Candidate:**

**Registration Number:**

**Supervisor:**

**Submission Date:**

## Certification

### Statement of Authorship and Originality

I declare that this report and the work described in it are my own work, with any contributions from others expressly acknowledged and/or cited.

I declare that the work in this report was carried out in accordance with the Regulations of The United African University of Tanzania and has not been presented to any other University for examination either in Tanzania or overseas. Any views expressed in the report are those of the author and in no way represent those of The United African University of Tanzania.

SIGNED: .....

DATE:.....

This report may proceed for submission for assessment for the award of BSc in Computer Engineering and Information Technology at The United African University of Tanzania.

Review Committee Signature: .....

Date: .....

Supervisor Signature: .....

Date: .....

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# Acknowledgment



# Abstract

# List of Acronyms

See section 5.7 for an explanation on acronyms.

**NBA** National Basketball Association

**PIN** Personal Identification Number

**UAUT** United African University of Tanzania

# Chapter 1

## Introduction

Use figures and diagrams if they help to convey your points.

### 1.1 Background

Provide the background and context of the work.

### 1.2 Problem Statement

A problem statement is a concise description of an issue to be addressed or a condition to be improved upon. It identifies the gap between the current state and desired state of a process or product Wikipedia (2019). Clearly define the problem in concise, and non-ambiguous statements.

## **1.3 Literature Review**

Provide details about existing and related work. Stress the limitations of existing solutions if any. This section should generally include bibliographic references as opposed to unnecessary quoting lengthy technical papers or textbooks.

## **1.4 Objectives**

Describe the aims of the project which when achieved signify the completion. The specific objectives should provide information about the steps needed to reach the main objective.

For instance, a main objective could be to develop a system that will do xxx.

### **1.4.1 Main Objective**

This section includes the main objective of the project.

### **1.4.2 Specific Objectives**

Describe the specific objectives which will ensure that the main objective can be reached. For example, the list of the system's modules could be useful.

The system will include following modules

- xxx, a module which will do xxx
- xxx, a module which will do xxx

- xxx

Furthermore, the system will be

- xxx cost-effective because of
- xxx user-friendly because of
- xxx

## 1.5 Relevance of the Project

Justify the relevance of the project. What are the anticipated outcomes and benefits.

## 1.6 Outline

Briefly explain what the reader is expecting in the next sections. e.g. Section xxx will discuss the methods applied to xxx, Section xxx will xxx. In section xxx, ....Section xxx will conclude the report with xxx.

# Chapter 2

## Methods

The methods are the recipes for conducting the project. This section discusses the approach you took to solve your problem and thus achieve your objectives.

### 2.1 Requirements Analysis

Discuss how you got the user/stakeholders requirements for the system that you are developing, and how you analyze them. If you have encountered any ambiguities, explain what you did to remove these ambiguities.

### 2.2 Specifications

Write down the user requirements in a structured though an informal form. Functional and Non-Functional Requirements should be specified in this part. Functional requirements (Create account in banking system). Non-functional

requirements (Bank will be open 24/7).

## **2.3 System Design**

System design is the process of defining the architecture, modules, interfaces, and data for a system to satisfy specified requirements (Wikipedia 2019). This section should present the design of the system. This section should include information about the modules and interfaces which will be implemented and explain how these modules are going to interact as a whole. Use figures, diagrams whenever possible to make your design clear.

## **2.4 Implementation**

Describe what was actually produced: the programs which were written, the hardware which was built or the theory which was developed. Descriptions of programs may include fragments of high-level code but large chunks of code are usually best left to appendices.

## **2.5 Testing/Simulation/Validation**

Discuss the methodology used for testing your testing, simulating, and validating your system. This section includes the steps undertaken for testing/simulating, and validating your system.

# Chapter 3

## Results and Discussions

This part of the report should discuss your results in details.



## Chapter 4

# Conclusion and Outlook

This part of the report should describe the conclusions drawn from the work. This section is particularly important in a final report where it should give a clear description of what is important in the work done, indicating clearly the personal contribution. There should also be a description on how well the initial objectives of the project have been met.

# Bibliography

Include a list of references. See notes on citations in Section 5.8 for the correct formatting of the section including title.

# Appendix A, B, etc

Include a list of appendices. See notes on Appendices in Section 5.9 for correct formatting of the section including title.

