TITLE OF THE

REPORT

SUBMITTED BY

1. NAME OF CANDIDATE1 (ID)

2. NAME OF CANDIDATE 2 (ID)

3. NAME OF CANDIDATE 3 (ID)

4. NAME OF CANDIDATE 4 (ID)

SUPERVISED BY

NAME OF THE SUPERVISOR



E PROJECT REPORT SUBMITTED TO THE FACULTY OF\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, MOHAMMAD ALI JINNAH UNIVERSITY, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR / MCS OF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

FALL 2021

**[TITLE OF THE FINAL PROJECT]**

**Batch – 2016**

DEPARTMENT OF COMPUTER SCIENCE

Mohammad Ali Jinnah University. Karachi

January 2022

ACknowledgment

(Comments: Use the below layout and write your own acknowledgment. Remove the comments in original. This is just a sample. Make sure to acknowledge in same order as given)

First of all, we thank Almighty Allah who praise us with the ability to think, work and deliver what we are assigned to do. Secondly, we must be grateful to our internal Mr. / Ms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ who help us in this project. We also acknowledge our teachers that throughout our studies helps us and guides us, departmental staff, university staff or other then this.

Introduction to group members



(Professional photograph of Student-1.Remove this text in parenthesis in original report)

Student-1 Name Student-1 Registration No.  
(Specialization with respect to project)   
Immediate Contact: (email, cell number)

(To)



(Professional photograph of Student-N)

Student-N Name Student-N Registration No.   
(Specialization with respect to project)   
Immediate Contact: (email, cell number)

CERTIFICATE OF COMPLETION

**This is to certify that the following students of BS (CS) of Batch 2016**

Student-1 Name Student-1 Registration No.

(To)

Student-N Name Student-N Registration No.

**have successfully completed their final year project titled**

Project TITLE

**in the partial fulfillment for the Degree of Bachelor of Science in Computer Science.**

(Signature of Project Supervisor: Remove it in printing)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of Project Supervisor

Designation

Mohamamd Ali Jinnah University

# **Typical Format of Abstract**

**Short introduction to the project that you have done**

{It is normally covered in **2 to 3 sentences**. It is not to introduce what will be done, what have not been done and the objectives of the project. Furthermore, it is definitely not a general introduction that is not from your work in your project.}

**Brief and concise description of the project implementation**

{It is a summary from chapters ‘method of investigation’ or ‘details of the design’. It can include the operation of your project product (for hardware or software type) in brief. Model numbers of specific or rare items (hardware or software) can be mentioned. This part is **limited to 150 words.**}

**Summary of important or significant results and discussion**

{It comes from chapters ‘presentation of data’ and ‘discussion of findings’. The results or data and the discussion can be combined and presented in this part. Data/results can be mentioned in form of relative manner, e.g. x is proportional to y with proportional constant of w or x = wy. Performance of hardware or software can be either quantitative or qualitative (descriptive) but the descriptive form should be result-oriented. Important comparisons between theoretical or ideal cases and practical cases can also be included.}

**Important or overall conclusion**

{Only the important or significant conclusions from chapter ‘conclusion’ are presented here. Alternatively, an overall conclusion which combines all the individual conclusions can be included here.}

**Notes:**

You may write your abstract in one or two paragraphs. It is important to note that abstract is written in a case by case basis. However, a typical format can be useful as a guide or reference for you to write your project report abstract.

Abstract **CANNOT** be included with the below items:

1. Issues related to personal, e.g. learned a lot of things from this project
2. First and second person pronouns (I, we, you, me, my, etc.)
3. Outline of chapters in your project report
4. Any issues that are not produced from your project (except comparison cases with another person’s work)
5. Reference index or number

**TABLE OF COntents**

Page

**PREFACE** ii

**ACKNOWLEDGEMENTS** iii

**INTRODUCTION TO GROUP MEMBERS** iv

**CERTIFICATE OF COMPLETION** v

**ABSTRACT** vi

**TABLE OF CONTENTS** vii

**LIST OF TABLES** ix

**LIST OF FIGURES** x

**CHAPTER 1: INTRODUCTION**

Overview 1

Objective 2

Abstract 3

Introduction To Network Monitoring 4

* + 1. What is monitoring? 6
    2. Data Collection 7
    3. Data Logging 7
    4. Analysis 8
    5. Reporting 8

**CHAPTER 2: BACKGROUND REVIEW**

2.1 Cryptography 9

2.2 Encryption / Decryption 9

2.3 Types of Cryptography 10

2.3.1 Asymmetric-key cryptography 11

2.3.2 Symmetric-key cryptography 12

**.**

**.**

**.**

**.**

**CHAPTER 8: CONCLUSIONS**

7.1 Conclusions and Inferences 48

7.2 Future Recommendations 48

**REFERENCES** 130

**APPENDIX A: DATA FLOW DIAGRAMS**

A.1 Data Flow Diagram of Outer Round Pipelining Design 141

A.2 Data Flow Diagram of Inner Round Pipelining Design 142

**APPENDIX B: REPORTS**

B.1 Synthesis Report of Outer Round Pipelining Design 153

B.1.1 Synthesis Options Summary 154

B.1.2 HDL Compilation

**LIST OF TABLES**

Page

Table 1.1:Performance comparison of the Advance Encryption Standard finalists 11

Table 2.1:Implementation comparison on ASIC, FPGA and Software platforms 25

.

.

.

Table 6.1:Timing analysis for first complete input 42

Table 6.2: Timing analysis for next complete input 42