

Universiti Teknologi MARA

**Prediction of UPSR Result
Using Clonal Selection Algorithm
(PUR)**

Muhammed Khaleeq Bin Shafii

Thesis submitted in fulfillment of the requirement for
Bachelor of Computer Sciences (Hons)
Faculty of Computer and Mathematical Sciences

July 2012

DECLARATION

I certify that this thesis and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

JULY, 2012



MUHAMMED KHALEEQ BIN SHAFII

2010876814

ABSTRACT

Prediction of UPSR Result system is one of application in predicts the grades of students in the future. This system inspired from Immune System based on virus insert into body. The problem statement of this research is still using manual system such as Microsoft Excel to calculate the grade to predict of UPSR result , sometimes existing system have mistaken calculating and produce accurate grade and a longer time to determine each student's grade. It consists of a combination of two examinations data taken from school in Kelantan. Prediction of UPSR Result system is a difficult task because it involves a large number of constraints. In Sekolah Kebangsaan Mentuan, school has problems on produce grade because it is using manually and takes time. This project highlights the prediction of UPSR Results system development using Artificial Immune System (AIS) at their school. This project focuses on three main objectives to investigate the UPSR Examination of data for prediction result, to study the Clonal Selection algorithm of the term and to develop the Prediction of UPSR Result System using Clonal Selection Algorithm. Clonal selection algorithm (CLONALG) in AIS is one of the proposed methods to be obtained in real UPSR. Evaluation conducted in this project has shown 79% accuracy. This project can be improved by making a comparative study on Artificial Immune System and other techniques or algorithms used to predict future grade students in UPSR examination. In order to improve the ability of the prototype of this project, some modification and enhancement could be done. It can be improved based on data set. This project also can be improved by make a comparative study on Artificial Immune System and other techniques or algorithms that can be used to solve predict actual UPSR grade. This would give a brief overview on which techniques or algorithms give better optimization and faster results in generating Prediction of UPSR result. Recommendations have been made based on the prototypes abilities and weaknesses so that an improvement can be done to give optimize output in generating Prediction of UPSR Result system.

Keywords – artificial immune system, clonal selection algorithm, UPSR, Prediction

TABLE OF CONTENTS

CONTENT	PAGE
DECLARATION	i
ACKNOWLEDGEMENT	ii
ABSTRACT	iii
APPROVAL	iv
LIST OF FIGURES	v
LIST OF TABLE	vii
CHAPTER 1: INTRODUCTION	
1.1 Introduction	1
1.2 Problem Statement	1
1.3 Project Objectives	2
1.4 Project Scope	2
1.5 Project Significance	2
1.6 Summary	3
CHAPTER 2: LITERATURE REVIEW	
2.0 Introduction	4
2.1 Examination and Related Information Upsr	4
2.1.1 Definitions of UPSR Examination	4
2.1.2 Type Of Subject Taken in Upsr Examination	5
2.2 Definition Of Prediction	7
2.2.1 Predictions Use of in The Examination	8
2.2.2 Predictions Upsr Results	8

2.3	Present Study Prediction	9
2.4	Artificial Immune System	10
2.4.1	The Immune System	10
2.4.2	Immune Responses	11
2.4.3	Adaptive Immunity	12
2.5	Clonal Selection Algorithm (CSA)	15
2.6	Literature Review Related Word	21
2.7	Summary	23

CHAPTER 3: METHODOLOGY

3.0	Introduction	24
3.1	Project Development Methodology Frameworks Prediction of UPSR Result	25
3.2	Background of Study	26
3.2.1	Preliminary Study	26
3.2.2	Knowledge Acquisition And Comprehension	26
3.2.3	Interviewing Domain Expert	27
3.2.4	Reviewing Related Sources	27
3.3	System Design Preparation Data	28
3.3.1	Design Preparation Data	28
3.3.2	Data Collection and Data Preprocessing	29
3.4	Design Prototype and Engine Design	30
3.4.1	Engine Design	30