COMPUTER UNIVERSITY (MANDALAY)

FINAL YEAR PROJECT REPORT

ON

SEARCHING COMPUTER TERMS BY DEPTH-FIRST SEARCH METHOD

Bachelor of Computer Science

(B.C.Sc.)

Presented by Group (12)

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Project Schedule

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Abstract

A database is an organized collection of data. It is the collection of tables, queries, reports, views and other objects. A database system is basically a computerized record-keeping system and its overall purpose is to store information. This project will be displayed about searching computer terms by Depth- First Search Method. Depth -First Search is an algorithm for traversing tree or graph. This application is implemented by using VB.Net programming language and Microsoft Access Database.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Sometimes we get trouble to seek the meaning of a word. Depth First Search Method works in the same way with writing a word (i.e. we always start writing the word from the leftmost string) and it is used in this application. It is accurate to search meaning of English words, because it shows the structure from leftmost string. In this application, each term is explained in simple English. So we sincerely expect that our application can aid the users from one corner.

This application is offline application which does not need internet connectivity. The users can know the meaning of words without internet connectivity. Lots of similar suggestion is also provided in suggestion combo box where the users can know the meaning of some more similar words.

1.1.1 Method

The approach is to use a database where meaning with respective words is available and depth-first search method in searching the words.

1.1.2 Tools

1.1.2.1 Front End

Visual Studio 2010

1.1.2.2 Back End

Microsoft Access 2010

1.2 Objectives of the Project

- To provide the users with terms used in the field of computer.
- To show suggestion of words according to input characters in ascending order.
- To solve user's vocabulary confusion or problem
- To be convenient in searching the meaning of English words especially for students.

1.3 Project Requirements

1.3.1 Hardware Requirements

- PC with Windows Operating System
- RAM 15 MB
- Secondary memory 15 MB

1.3.2 Software Requirements

- Window Operation System (XP or Higher version)
- Microsoft Virtual Studio 2010

CHAPTER 2

THEORY BACKGROUND

2.1 Microsoft Access Database

Microsoft Access Database Engine 2010 Redistributable (32-bit) enables the transfer of data between existing Microsoft Office file such as Microsoft Office Access 2010 (*.xls,*.xlsx , and *.xlsb) files to other data sources such as Microsoft SQL Server. Connectively to existing text files is also supported. OSBC and OLEDB drivers are installed for application developers to use in developing their applications with connectivity to Office file formats.[3]

2.2 Depth-First Search

Depth-First –Search (DFS) searches deeper into the problem space. It uses last-in first-out stack for keeping the unexpanded nodes. More commonly, depth-first search is implemented recursively, with the recursion stack taking the place of an explicit node stack.[1]

2.2.1 Algorithms: Depth-First Search

1. If the initial state is a goal state, quit and return success.

2. Otherwise, loop until success of failure is signaled.

- Generate a state, say E and let it be the successor of the initial state. If there is no successor, signal failure.
- Call Depth-First Search with E as the initial state.
- If success is returned, signal success. Otherwise continue in this loop. [1]

2.2.2 Advantages of Depth-First Search

The advantages of depth-first search are

- If that memory requirement is only linear with respect to the search graph. This is in contrast with breath-first search which requires more space. The reason is that the algorithm only needs to store a stack of nodes on the path from the root to the current node.
- Depth-first search is time-limited rather than space-limited. If depth-first search find solution without exploring much in path then the time and space it takes will be very less.

2.2.3 Disadvantages of Depth-First Search

The disadvantages of Depth-First Search are

- There is a possibility that it may go down the left-most path forever. Even a finite graph can generate an infinite tree. One solution to this problem is to impose a cutoff depth on the search. Although the ideal cutoff is the solution depth d and this value is rarely known in advance of actually solving the problem. If the chosen cutoff depth is less than d, the algorithm will fail to find a solution, whereas if the cutoff depth is greater than d, a large price is paid in execution time, and the first solution found may not be an optimal one.
- Depth-first search is not guaranteed to find the solution.

2.3 Steps by Steps

Input

It is a word we want to find the meaning.(E.g. Account)

Process

Word processing stage where the input for further processing, which in the processing using existing algorithms or methods to produce better output.

Output

Is the result of the above processing stage case.

Example: We'll try searching meaning of "Account "word.

