

TITLE PAGE

ENAGI'S CUP
COMPUTER GAMES DESIGN AND PROGRAM

BY

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APPROVAL PAGE

This project has been read and approved as meeting the partial requirement for the award of Post Graduate Diploma in computer science of the school of sciences and science Education, Federal University of Technology Minna.

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DEDICATION

To my mother HAJIYA ADAMA IDRIS who passed away on 25th November 2001.

May her soul rest in perfect peace.

ACKNOWLEDGEMENT

I thank Almighty Allah for the successful accomplishment of my Post Graduate Diploma in Federal University of Technology Minna, for providing me with the energy and endurance needed to with stand the pressures of academic endeavors.

My special thanks goes to my supervisor, Dr N.I Akinwande for his constant guidance and corrections.

I am indeed grateful to all my lecturers who in one way or the other help to see to the success of this project. My father Mallam Idris Enagi, my wife Mallama Amina Abdullah, my Daughter Aisha Abdullah my friends and colleagues for their total support without which the course should have been a total failure.

ABSTRACT

Beginning in about 1950, advances in electronics paved the way for computer revolution of explosive growth and fruitfulness. Over the years, it has been demonstrated that computer can be programmed to carryout logical complex tasks for examples games such as chess, puzzle, e.t.c.

Enagi cup consists of two games namely Enagi puzzle and Enagi nibble. Enagi puzzle is similar to the 15 puzzles of the most prolific American creator of puzzles Sam Loyd. It is a "24 puzzle" containing 25 trays labeled with letters C – Z and one empty space. The letters A and B are automatically fixed. The player wins Enagi's cup if he is able to arrange the files in ascending order within the shortest possible time, which no one else have arranged before and the time must be less than five minutes.

The second game Enagi's nibbles is similar to dart. It Consist of three stages after which the player wins the cup if he is able to play the game within the shortest possible time and the time must be less than five minutes.

We believe this game will serve as amusement to the mind and test how intelligent, fast and clever a player is.

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TOPIC:- ENAGI'S CUP COMPUTER GAMES DESIGN AND PROGRAM

CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND OF THE PROGRAM

Computer which is known to some as the mind tool is an electronic device that is capable of accepting data (input) processing the data, and producing information (out put) very fast, accurately, and thus more efficiently than human efforts.

Early recorded history revealed examples of primitive hand-operated computing devices, such as the Abacus, astrolabe, e.t.c useful in such activities as commerce, and navigation. Beginning in about 1950, advances in electronics paved the way for a computer revolution of explosive growth and fruitfulness. Earlier narrow concepts of what computers are and what they can do have been revised and extended. Today computers are automatic, fast, flexible, trouble free and inexpensive in developed countries with a wide range of capabilities, all to a previously unimaginable degree.

Over the years, it has been demonstrated that computers can be programmed to carry out very logical complex tasks-for examples games such as Chess, Puzzle, e.t.c, with remarkable proficiency.

"The theory of games might be called the mathematics of competition and co-operation. It analyses situations in terms of gains and losses of opposing players. It is applied widely in economics, operations research, military science, political science, organization theory, and the study of bargaining and negotiation.

" Adeleke (2001)

Games began in ancient times in association with divination, funeral rites, and military strategy. We have several kind of games which includes among others Race games, strategy games, solitaire games which this project is of more concern with was developed from strategy games. It consists of Puzzles and nibbles each for a single player at a time.

Puzzles originated in France and became popular In England during the 18th century. Mathematical puzzles have been used as trials, intelligence tests, and amusements.

The most prolific American creator of puzzles is Sam Loyd, whose popular 15-puzzles entertained a generation of people over the world at the turn of the century. His 15-puzzles is still popular. It consists of a 4 – by – 4 tray containing 15 square tiles, numbered 1 through 15, and one empty space the files can be shifted but can not be lifted out of the tray. The object of the puzzle is to arrange the tiles in increasing order as shown in fig 1.1 below.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	

Fig 1.1 (Sam- Loyd 15 – Puzzle)

The first game in this program (ie Enagi Puzzle) is similar to the Puzzle but a '24 – Puzzle', ie 5 – by – 5 and containing a 25 tray, Labeled with letters C to Z and one empty space. The letters A and B are automatically fixed. The player wins

Enagi's Cup if He/She is able to arrange the tiles in ascending order within the shortest possible time which no one else have arranged before and the time is less than five minutes. The player may possibly take the second or third position with out wining the Enagi's Cup in which case he/she will be congratulated and encouraged to put more effort to win the cup.