# Chapter 5

## Some guidelines for using the standard features of L<sup>A</sup>T<sub>E</sub>X

### 5.1 Footnotes

Note that any `footnotes` to the main text will automatically be assigned the superscript symbols 1, 2, 3, etc. by the class file. A footnote will be defined with the key word `\footnote{}`.

### 5.2 Sections

This layout style allows for six levels of section heading, all of which are provided in the class file using the standard L<sup>A</sup>T<sub>E</sub>X commands `\chapter`, `\section`, `\subsection`, `\subsubsection`, `\paragraph` and `\subparagraph`. Numbering will be automatically generated for all these headings by default. To define an unnumbered chapter or section, use `\chapter*` and `\section*`

respectively.

## 5.3 Lists

Numbered lists are produced using the `enumerate` environment, which will number each list item with arabic numerals by default. For example,

1. first item
2. second item
3. third item

was produced by

```
\begin{enumerate}  
  \item first item  
  \item second item  
  \item third item  
\end{enumerate}
```

Alternative numbering styles can be achieved by inserting an optional argument in square brackets to each `item`, e.g. `\item[(i)] first item` to create a list numbered with roman numerals at level one.

Bulleted lists are produced using the `itemize` environment. For example,

- First bulleted item
- Second bulleted item
- Third bulleted item

was produced by

```
\begin{itemize}
  \item First bulleted item
  \item Second bulleted item
  \item Third bulleted item
\end{itemize}
```

## 5.4 Figures

Figure captions appear below the figures themselves, therefore the `\caption` command should appear after the body of the figure. For example, Figure 5.1 is produced using the following command:

```
\begin{figure}[H]
\centering
%\resizebox*{5cm}{!}{\includegraphics{graph1.pdf}}
\includegraphics{graph1.pdf}
\caption{Example of a single figure.}
\label{single-figure}
\end{figure}
```

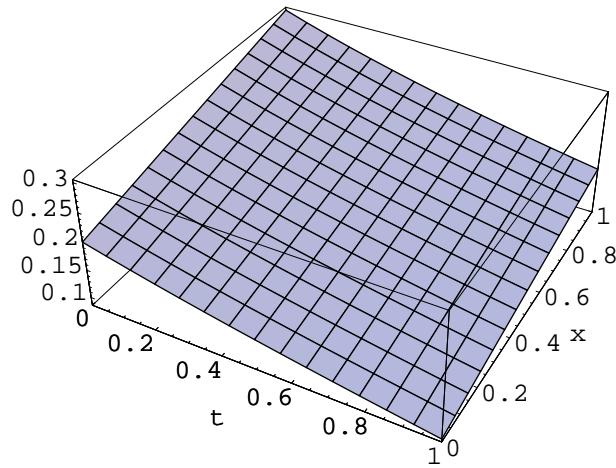


Figure 5.1: This is an example of a single figure.

To ensure that figures are correctly numbered automatically, the `\label` command should be included just after the `\caption` command, or in its argument. To ensure that the figures are positioned where the author wants them to be, use the `[H]` attribute when defining the `\begin{figure}` environment.

## 5.5 Tables

The `tabular` environment can be used as shown to create tables. For example, Table 5.1

Table 5.1: ISO Code of countries around the world.

| Country List  |              |              |          |
|---------------|--------------|--------------|----------|
| Country Name  | ALPHA 2 Code | ALPHA 3 Code | ISO Code |
| Afghanistan   | AF           | AFG          | 004      |
| Aland Islands | AX           | ALA          | 248      |

was typeset using following command

```
\begin{table}[H]
\caption{ISO Code of countries around the world.}
\begin{tabular}{|p{3cm}|p{3cm}|p{3cm}|p{3cm}|}
\hline
\multicolumn{4}{|c|}{Country List} \\
\hline
Country Name & ALPHA 2 Code & ALPHA 3 Code & ISO Code\\
\hline
Afghanistan & AF & AFG & 004\\
\hline
Aland Islands & AX & ALA & 248\\
\hline
\end{tabular}\label{sample-table}
\end{table}
```

To ensure that tables are correctly numbered automatically, the `\label` command should be included right before `\end{table}`. To ensure that the tables are positioned where the author wants them to be, use the `[H]` attribute when defining the `\begin{table}` environment.



As **alternative** to the above, you can create your table in Microsoft Excel, download the package excel2latex from <https://ctan.org/pkg/excel2latex>, enable the Macro in Excel so you can export your Excel table as Latex code which can be copied and pasted in your report.