We start from 1st leftmost string. The description of tree diagram is

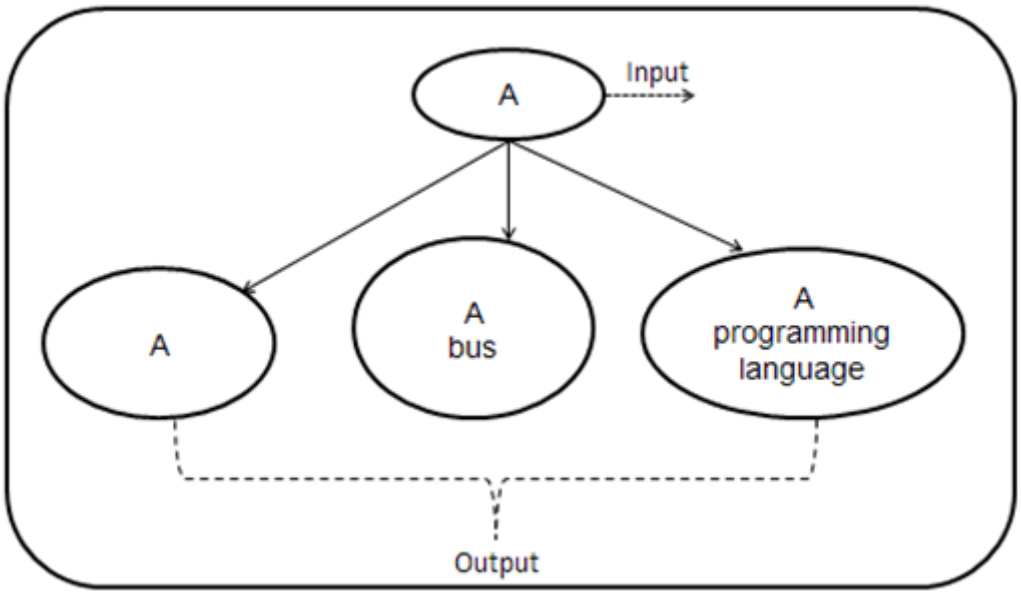


Figure (2.1) Output of 1st leftmost string

If we type 2nd leftmost string. The description of tree diagram is