Malone in 1981 described "chart" as a game designed to teach elementary students about fractions Three ballons appear at random places on a number line and students try to guess where the ballons are. They guess by typing in mixed number, and each time they guess an arrow shoots across the screen to the position specified. If the guess is right, the arrow pops the balloon. If wrong, the arrow remains on the beginning of the game and if all the three ballons in a round are popped in four or fewer trials a short song is played.

The second game 'Enagi's nibble' is similar to the above described game. It consist of three stages. At the beginning of each stage the number 1 is displayed at any point on the screen and a cursor displayed at another point. The player strikes the figure with the cursor by using the four arrow keys. If he succeeded in striking the number, the next number is displayed at another point on the screen and he moves the cursor again from the position he striked the first number to the new displayed number, in this way he continues until he strikes the numbers 1 to 9 and the game goes in to stage two and in the same way to stage three. The player wins Enagi's cup if he is able to play the game within the short test possible time which no one else have played before and the time must be less than five minutes. The player may possibly take the second or third position

without winning Enagi's cup in which case he will be congratulated to put more effort to win the cup.

1.2 PURPOSE OF THE PROGRAM

The purpose of any game is to test a player's knowledge, skill, patience or temper. The Enagi games is not an exception but in addition will test how intelligent, fast and clever a player is. The Enagi's puzzle is designed in such a way that it will develop the player's intellect, since the game encourages fast and deep thinking. The best player is he that arranges the puzzle within the shortest possible time and hence shall win Enagi's cup.

The second game (i.e Enagi nibble) is designed for kids. It is much easier to play. There is a saying that "too much work with out play makes a jack a dull boy". We believe this game will serve as amusement to the mind of children and test how intelligent, fast and clever they are.

1.3 SCOPE AND LIMITATION

The program is written in basic programming language which is an all purpose programming language and short note PASCAL or FORTRAN neither D base which are more of specific purpose.

Graphics that shall necessitate colour monitor and printing have both been excluded since not all player will have access to graphic monitor adaptor/printers.

The first game is of only one stage in order to allow as many as possible players to play the game. A player competing can play the game within five

minutes. The use of joy stick, mouse and other devices have also been ignored so that every player can easily get access to the program.

A competing player shall be given a maximum of five minutes before/after which he

WIN ENAGI'S CUP

(TAKE FIRST POSITION)

OR

BE CONGRATULATED

(TAKES SECOND OR THIRD POSITION OR ABLE TO ARRANGE THE
PUZZLE WITHIN FIVE MINUTES)

OR

LOSES THE GAME

(NOT ABLE TO ARANGE THE PUZZLE WITHIN FIVE MINUTES)

A non – competing player have no time limit and shall be congratulated regardless of the time taken to arrange the puzzle.

As for the second game "Enagi's nibble", there is no room for non – competing player and each player has a maximum of five minutes to play the game. The success and game situation are presented in the same way as in game the first game.

1.4 SIGNIFICANCE OF THE PROGRAM

This program should be of great help to both children and adults as it will help us to think mathematically, very fast, be clever, be patient e.t.c., it will develop the mental capability of individual players.

Since the program is written in basic language which is the language purposely designed for beginners, it will help individuals who are trying to write programs in BASIC. Similarly, it shall also help some individuals to build on or develop the program using a different programming language such as, FORTRAN PASCAL, COBOL, E.T.C.

1.5 DEFINITION OF TERMS USED

- ABACUS:** An instrument for making calculations by sliding counters along rods.
- Astrolable:** An instrument for observing the position of celestial bodies.
- Basic:** Acronym for Beginner' s All-purpose symbolic and instructional code.
- Byte:** An element of data which is composed of eight bits plus a parity bit, and represent either one alphabetic or special character, two decimal digits, or eight binary bits.
- Cal:** Acronym for computer Aided learning. This is the general term used to describe virtually any learning activity that is promoted by a computer or in which a computer is involved.
- Chess:** This is one of the earliest games for which program were designed.
- Cobol:** Acronym for common business – oriented language. It is suitable for writing complicated business application programs.
- Command:** A pulse, signal, word, or series of letters that tells a computer to start, stop, or continue an operation in an instruction.

Compiler: A computer program that translates a program written in a high level language to machine language.

