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| Faculty of Computers and Information Systems  Information technology Dept. |  | univ  Mansoura University |

**Life Assistant**

**Graduation Project**

**by**

Ezat Waheed Ezat 1000041087

Mahmoud Salah Abd El-kader 1000094562

Abdoerhman Kamel Salama 1000095414

Khlood khaled swidan 1000041048

Fatma Abdelhameed elshekh 1000040815

Mohammed Abd el-ghany El-sokary 100040992

Amir Wageh Hosny Samak 1000040673

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**Supervised by**

Dr.AbdElaziz Elsaeid

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# Abstract

E-learning way to improve language learning techniques using several scientific pieces of research that based on Natural language processing and machine learning.

Some reasons made us thinking about developing a way to learn how to speak with other languages communities and understand you. Firstly anyone wishes to learn and practice several languages for many reasons. Most of the services that introduced on the Internet are widely focus on learning using our senses. So we must exploit our scientific researches to improve that way of learning languages. People can see the improvements and benefits of the Information technology and Software engineering and if they found a mix of reality with learning languages, certainly, they will significantly interact with the new technology that helped them to improve. We are focusing on some problems people are suffering from while learning on many websites or applications. One of the most common problems that we are trying to solve is the Learning Strategies we are using.

Learning Strategies are the thoughts and the actions that individuals use to accomplish a learning goal. Extensive research has identified the learning strategies used by students of a variety of second and foreign languages and a somewhat smaller body of research has documented the effectiveness of helping less successful language students improve their performance through learning strategy instruction. Application of these strategies in the Information technology world differs according to what are scientific technologies and tools used.

The purpose of the solution not only is to introduce some information about some languages to be studied by students, but also to develop a generative and Sophisticated method. So the instrument needed for developing and upgrading a generative tool is a rule-based Chabot. Chat-bot is a communication agent that is used for communicating between the system and the client. There are many different ideas may be supported using the Chat-bot agent.

**Keywords** Strategies, NLP, Senses, Chat-bot.

# Acknowledgement

The content of this single page is left to the discretion of the student. It is suggested however that the page makes reference to guidance received by the student from his or her supervisor and project committee members. Reference should also be made to any financial assistance received to carry out the project. Any extraordinary assistance received by the student for example in word processing, data collection, data analysis, and so on, should be properly acknowledged. Example acknowledgement can be found in books, reports and also papers. The acknowledgements should not exceed 250 words.

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# List of Abbreviations

## Level

# Chapter 1: Introduction

## Introduction

The Primary purpose of our Solution is to facilitate the way of learning languages.

There are different ways of learning languages and the best way is to live with the language’s communities, because of many reasons that we are trying to put into the account. It may be defined in this question “How to learn” and “What to learn”.

Firstly, when the learner starts to learn anything, he makes a relation between what he is hearing and what he is seeing and then the conclusions are very clear. If we used this way of learning it will be a good chance to learn anything not only languages. So our solution will focus on the four activities that anyone takes to learn which are Hearing, Speaking, Reading, Writing, and knowing some wards and grammars.

There will be several strategies and tasks in the chat to enforce the learner’s tongue and brain to think and talk using a specific language.

## Problem Definition

On the same road, most corporations and companies are exploiting scientific research and technologies for providing services that touch reality in many fields. We will also exploit what we have reached and learned in this field, and depending on Natural language processing and Machine Learning, strategies used in learning foreign languages will be implemented as perfect as learner need.

Like all the services that are now available on the global world of Internet and Information technology world that are specified and dedicated to this area, use our senses, creating some exercises, and evaluating the results. But on the other side focusing on employing senses with a better way than before by improving conversation modules, relating between long-term memory function and our strategies and other several techniques will be discussed through this phase.