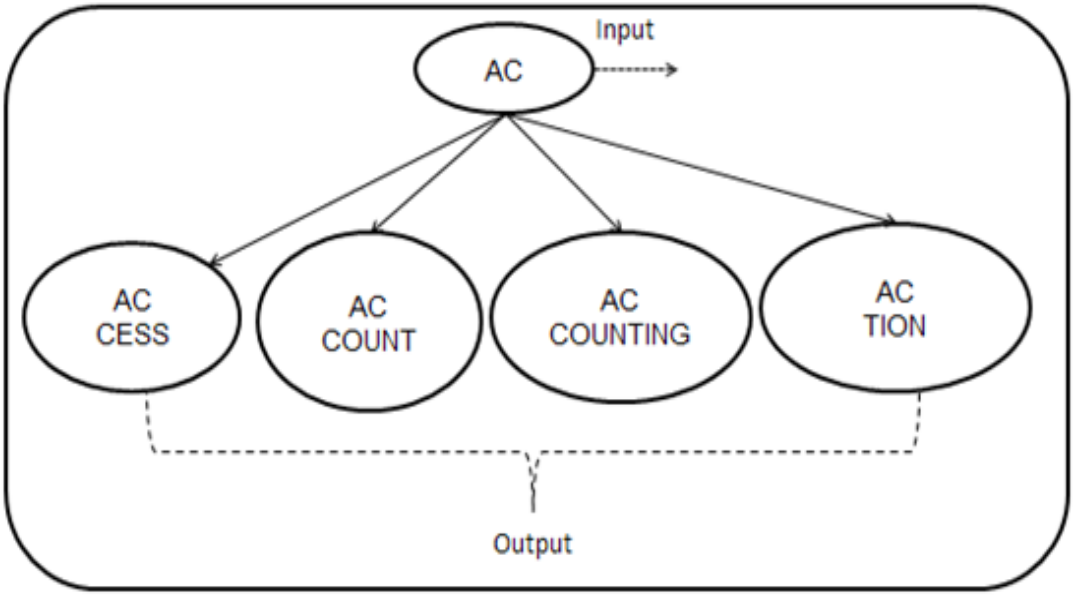


Figure (2.2) Output of 2nd leftmost string

If we type 3rd leftmost string. The description of tree diagram is

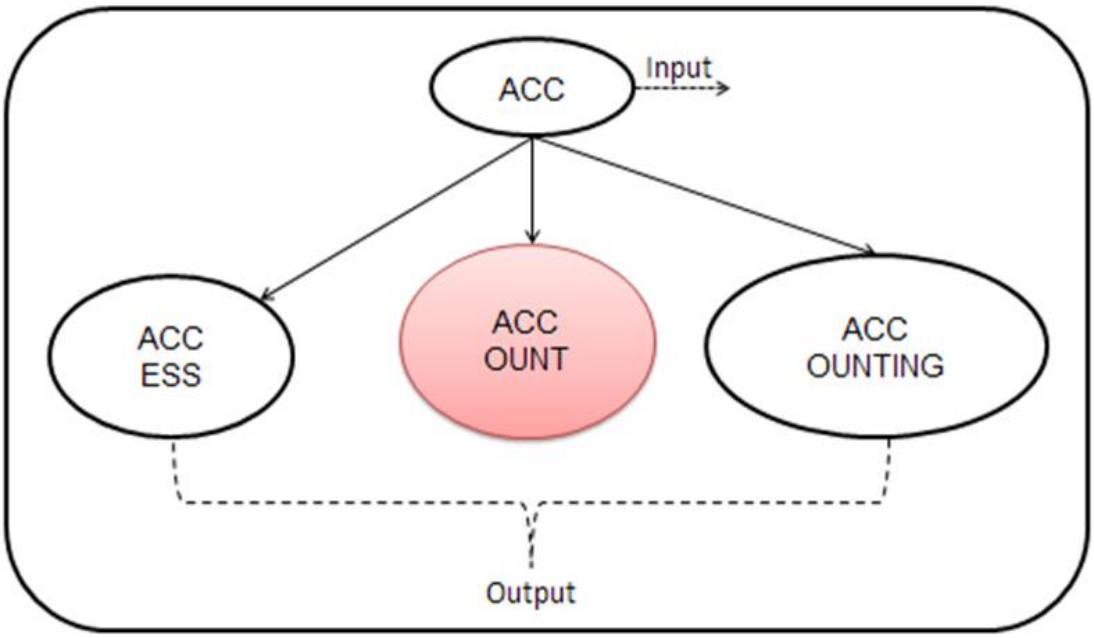
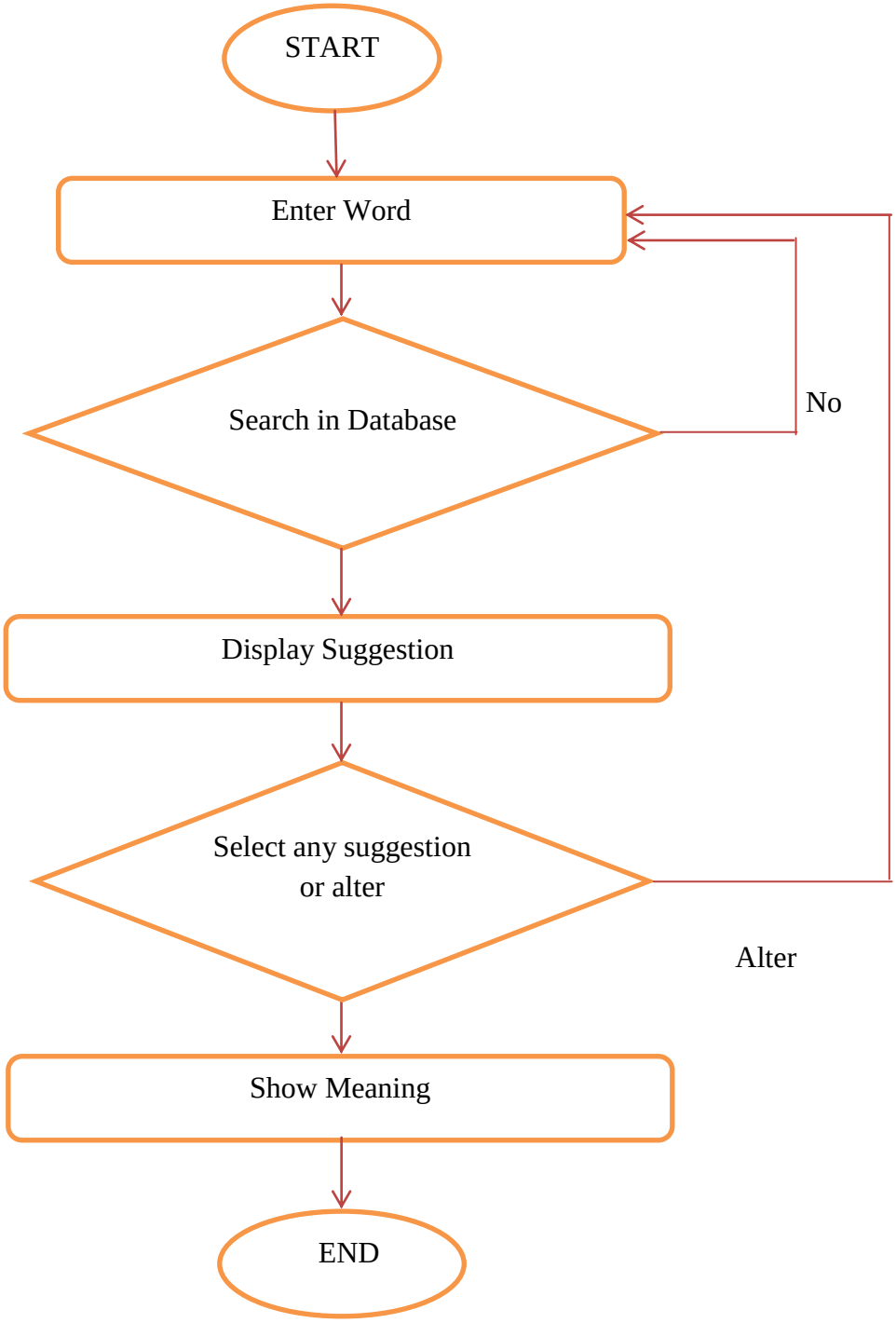