Course ware: Often used in a generic sense to describe materials that are specially designed and produced for use within some form of teaching machine.

CRT: An acronym for Cathode Ray Tube.

Drive: A device that hold and manipulates magnetic media so that the central processing unit (CPU) can read data from or write data to them.

File: A collection of related data or programs that is treated as a unit by the computer describes the sequence of data – handling operations performed within a computer.

Function keys: specified keys on the key board that, when pressed, instruct the computer to perform a particular operation. The function of the keys are determined by the application program being used.

Game: An activity carried out by co-operation or competing decision – makers, seeking to achieve, within a set of rules, their objectives.

Graphics: A hard ware/software capability to display objects in pictures, rather than words, usually on graphic (CRT) display terminals with line drawing capability and permitting interaction, such as use of light pen.

Interpreter: A program that reads , translates and executes a user's program, such as one written in the basic language, one line at a time.

program: A series of instructions or statements in a form acceptable to a computer, designed to cause the computer to execute a series of operations.

Puzzle: Question or problem difficult to understand or answer designed to test a person's knowledge, skill, patience or temper.

Sprite: A special type of graphical display object that can be created by a program and then moved around a CRT screen under program control. Some of their attributes include shape, colour and activity.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

The purpose of this chapter is to review literature that are related to the program.

The literature reviewed has been divided in to the following subsections:

- i. Computers and computer Games
- ii. Basic programming language.

2.2 COMPUTERS AND COMPUTER GAMES

Games have an in explicable fascination for many people, and the notion that computers might play games has existed at least for as long as the computer itself. Charles Babbage, the famed computer architect before his time, thought about programming his analytical engine to play chess, and later of building a machine to play tic – tac (Bowden, 1953). Claude shannon (shannon, 1950) wrote a paper in which he described mechanisms that could be used in a program to play chess. A few years later, Alan Turing described a chess – playing program, although he never build it. By early 1960's Arthur Samuel succeeded in building the first significant, operational game playing program. His program played checkers and in addition to simply playing the game, could learn from its mistakes and improve its performance (Samuel 1963).

Computer Games are generally associated with computer Assisted learning (CAL). Tim and others (1983) said "Most subjects on conventional can

with imagination, be made in to meaningful and enjoyable computer based activities. They will be games to the extent that children want to play them". As plato correctly put it that "No compulsory learning can remain in the soul in teaching children, train them by a kind of game, and you will be able to see more clearly the natural bent of each". (The republic book VII).

O'shee T. and self I. (1988) define computer Games as "a computer – based activity which leads its participants to leap joyfully." There have been games on computers almost as long as there have been computers, but the advent of cheap micro – computers in the last few years has now made them widely available. Games programs requires a great deal of attention to details, especially about the rules so that, if you are converting a game, you can be assure of the completeness of the implementation. You might also want to think about the various ways in which information about the game can be communicated, both text displays and graphics.

All of these consideration lead to the overall design of the program. Banet (1979) has listed features that make for successful computer games:

1. Audio and visual effects are used to reward success and to present the game situation.
2. The game can increase in its ability to challenge the player; it need not become boring simple.
3. The game incorporates fantasy elements (e.g Piloting a space – ship).
4. The computer can time the players, responses and calculates scores.

In order to investigate why computer games are so captivating, malone (1980 – 1981) surveyed children about their preferences concerning 25 computer games.

He organized his theory of self – motivating instruction around three aspects:

1. challenge ; there is a goal whose attainment is uncertain;
2. curiosity: the player knows enough to have expectations about what will happen, but some times these are unmet;
3. Fantasy: The game provoke mental images not present to the senses.

This malone's theory compares nicely with piagets theory of conditioning, which states that people are driven by a will to mastery (Challenge) to seek optionally informative environment (curiosity) which they assimilate in part, using schemes from other context (Fantasy).

The survey showed that there were big differences, in children's preferences, but there were one or two interesting findings for example, the most common reasons given for not liking a games should' excel. Also, it was found that games were liked mainly for reasons having to do with fantasy, and yet fantasy has no correlation with game ratings – presumably, different children prefer different fantasies.

There are many computer games in the market, such as the space invaders, Darts, callas, prince of parsia, How the west was won, to mention but a few .