There are main purposes of our solution separated into several points:

* Our educational system will be attractive to most people because it will be a communication agent with the Client and the system.
* The software solution will provide an interactional and emotional link between the people that need to learn and our system like a student and his teacher.
* When people communicate with our system for the first time they will be tested against our AI tester to find out the level that they will get a start, then they will take a good travel to up levels of fluency.
* Every Level will include main sections like:
  + 1. Hearing
    2. Knowing some rules and wards
    3. Speaking
    4. Writing
    5. Reading
* Every Level will have its own difficulty and also there will be in each section many of the activities that will enhance the client’s fluency.

### ****Problem Statement****

The focal point of the research is to define a solution for many problems are existed right now in learning languages styles. Our solution will focus on some problems and solve it.

The following list shows the main problems:

## Project Objectives

Life assistant is a service that helps people to learn natural languages. So the main objectives of our solution are to communicate between the system and the client like a student and his teacher. There will be several different strategies based on scientific researches which prove that people like to interact with incentives. So we will depend on implementing some interactional activities like hearing a sentence and then expect what is the right sentence, Thus in all stages.

The following list shows the main objectives of the project:

* Our main objective in this software solution is to learn different technologies and sciences and to utilize our teaching subjects in a useful solution for helping people to learn languages. So produce this useful solution for people we need to learn Natural Languages processing and we already having a fundamental course in NLP that helped us to start the journey. And we also need to learn how to use artificial intelligence algorithms and machine learning training for improving some conversational modules after finishing some activities that help learners to improve their skills in a specific language.
* This is not enough to achieve these objectives and goals. We need to have a good knowledge of how to manage and support languages. So we have to collect a reliable resources and agreed data.
* To develop...

## Project Scope

In this section you should state the expected deliverable(s) or the outcome of your project. You should also provide a brief description of the intended system - the characteristics or functions and the limitations. With this, it establishes the boundaries of the proposed project.

## Contributions of This Study (*Optional*)

Please indicate the potential contribution of your project and how others can benefit from it. Note, that this section is optional (you may exclude it).

## Project Timeline

The project timeline shows your (detail) plans and activities for the whole semester. You can use the Gantt chart or any other project planning tool to illustrate your activities.

## Document Organization

This project consists of six chapters in addition to one appendix. These chapters are organized to reflect the scientific steps toward our main objective. A brief description about the contents of each chapter is given in the following paragraphs:

Chapter 1 introduces the project objectives, the motivation of the project, the approach used in this project, the contribution of this project, the scope of the work, and project layout.

Chapter 2 provides the reader with an overview of the literature review.

# Chapter 2: Literature Review

A project must always be put in the context of existing works relevant to the topic. Discussion of that context is referred to as a review of the literature and can either be a separate chapter or be integrated into the project as a whole. The review of the literature encompasses discussions of the prevailing theories, existing creative works, historical contexts, relevant studies, etc. The list of references should endorse that a thorough examination of similar and related existing works have taken place. The chapter should:

* Provide evidence supporting the historical, theoretical, and research background of the study.
* Show the relationships between the study and other research studies of similar areas.
* Define how the investigation differs from other studies in the field.
* Include theoretical foundations, expert opinion, and actual research findings.
* Use primary sources whenever possible.

## Introduction

## Background

You should provide a brief section giving background information on the materials needed to follow your project because the information and experience of the readers with the subject and materials involved may vary.

## Review of Relevant Work

Categorize the literature into recognizable topic clusters:

* stake out the various positions that are relevant to your project,
* build on conclusions that lead to your project, or demonstrate the places where the literature is lacking.

## Relationship between the Relevant Work and Our Own Work

## Summary

# Chapter 3: System Analysis

It is necessary to study and analyze the current system to understand the shortcomings and problems of the current system and generate solutions to solve the problems.

## Introduction

## Analysis of Existing Systems

This section may contain any of the following information; document review, data collection, user interviews, questionnaires, observation or data sampling.