Figure (2.3) Output of 3rd leftmost string

CHAPTER 3

DESIGN AND IMPLEMENTATION

3.1 System Flow Diagram



Figure(3.1) Flow Chart Diagram of the System

3.2 Use Case Diagram

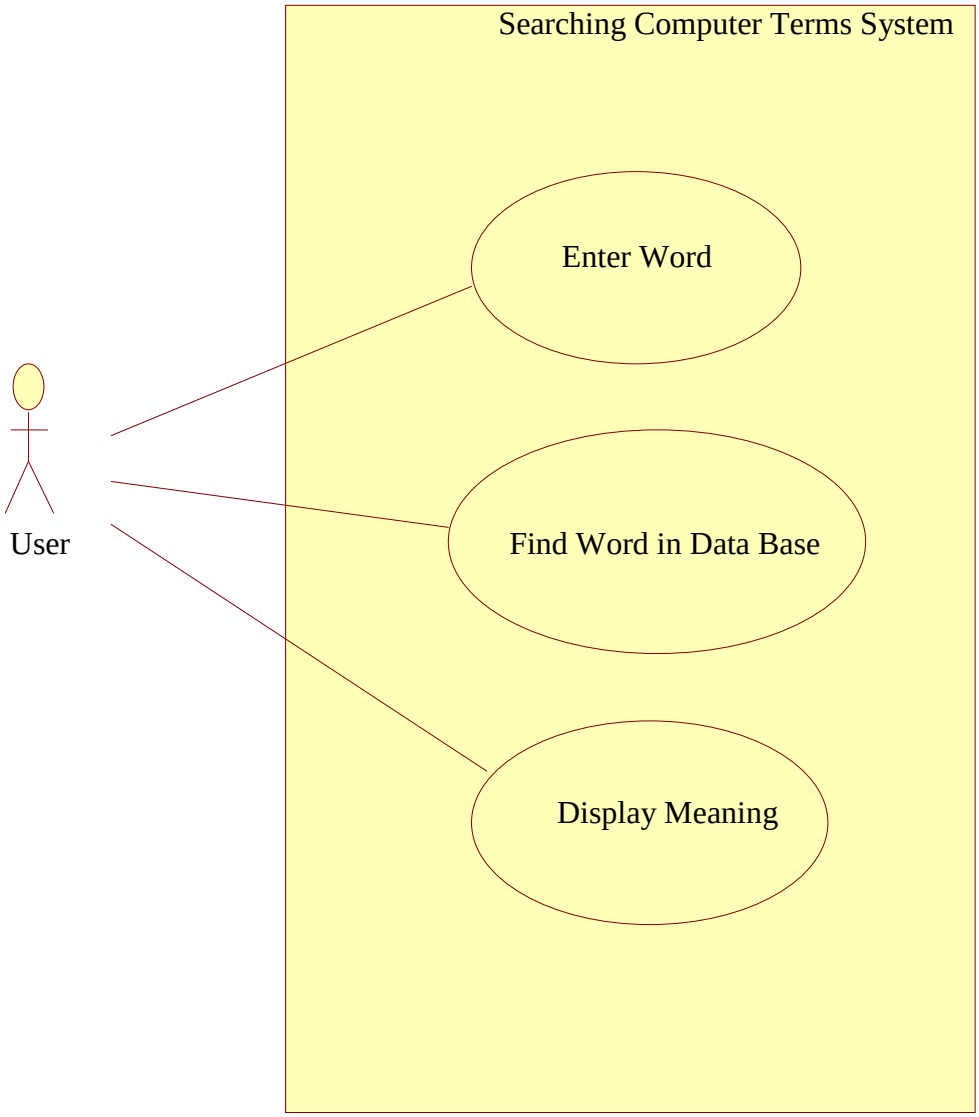


Figure (3.2) Use Case Diagram for Searching Computer Terms System

Table 3.1 Use Case Description

Use case name	Searching Computer terms
Scenario	Show meaning of words
Triggering Event	Type some character of any word
Brief Description	This application takes input as some character from user, search matched words from Database. Provide some suggestion to user, and after selection from suggestion shows meaning of that word in a text box.
Actors	The user who clicks on the app
Related use cases	None
Stake holders	User
Preconditions	User must use the software in windows platform.

3.3 Database Design

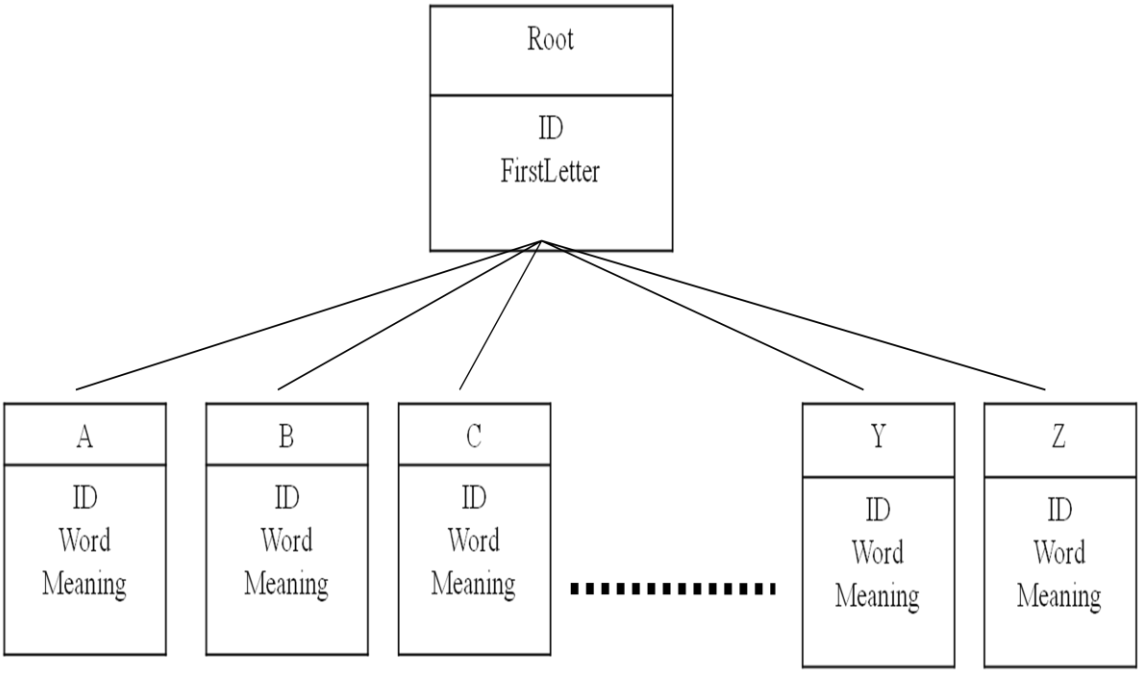


Figure (3.3) Database Design

3.4 Implementation

Figure (3.4) is the first page of the project.