2.3 BASIC PROGRAMMING LANGUAGE

BASIC has undoubtedly become a popular programming language, it is an example of a language translator that operates in an interpretative fashion

(although some compilers are now available e.g Turbo basic and Qbasic). The language is available in most computer systems, as Philip Baker (1987) pointed out "in many micros a BASIC interpreter is often built into ROM (read only memory) and so is immediately available as soon as the computer is 'powered-up'. Other micros provide access to BASIC through the use of disk based programs that can be loaded in to the computer's memory before it is used. In larger computers, the BASIC system is usually provided as a standard programming tool that is part of computer software library.

BASIC programming is mostly used in Computer Assisted Learning (CAL). The most obvious areas for application of this CAL techniques are mathematics, sciences and engineering. The use of BASIC as an aid for teaching mathematics at secondary school level (using a micro-computer) has been described by Oldknow (1984).

He makes several important points about the relevance of BASIC as a tool for problem solving of CAL. These include:-

1. The fact that certain mathematical problems are not easily solved without a computer,
2. The fact that mathematicians are adept to the use of computers
3. The fact that high -resolution colour graphics on a Cathode Ray Tube (CRT) is a useful way of displaying the nature and behavior of mathematical functions.

Horkens and Morice (1975) also believe that "the logic of computer programming makes it a useful discipline in addition to its direct utility as a

calculation device." They have described the use of a multi-access time sharing basic system as a teaching aid for students of civil engineering. Similarly, with the science domain Wilkin et al (1975) have used real time BASIC as the language for use in their chemistry laboratory interfacing experiments. They give five reasons for their choice

1. Ease of learning
2. Its algebraic nature
3. Its interactivity
4. Its universal acceptability and
5. Its wide spread availability.

Games and simulation are extremely useful teaching tools as earlier indicated. Those involving animation are particularly helpful in instructional situations. Sprits are often used to facilitate animation effects, they are extremely useful for implementing computer games and animation. Larsen (1983) has described the use of BASIC for programming sprites graphics for use in a number of different applications.

Lientz (1976) made a comparison of ten early versions of the BASIC language. They were available on a number of different time-sharing computer systems. Although, there were similarities between them, there were also many differences. This observations coupled with the worry that significant differences between BASIC dialects might hamper program portability, added considerable support to the growing feeling that some form of standardization was necessary. Standardization discussions were undertaken by the American national Standard

Institution (ANSI, 1978) who formulated recommendations for a standard 'minimal' BASIC subset. This standard (known as X 3.60) contained a list of features and recommendations to which (for acceptability) all BASIC dialects of the language should comply.

Early versions of BASIC were severely criticized because they did not contain facilities for the development of the programs that exhibited good structure. Consequently, many new additions and extensions to the language were made (for example, WHILE.....WEND constructs, use of procedures, and so on) in order to overcome these criticisms. Dissatisfaction with earlier dialects of the language also sparked off the development of new (BASIC – like) languages that were designed to overcome its limitations. COMAL is probably the most well known of these (Christensen, 1981). Current enhancements to BASIC are proceeding in the direction of improving its 'user interface'. For example at present, there is much interest in the use of windows, pull-down menus, icons, and mouse interaction.

The most recent versions of BASIC translators available on all Disk operating systems (DOS) are

1. QWBASIC available on DOS 3.3
2. BASIC and BASICA available on DOS 4.01
3. QBASIC available on DOS 5 and above

It should be noted that GWBASIC, BASIC and BASICA are interpreters while QBASIC is a compiler.

However it is worth mentioning here that each version of BASIC depending on the version of DOS, shows certain superiority, that is, an enhancement over the lesser versions.

CHAPTER THREE PROGRAM METHODOLOGY

3.1 PROGRAMM FILES

The game is made up of ten files namely, QBASIC. EXE, GAMES. BAT, PUZZLE.WIN, NIBBLE.WIN, E-MAIN.FIL, E-EXIT.FIL, PUZZLE1.FIL, PUZZLE2. FIL, NIBBLE1.FIL and NIBBLE2.FIL. all of which are in the directory named ENAGI and necessary for the running of the game. The files PUZZLE.WIN, NIBBLE.WIN, PUZZLE1.FIL, PUZZLE2.FIL, NIBBLE1.FIL and NIBBLE2.FIL. are all in the subdirectory named E-GAMES which in turn is in the directory named ENAGI.

For the sake of memory management, the memory management technique known as program overlay is adopted. This involves writing programs that chain or links one program segment to another for the purpose of memory management.