## System Requirements

### Functional Requirements

### Non Functional Requirements

Performance Constraints

Resources

### Design Objectives (*Optional*)

### User Requirements

## System Architecture

## Development Methodology

Either UML or DFD is recommended for this purpose. If you use the DFD, then use the corresponding diagrams (instead of use case and sequence diagram).

### Use Case Diagrams

### Use Case Description (Detailed Use Cases)

### Sequence Diagram

## Tools and Languages

## Summary

# Chapter 4: System Design

The design of the investigation explains how the study was formulated to investigate each question or hypothesis and if appropriate, it identifies all variables and how they are manipulated.

## Introduction

## Class Diagram

If you use DFD, then you should use ER diagram here.

## Data base Design or Algorithms

## 4.4 Interface Design

## 4.5 Summary

# Chapter 5: System Implementation

The students of CS491 should remove this chapter and prepare it only when they take CS492, that is during the implementation of their system.

## Introduction

## Mapping Design to Implementation

## Sample Application Codes

## System Testing

The system testing has the following objectives:

* Perform a final test of all parts of the program.
* Demonstrate that users can interact with the system successfully.
* Verify that all system components are integrated properly and that actual processing situation will be handled correctly.
* Confirm that the system can handle predicted volumes of data in a timely and efficiently manner.

## Results

The results of the investigation are presented in narrative form and may be supplemented with graphics and data could be presented using tables and figures you should well argue and proof. The discussion of the results should be presented according to each question or hypothesis. You can also include inferences, projections, and probable explanations of the results and discuss the implications of patterns and trends, including any secondary findings.

## Goals Achieved

Describe to which degree does the findings support the original objectives of the project (partially, fully achieved, or exceeded expectations). Here you will summarize the achievements and deficiencies of your project. You may also state what you would/could have done, if you had had more time or if things had worked out differently. It is important to be completely honest when it comes to the deficiencies and inadequacies of your work because part of your aim is to demonstrate your ability to recognize the remaining problems.

# Chapter 6: Conclusion and Future Work

## Conclusion

The concluding section should summarize the entire research effort. A sufficiently comprehensive overview should allow the intended audience to comprehend your study. At this point, it is appropriate to reacquaint the reader with the conceptual framework, the design of the investigation, the methodology, and the results of the study. This section should include the significance of the study and its conclusions, the limitations and weaknesses of the study, implications for future research, and recommendations.

## Future Work

This should address two domains: first, new areas of research and development instigated by achievements in this project, and the second part of the current work that were not completed due to time constraints and/or problems encountered.

# References

The purpose of a reference is to acknowledge the contributions of other authors to which you owe an intellectual debt, and also to enable readers to locate the source easily. In this section, you can use alphabetical or numerical system. For the latter we recommend IEEE system which is widely used in computer sciences and engineering. IEEE system dictates the in-text citation to appear as a number within square brackets (e.g. [1]). The full details of the reference appear in the reference list in the order of citation in the text. As for the alphabetical system(also known as author-date system), Harvard or APA system of referencing can be used. The advantage of author-date system, is that the name of the author and the year appear in the text, hence this eases reading. The reader only refers to the reference section for the details of the document since the name and the year already exist in the text.

The following is an example list of references using IEEE system. Please refer to the IEEE citation reference for details.

[1] V. J. Blue, and J. L. Adler, “Cellular automata micro-simulation of bi-directional pedestrian flows,” *J. Transportation Research*, pp. 135-141, 2000.

[2] S. Sarmady, F. Haron, and A. Z. H. Talib, “Modelling groups of pedestrians in least effort crowd movements using cellular automata,” in *Proc. 2009 2nd Asia International Conference on Modelling & Simulation*, Bali, Indonesia, 2009, pp. 520-525.

[3] F. H. Hassan,”Heuristic search methods and cellular automata modeling for layout design ,” Ph.D dissertation, Sch. of Info. Sys, Comp. and Math., Brunel Univ., UK, 2013.

