INDUSTRIAL TRAINING REPORT

AT

NORTHPORT (MALAYSIA) BHD

JALAN PELABUHAN, NORTH PORT,

42000 PORT KLANG, SELANGOR DARUL EHSAN

BY

NORDINA AMIRA BINTI RAMLAN

(2011570655)

REPORT

SUBMITTED TO

FACULTY OF COMPUTER AND MATHEMATICAL SCIENCES

UNIVERSITI TEKNOLOGI MARA

AS PART OF REQUIREMENT

FOR

BACHELOR OF SCIENCE (HONS) (STATISTICS)

JANUARY 2015

ACKNOWLEDGEMENT

Alhamdulillah, in the name of Allah the most Merciful and the Most Gracious, praise to Allah, for the good health that has given to me in completing my research study.

First and foremost, I offer my sincerest gratitude to my Industrial Training coordinator and also my Academic Supervisor Madam Nurul Bariyah Ibrahim for her help, comments, encouragement, supports, and enthusiasm which have guided this report from its conception to its completion. The supervision and support that she gave truly help the progression and smoothness of the Industrial Training course.

My grateful thanks also go to my Supervisor at Northport (Malaysia) Bhd, Mr.Shahri Omar, Executive Statistics, Miss Azlin Mohd Azman and all of the staff for exposing me in the real working environment and inspired support at the beginning of this project. The experiences and knowledge that I gained is much appreciated.

I want to thank my friends and classmates for their struggles so intimately, skilful wisdom and influence, which can be found, sprinkled through this report. Last but not least I would like to thank my parents for their loving and genuine support for the help in my studies and for my success so far.

ABSTRACT

The purpose of this study is to determine the most suitable technique between Univariate Modelling Technique and Box Jenkins Methodology Technique to generate forecast values for the total container throughputs using data taken from Northport (Malaysia) Bhd. The data was 10 years data and about 118 data. The models selected for Univariate Modelling Technique are Single Exponential, Double Exponential Smoothing, Holt's Method, Adaptive Response Rate Exponential Smoothing and Holt-Winter's Trend and Seasonality.These models are normally used to determine multiple-ahead-forecast, focus of one variable and large size of data. For Box jenkins Methodology, this study required to used SARIMA because there is existance of seasonality trend. The performance of the models were measured by calculating for the value of the Mean Square Error (MSE) and the Mean Absolute Percentage Error (MAPE). The best model is selected based on the smallest value of MSE and MAPE. In addition, the models were evaluated by comparing the forecast values generated by the models with the actual data. Based on the analysis, Holt-Winter's Trend and Seasonality from Univariate Modeling is the most suitable model to forecast the monthly total container throughputs for Northport (Malaysia) Bhd for Univariate Modelling.

TABLE OF CONTENTS

		Page Number
ACKNOWLEDGEMENT		**i**
ABSTRACT		**ii**
TABLE OF CONTENTS		**iii-v**
LIST OF ABBREVIATIONS		**vi**
LIST OF TABLES		**vii**
LIST OF FIGURES		**viii**
CHAPTER 1	**INTRODUCTION**	
1.1	Background of Industrial Training	1
1.2	Objectives of Industrial Training	2
1.3	Industrial Training Attachment	
	1.3.1 Profile of Northport Training Attachment	2-3
	1.3.2 Northport Vision, Mission, Quality Policy and Core Values.	3-4
	1.3.3 Northport Business Units	4-9
	1.3.4 Organization Chart of Northport (M) Bhd	9
	1.3.5 Organization Chart of Commercial Division	10
1.4	Industrial Training Task	
	1.4.1 Software / System	11
	1.4.2 Experiences During Industrial Training	11-12
CHAPTER 2	**RESEARCH PROJECT**	
2.1	Introduction and Background of The Study	13-14
2.2	Problem Statement	14-15
2.3	Objectives of The Study	15

2.4	Significance of The Study	16-17
2.5	Scope and Limitation	17
CHAPTER 3	**LITERATURE REVIEW**	18-22
CHAPTER 4	**METHODOLOGY**	
4.1	Introduction	23
4.2	Sources of Data	23
4.3	Method of Data Analysis	
	4.3.1 Initial data Investigation	24
	4.3.2 Univariate Modeling	24-29
	4.3.3 Box Jenkins Methodology	29-31
4.4	Error Measures	32
4.5	Estimation and Evaluation Procedures Forecasting	
	4.5.1 Univariate Modeling	33-35
	4.5.2 Box Jenkins Methodology	36
CHAPTER 5	**FINDINGS AND ANALYSIS**	
5.1	Introduction	37
5.2	Analysis of The Initial Data Investigation	
	5.2.1 Result of the Initial Data Investigation	37-38
5.3	Analysis of Univariate Modeling	
	5.3.1 Result of Single Exponential Smoothing	39-40
	5.3.2 Result of Double Exponential Smoothing	40
	5.3.3 Result of Holts' Smoothing	40
	5.3.4 Result of Adaptive Response Exponential Smoothing	41
	5.3.5 Result of Holt-Winters's Trend and Seasonality Method	41
	5.3.6 The Best Model Selection	41-42