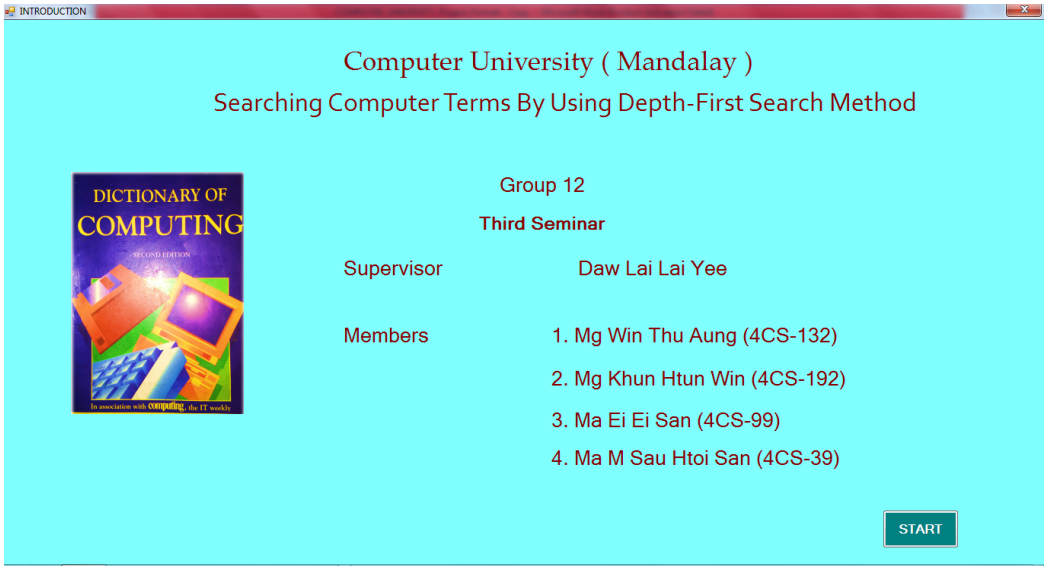


Figure (3.4) Greeting Page

Figure (3.5) is selecting the first letter of a word the user wants to search.

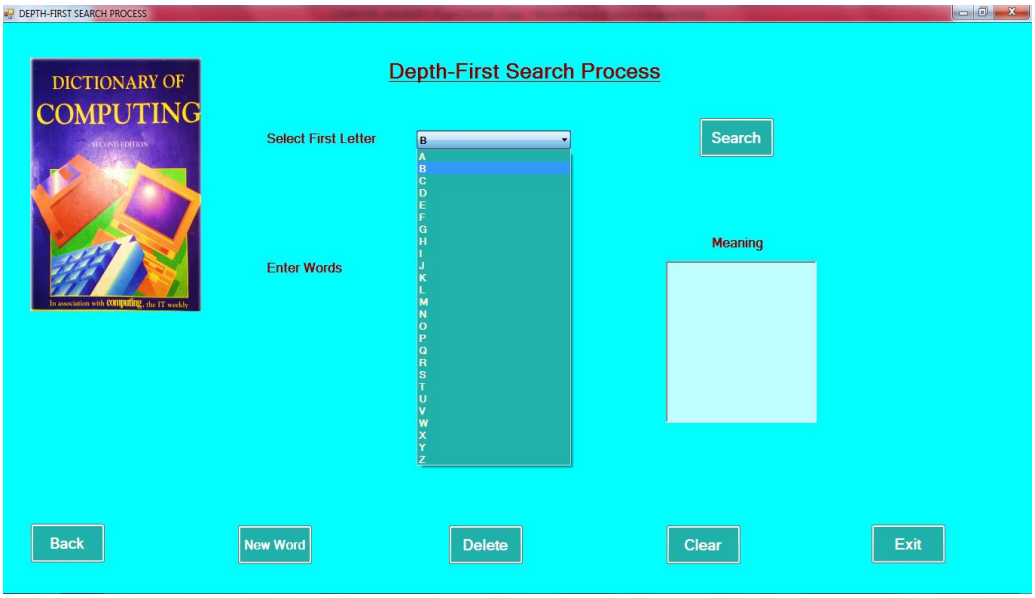


Figure (3.5) Words Searching Process (1)

Figure (3.6) is after selecting the first letter; the user can find the desired words by typing in ascending order.