3.1.1 QBASIC.EXE

This is a software designed by microsoft corporation. BASIC is the aronym for Beginners All purpose symbolic Instructional code. It was developed at Dart mouth college in 1963. Basic is a high level language designed for people who have no prior programming experience and is one of the easiest programming languages to learn. It is widely used in programming scientific, mathematical and many Business problems.

One good thing about Basic is that it encourages running the computer in an interactive mode. As soon as the user submits a program and some data to

the computer, the computer executes the program, produces the result back to the user immediately. In this way. It is easy for the user to find out whether the program is working properly or there is a bug.

QBASIC is selected for this program because of its support for blocked operators particularly BLOCK IF.....THEN.....ELSE.....END IF and many others are supported by QBASIC. Furthermore, QBASIC also supports instant syntax checking as instructions are entered and gives instant help an errors.

3.1.2 GAMES.BAT

This is a batch file which loads Q basic into the computer memory and them run other files written in Q BASIC. It has 71 bytes of spaces and can easily be viewd by typing the DOS Command: TYPE GAMES.BAT(regardless of capital or small letters). The following output is seen on the screen if the command is issued at Enagi directory

```
@ ECHO OFF
```

```
CLS
```

```
ECHO PLEASE WAIT.....!
```

```
CLS
```

```
Q BASIC/b/RUN E-MAIN.FIL
```

3.1.3 PUZZLE.WIN AND NIBBLE.WIN

These are word processing files and are very important for the running of Enagi Puzzle and Enagi Nibble respectively. Once any of them is missing 'file not found' error occurs and the message "CHECK AND RE-INSTALL FILES"

appears on the screen. The three best players' names are read from and write into these files initially the three best players are:

CHAMPIONS

POSITION	PLAYERS NAME	TIME TAKEN
1 st	First Best	1 min 20 Sec
2 nd	Second Better	1 min 56 sec
3 rd	Third Good	2 min 33 sec.

The Puzzle.win and Nibble.win are read when either Enagi Puzzle or Enagi Nibble are loaded into computer memory respectively. After each game is ended and there is need to change the position of the players, then puzzle.fil and Nibble.fil re-write the names accordingly and save the new names into the puzzle.win and Nibble.win files respectively as the three best players.

3.1.4 E_MAIN.FIL, PUZZLE1.FIL, PUZZLE2.FIL, NIBBLE1.FIL, NIBBLE2.FIL & E_EXT.FIL

These are QBASIC program files carefully written by the programmer. E_MAIN.FIL contains 4,807 bytes of space, PUZZLE1.FIL 5,112 bytes, PUZZLE2.FIL 18,307 bytes, NIBBLE1.FIL 1,878 bytes, NIBBLE2.FIL 12,555 bytes and E_EXIT.FIL 102bytes of space.

All these files chains or links one segment of one program to another for **the purpose of memory management. The flow charts on page 20 best illustrates how the games were programmed. Furthermore, chapter four contains

the analysis of the program and the printout of the program files (program listing) could be found on (Appendix 1).

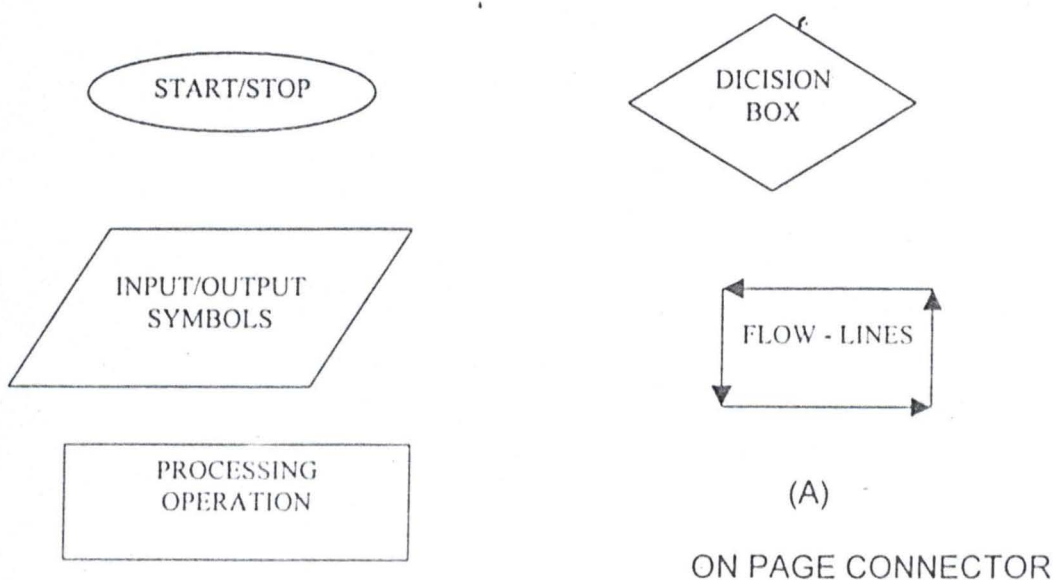
3.2 ALGORITHM (FLOW CHART)

