Computer - Aided Instruction (CAI) on Deterministic and Nondeterministic Finite Automaton for Automata Theory

An Undergraduate Special Problem

Presented to

the Faculty of the Department of Mathematical Science and Computer Studies

De La Salle University - Dasmariñas

Dasmariñas, Cavite

In Partial Fulfillment

of the Requirements for the Degree

Bachelor Science in Computer Science

Lizel N. Medina

March 1997

ABSTRACT

Name of Institution : De La Salle University - Dasmariñas

Address : Dasmariñas Bagong Bayan, Dasmariñas, Cavite

TITLE : Computer-Aided Instruction (CAI) on Deterministic and Nondeterministic Finite Automaton for Automata Theory

AUTHOR / PROPONENT : Lizel N. Medina

FUNDING SOURCE : Parents COST : 5,000.00

DATE STARTED:December 1996 DATE COMPLETED:February 1997

OBJECTIVES of the STUDY :

A. GENERAL :

The primary objective of this study is to develop a computer aided system that serves as an instructional aid in automata formulation in the course in automata theory.

B. SPECIFIC :

This study will be rooted in the following specific objectives :

1. To develop a system that would assist the instructors in teaching basic concepts concerning deterministic and nondeterministic finite automaton of the Automata Theory.

2. To provide a graphical interfaces for creating a visual demonstration of the automata execution.

3. To supplement the learning of automata for students taking up courses in automata theory.

SCOPE and COVERAGE : The study covers the deterministic and nondeterministic finite automaton of the Automata Theory. In the beginning, the system required an identification number of the user. This identification is need for storing of records. In the main menu, there are options to choose from. The classified lessons for tutorial, examples and tests and other options. This system includes evaluations such that user's records are kept. This also feature the graphical presentation of the transition of automata problems.

METHODOLOGY : The author gathered data and pieces of information about creating and designing a CAI system, as well as facts concerning deterministic and nondeterministic of the automata theory. By using Visual Fox Pro version 3.0 for Windows enable the completion of this study.

OUTPUT OF THE STUDY : A CAI on deterministic and nondeterministic finite automaton was developed to be an aid in teaching automata formulation in the course in Automata Theory. This aid includes: student record keeping, allow skipping of lessons for fast learner and retrieving previous lesson, definition of terms, graphical interfaces, and student evaluation after each lesson. The software was made to run in Visual Fox Pro for Windows.

CONCLUSIONS : It is with the fact, and the knowledge of the use of computer as a tool for teaching is not very widespread, even in Computer Science courses, that the program was conceptualized. And it still in need of a human understanding. For this, the proposed project made to be an aid for such event.

RECOMMENDATIONS :

The following enhancements are suggested to those who want to continue with this idea :

1. That the system will enable the user to plot the automaton using transition diagrams directly to the system, and check errors as well.
2. To expand more the concepts of the automata theory and widen the scope of the study.

TABLE OF CONTENTS

LIST OF FIGURES

FIGURES