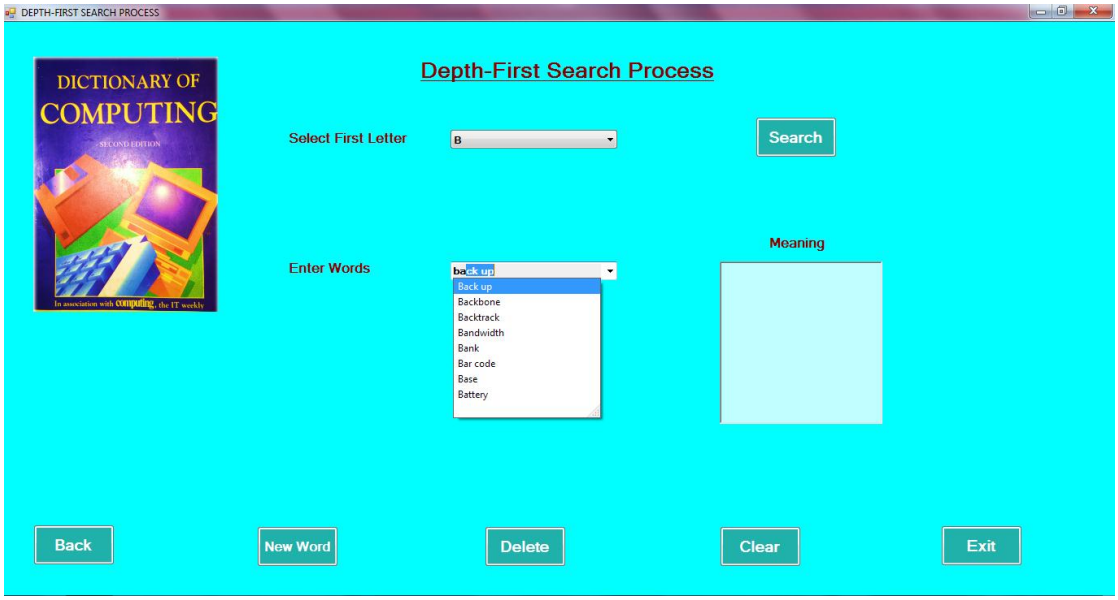


Figure (3.6) Words Searching Process (2)

Figure (3.7) is when the user found the word; the meaning will be displayed by clicking search button.

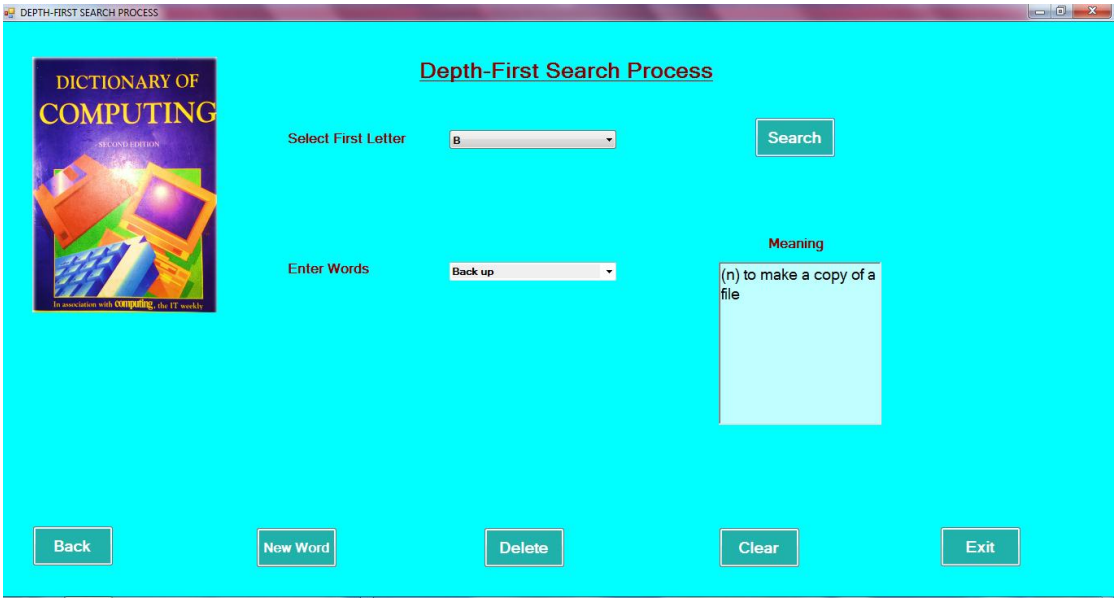


Figure (3.7) Words Searching Process (3)

3.5 Data Set Tables

ID	Word	Meaning
1	A-bus	(n) main internal bus in a microprocessor
2	A programming language (APL)	(n) high-level programming language used for scientific and mathematical
3	Abstract data type	(n) ALTERNATING CURRENT electric current whose value varies with time in a regular changing the direction of flow each half cycle
4	AC	(n) a general data type that can store any kind of information
5	ACC	(n) ACCUMULATOR most important internal storage register, containing the data word that is to be processed

Table 3.2 Word "A" Table

Table 3.3 Word "B" Table

ID	Word	Meaning
1	Backbone	(n) high-speed, high-capacity connection path that links smaller sub-networks
2	Backtrack	(v) to carry out list processing in reverse, starting with the goal and working towards the proofs
3	Back up	(v) to make a copy of a file
4	Bandwidth	(n) range of frequencies
5	Bank	(n) collection of similar devices