[4] G. K. Still. (2010, July 15). *Crowd Disasters* [Online]. Available: <http://www.gkstill.com/CrowdDisasters.html>.

# Appendix A

For the graduation project CS492 report, you should prepare an appendix explaining file structure on the CD submitted with it. The appendix must also contain information on how the code should be run (i.e. the user guide or manual). Other appendices may include documents such as: the checklist of examiners’ comments, questionnaire, selected experimental data, schedules, testing strategy or risk management plans. Do not include the source code as an appendix (submit it on a CD). Do not include voluminous appendices (these should also be submitted on a CD, if necessary).

Students who have successfully completed their graduation project, CS492 oral examination and made all the revisions and corrections required by the examining committee, must submit one bound copy to the Project Committee.

# Appendix B

This section shows examples of figure, table and equation. We assume that the figure, table and equation appear in Chapter 2, therefore their numberings will be preceded by number 2. Whenever possible please place the figures and tables alongside with the captions, immediately following the first text that refer to it. If this is not possible, then the figure or table should appear in the following page. More than one figure or table can be placed in a single page. However, it is advisable to disperse the figures and tables throughout the report. Please ensure that the figures and tables do not run across pages.

process3.emf

Figure 2.1: Basic movement process model.

Figure 2.1 shows that before and after spacing should be equal to 12pt. The figure caption is under the figure. Figures are center justification. If you start a paragraph with the word “Figure” then use capital F, otherwise small f.

Tables are similar to the figures, but the difference is that the table caption is above the table, for example, table 2.1 shows an example of way-finding path table concept.

Table 2.1: An example of way-finding path table concept [2].

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Source** | **Destination** | **Cost** | **MidP-1** | **MidP-2** | **MidP-3** | **MidP-4** | **MidP-5** | **MidP-6** |
| Gate1 | Gate2 | 1 | - | - | - | - | - | - |
| Gate1 | Gate6 | 2 | Room1 | - |  | - | - | - |
| Room4 | Room7 | 3 | Room3 | Room5 | - | - | - | - |
| … | … | … | … | … | … | … | … | … |

References are numbered in square brackets, “[” and ”]”. We use IEEE system in our citation above, see the examples in the reference section.

Each equation in a chapter is to be numbered consecutively using a decimal system appearing flush with the right hand margin. For example:

Y = mx + b (2.1)

The numbers in parentheses are the chapter number and equation number respectively. Every new symbol used in the report text for the first time must be explained. When a large number of special symbols are used, it is permissible to collect them in a table or in a special appendix.

# Appendix C

The following describe the details of the required report format.

**Paper**

Standard A4 size; Weight: 90 Grams

Width: 8.27"; Height: 11.69"

**Fonts, Type Styles**

Font Size = 12 (Normal Text)

Font = Times New Roman

Heading 1 (Font Size) = 22 (Bold), Font = Times New Roman

Heading 2 (Font Size) = 16 (Bold), Font = Times New Roman

Heading 3 (Font Size) = 14 (Bold), Font = Times New Roman

**Margins**

Top = 1.0" Bottom = 1.0"

Left = 1.25" Right = 1.0"

**Spacing**

Line Spacing = 1.5

Paragraph Spacing = 6 pts (before) and 0 pts (after)

**Indentation**

Indent all quotations comprising 4 or more lines by 5 spaces from left.

**Page Numbers**

Except for the title page, number all pages which come before the first page of the body chapters consecutively with lower case roman numerals (i, ii, iii, iv…).

The first page with Arabic numeral (1, 2, 3, and so on) starts from the page of the introduction but it is mentioned on page 2 onwards. Mention page numbers on the bottom right of the page. The first page of each section or chapter will not carry the page number, however the page number will be counted for the proceeding page.

**Headers**

The header will comprise the title of the project report (together with the project logo if you wish). On every odd page will appear the title of the report while on the even pages the title of the chapter or section will be mentioned. The first page of every section or chapter shall not carry the header.