## 5.6 Mathematics

### 5.6.1 Displayed mathematics

The class file will set displayed mathematical formulas centred on the page without equation numbers if you use the `displaymath` environment or the equivalent `\[...\]` construction. For example, the equation

$$c(\lambda) = \lambda^4 + 3\lambda^3 + 3\lambda^2 + 10$$

was typeset using the commands

```
\[
  c(\lambda) = \lambda^4 + 3\lambda^3 + 3\lambda^2 + 10
\]
```

For those of your equations that you wish to be automatically numbered sequentially throughout the text for future reference, use the `equation` environment, e.g.

$$c(\lambda) = \lambda^4 + 3\lambda^3 + 3\lambda^2 + 10 \tag{5.1}$$

was typeset using the commands

```
\begin{equation}
```

```
c(\lambda) = \lambda^{4} + 3\lambda^3 + 3\lambda^2 + 10
\end{equation}
```

Displayed mathematics should be given end-of-line punctuation appropriate to the running text sentence of which it forms a part, if required.

## 5.6.2 Math fonts

### Superscripts and subscripts

Superscripts and subscripts will automatically come out in the correct size in a math environment (i.e. enclosed within `\(...\)` or `$...$` commands in running text, or within `\[...\]` or the `equation` environment for displayed equations).

## Acknowledgment(s)

An unnumbered section, e.g. `\chapter*{Acknowledgments}`, may be used for thanks, etc.

## 5.7 Acronyms

The acronyms will be generated in the `acronym` environment. Each acronym will be defined with `\acro`. For example,

**NBA** National Basketball Association

**PIN** Personal Identification Number

was typeset using

```
\begin{acronym}
\acro{NBA}{National Basketball Association}
\acro{PIN}{Personal Identification Number}
\end{acronym}
```

## 5.8 References

### 5.8.1 References cited in the text

References should be cited in Chicago author-date style, e.g. ‘Albiston (2005)’.

Each bibliographic entry has a key, which is assigned by the author and is used to refer to that entry in the text. In this document, the key `Alb05` in the citation form `\cite{Alb05}` produces ‘Albiston (2005)’ whereas `\citep{Alb05}` produces ‘(Albiston 2005)’.

### 5.8.2 The list of references

References should be listed at the end of the main text in alphabetical order by authors’ surnames.

If a reference has more than ten named authors, list only the first seven, followed by ‘et al.’.

# Bibliography

Wikipedia. <https://en.wikipedia.org/>

Albiston, Catherine R. 2005. “Bargaining in the Shadow of Social Institutions: Competing Discourses and Social Change in the Workplace Mobilization of Civil Rights.” *Law and Society Review* 39 (1): 11–47.

Brooks, Daniel R., and Deborah A. McLennan. 2002. *The Nature of Diversity: An Evolutionary Voyage of Discovery*. Chicago: University of Chicago Press.

This was produced by typing:

```
\begin{thebibliography}{}

```

```
\bibitem[Albiston(2005)]{Alb05}

```

```
Albiston, Catherine~R. 2005. ‘‘Bargaining in the Shadow of Social
Institutions: Competing Discourses and Social Change in the Workplace
Mobilization of Civil Rights.’’ \emph{Law and Society Review} 39 (1):
11--47.
```

```
\bibitem[Brooks and McLennan(2002)]{Bro02}

```

```
Brooks, Daniel~R., and Deborah~A. McLennan. 2002. \emph{The Nature of
```

Diversity: An Evolutionary Voyage of Discovery}. Chicago: University of Chicago Press.

`\end{thebibliography}`

Each entry takes the form:

`\bibitem[authors' names(date of publication)]{key}`  
Bibliography entry

where ‘authors’ names’ is the list of names to appear where the `\bibitem` is cited in the text, and ‘key’ is the tag that is to be used as an argument for the `\cite{}` commands in the text of the article. ‘Bibliography entry’ is the material that is to appear in the list of references, suitably formatted.

## 5.9 Appendices

Any appendices should be placed after the list of references, beginning with the command `\appendix`, followed by the command `"\chapter` for each appendix title, e.g.

`\appendix`  
`\chapter{This is the title of the first appendix}`  
`\chapter{This is the title of the second appendix}`

produces:

**Appendix A. This is the title of the first appendix**

**Appendix B. This is the title of the second appendix**

Subsections, equations, figures, tables, etc. within appendices will then be automatically numbered as appropriate.