Table 3.4 Word "C" Table

ID	Word	Meaning
1	C	(n) high level programming language developed mainly for writing structured systems programs
2	Cache memory	(n) section of high speed memory which stores data that the computer can access quickly
3	CAD	(n) COMPUTER-AIDED DESIGN the use of a computer and graphics terminal to help a designer in his work
4	Calculate	(v) to find the answer to a problem using numbers
5	Call	(n) conversation on the telephone

Table 3.5 Word "D" Table

ID	Word	Meaning
1	Data	(n) collection of facts made up of numbers, characters and symbols stored on a computer in such a way that it can be processed by the computer
2	Database	(n) integrated collection of files of data stored in a structure found in a large memory which can be accessed by one or more users at different terminal
3	DBMS	(n) DATABASE MANAGEMENT SYSTEM
4	Deadlock	(n) situation when two users want to access two resources at the same time one resource is assigned to each user but neither can use the other
5	Decimal	(n) arithmetic and number representation using the decimal system

Table 3.6 Word "E" Table

ID	Word	Meaning
1	Echo	(n) return of a signal back to the source from which it was transmitted
2	Edit	(v) to change, correct and modify text or programs
3	Effective	(adj) which can be used to produce a certain result

4	Efficiency	(adj) working well
5	Electric	(n) worked by electricity

Table 3.7 Word "F" Table

ID	Word	Meaning
1	Facility	(adj) being able to do something easily
2	Factor	(n) something which is important or which has an influence on something else
3	Fail	(v) not to do something which should be done
4	False	(adj) wrong
5	Fax	(n) FACSIMILE COPY FACSIMILE TRANSMISSION

Table 3.8 Word "G" Table

ID	Word	Meaning
1	Game	(n) something which is played for enjoyment or relaxation
2	Garbage	(n) radio interference from adjacent channels
3	Gate	(n) logical electronic switch whose output depends on the states of the inputs and the type of logical function implemented
4	Generate	(v) to use software or a device to produce codes or a program automatically
5	Global	(adj) covering everything

Table 3.9 Word "H" Table

ID	Word	Meaning
1	Hack	(v) to experiment and explore computer software and hardware
2	Halt	(n) computer instruction to stop a CPU carrying out any further instructions until restarted, until the program restarted, usually by external means
3	Handle	(n) number used to identify an active file within the program that is accessing the file
4	Hardware	(n) physical units, components, integrated circuits, disks and mechanisms that make up a computer or its peripherals
5	Hash	(v) to produce a unique number derived from the entry itself, for each entry in a database

Table 3.10 Word "I" Table

ID	Word	Meaning
1	ID	(n) IDENTIFICATION
2	Identify	(v) to establish who someone is or what something is
3	Idle	(adj) which is not being used, but is ready and waiting to be used
4	Implication	(n) logical operation that uses an IF-THEN structure, if A is true and if B is true this implies that the AND function of A and B will be true
5	Import	(v) to bring goods into a country to resell

Table 3.11 Word "J" Table

ID	Word	Meaning
1	Job	(n) task or number or of tasks or work to be processed as a single unit
2	Join	(v) to link or to put several things together
3	Joystick	(n) device that allows a user to move a cursor around the screen by moving an upright rod connected to an I/O port on the computer
4	Jump	(n) programming command to end one set of instructions and direct the processor to another section of the program
5	Justify	(v) to change the spacing between words or characters in a document so that the left and right margins will be straight

Table 3.12 Word "K" Table

ID	Word	Meaning
1	Kernel	(n) basic essential instruction routines required as a basis for any operations in a computer system
2	Keyboard	(n) number of keys fixed together in some order used to enter information into a computer or to produce characters on a typewriter
3	Keystroke	(n) action of pressing a key
4	Kilo	(n) meaning one thousand
5	Knowledge	(n) what is known

Table 3.15 Word "L" Table

ID	Word	Meaning
1	Label	(n) word or other symbol used in a computer program to identify a routine or statement
2	LAN	(n) LOCAL AREA NETWORK, network where various terminals and equipment are all within a short distance of one another and can be interconnected by cables
3	Language	(n) system of words or symbols which allows communicating with computers
5	LCD	(n) LIQUID CRYSTAL DISPLAY liquid crystal that turns black when a voltage is applied, used in many watches, calculations and other small digital displays
6	LED	(n) LIGHT EMITTING DIODE semiconductor diode that emits light when a current is applied

Table 3.13 Word "M" Table

ID	Word	Meaning

1	Mbps	(n) MEGA BITS PER SECOND number of million bits transmitted every second
2	Machine	(n) number of separate moving parts or components, acting together to carry out a process
3	Mail	(n) system for sending letters and parcels from one place to another
4	Main body	(n) set of instructions that form the main part of a program and from which other subroutines are called
5	Mainframe	(n) large-scale high power computer system that can handle high capacity memory and backing storage devices as well as a number of operators simultaneously

Table 3.14 Word "N" Table

ID	Word	Meaning
1	NAND function	(n) logical function whose output is false if all inputs are true, and true if any input is false
2	Nano	(n) meaning one thousand millionth
3	Network	(n) any system made of a number of points or circuits that are interconnected
4	Node	(n) interconnection point in a structure or network
5	NOR function	(n) logical function whose output is false if either input is true

Table 3.16 Word "O" Table

ID	Word	Meaning
1	Object	(n) the data that makes up a particular image or sound
2	Object-oriented	(n) that uses objects
3	Objective	(n) something which someone tries to do
4	Obtain	(v) to get or to receive
5	Occur	(v) to happen or to take place

ID	Word	Meaning
1	Package	(n) group of different items joined together in one deal
2	Page	(n) amount of text, displayed on a computer monitor or screen
3	Paging	(n) virtual memory technique of splitting main memory into small blocks which are allocated an address and which can be called up when required
4	Paint	(n) color and pattern used to fill an area
5	Panel	(n) flat section of a casing with control knobs or sockets

Table 3.17 Word "P" Table

Table 3.18 Word "Q" Table

ID	Word	Meaning
1	Quality	(n) what something is like or how good or bad something is
2	Quantity	(n) amount or number of items
3	Quantum	(n) a packet of data that is the result of a signal being quantized
4	Query	(n) question
5	Question mark	(n) the character (?) which is often used as a wildcard to indicate that any single character in the position will produce a match

Table 3.19 Word "R" Table

ID	Word	Meaning
1	Radial transfer	(n) data transfer between two peripherals or programs that are on different layers of a structured system
2	Radio button	(n) circle displayed beside an option that, when selected, has a dark centre
3	Radio frequency	(n) electromagnetic spectrum that lies between the frequency range 10KHz and 3000GHz
4	Radix	(n) the value of the base of the number system being used
5	RAID	(n) REDUNDANT ARRAY of INEXPENSIVE DISKS fast, fault tolerant disk drive system that uses multiple drives which would, typically, each store one byte of a word of data, so allowing the data to be saved faster

Table 3.20 Word "S" Table

ID	Word	Meaning
1	Sample	(adj)measurement of a signal at a point in time
2	Satellite	(n) small system that is part of a larger system
3	Saturation	(n) point where a material cannot be further magnetized
4	Save	(v) to store data or program on an auxiliary storage device
5	Scan	(n) examination of an image or object or list of items to obtain data describing it

Table 3.21 Word "T" Table

ID	Word	Meaning
1	Table	(n) list of data in columns and rows on a printed page or on the screen
2	Tabulate	(v) to arrange text in columns, with the cursor moving to each new column automatically as the text is keyboard
3	Tag	(n) one section of a computer instruction
4	Tape	(n) long thin flat piece of material
5	Technology	(n) applying scientific knowledge to industrial processes

Table 3.22 Word "U" Table

ID	Word	Meaning
1	Ultra	(n) meaning very large or further than
2	Ultraviolet	(n) electromagnetic radiation with wavelength just greater than the visible spectrum, from 200 to 4000 angstrom
3	Underline	(n) line drawn or printed under a piece of text
4	Undertake	(v) to agree to do something
5	Undo	(v) to reverse the previous action, normally an editing command

Table 3.23 Word "V" Table

ID	Word	Meaning
1	V	(n) VOLTAGE

2	V & V	(n) VERIFICATION AND VALIDATION
3	Valid	(n) correct, according to a set of rules
4	Validation	(n) check performed to validate data
5	Value	(n) what something is worth

Table 3.24 Word "W" Table

ID	Word	Meaning
1	Wait condition	(n) state where a processor is not active, waiting for input from peripherals
2	WAN	(n) WIDE AREA NETWORK, network where the various terminals are far apart and linked by radio, satellite and cable
3	Watt	(n) SI unit of measurement of electrical power, defined as power produced when one amp of current flows through a load that has one volt of voltage across it
4	Width	(n) size of something from side to side
5	WIMP	(n) WINDOW, ICON, MOUSE, POINTERS program display which uses graphics or icons to control the software and make it easier to use

Table 3.25 Word "X" Table

ID	Word	Meaning
1	X-axis	(n) horizontal axis of a graph

Table 3.26 Word "Y" Table

ID	Word	Meaning
1	Y-axis	(n) vertical axis of a graph

Table 3.27 Word "Z" Table

ID	Word	Meaning
1	Zero	(n) the digit 0
2	Zoom	(v) to enlarge an area of text

CHAPTER 4

CONCLUSION

4.1 Conclusion

We can easily find the meaning of the words by entering and clicking search button. In this application, database tables and depth-first search method are used. So, the combination of these two can give satisfied meaning to user. This application's target is to any type of computer user who ever get a word which meaning is not known to him. In developing this application, we used Visual Studio 2010.

4.2 Advantages of the Project

- This application is agreed with depth-first search method because we must start from the leftmost string in writing the words; we want to know, in the Combo Box.
- Lots of similar terms are provided in combo box where the users can seek the meaning of more similar words.
- The words are provided in alphabetically order so it is very helpful for users in finding words and the meaning of the words.
- The meanings are taken from the popular Computer Dictionary Book so the meanings are trustworthy.
- This application is easy to use.

4.3 Limitations and Further Extension

- Only 750 words are provided and for further extension, more words and meanings can be added.
- The current words are only from Computer Fields and further words not only from Computer fields but from other fields (Medical field and Engineering field, etc.) can be added.
- This application can now only be opened or processed with Visual Studio furthermore it is possible to implement it with other programming languages such as Java, C#.
- We have decided to add the insert and delete functions for administrators with provided security.

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