According to Hakimi (1999) "An Algorithm is a finite set or sequence of instructions or operations for carrying out a specific task by a computer." An algorithm can involve arithmetic, algebraic, logical and other types of procedures and instructions.

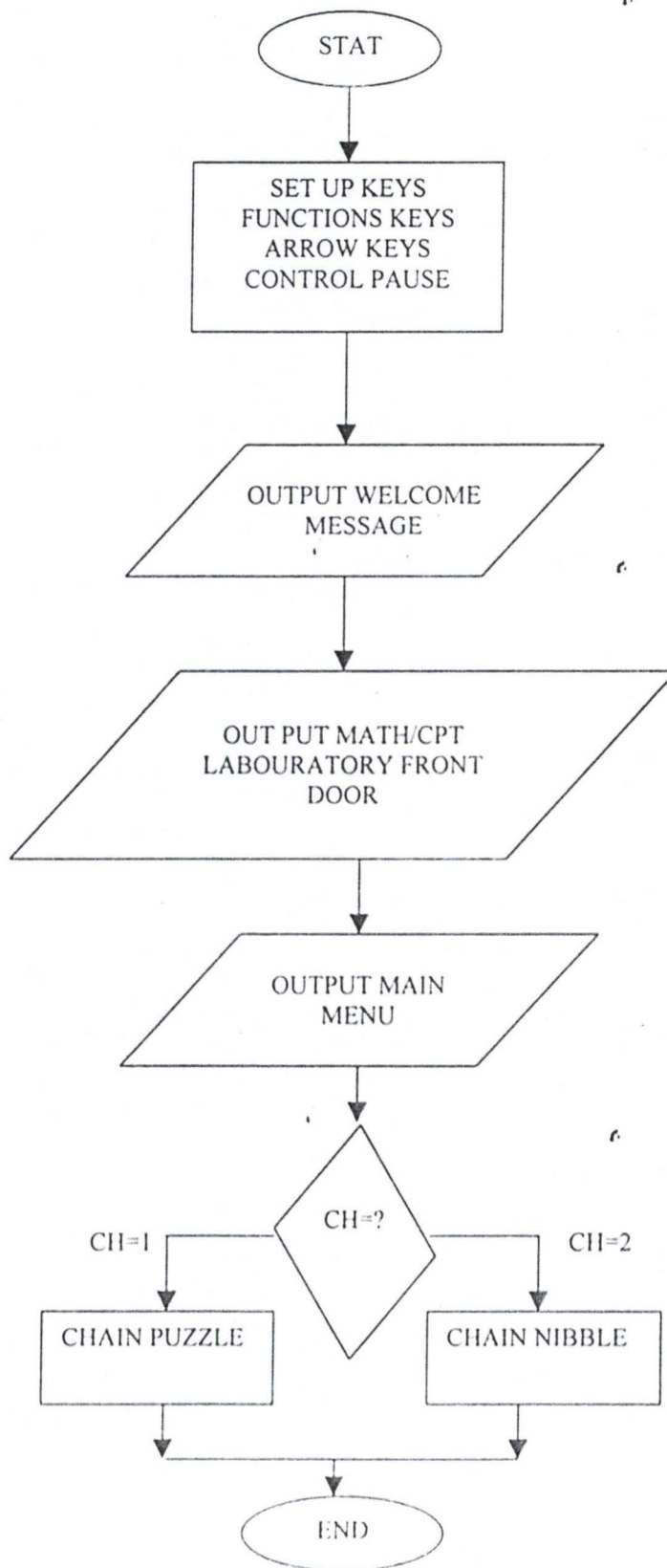
In general, algorithms can be represented by one of the followings:

1. Pseudo codes
2. N-S (Nanssi – Shnederman) Diagram
3. Flow charts or
4. Formulae.

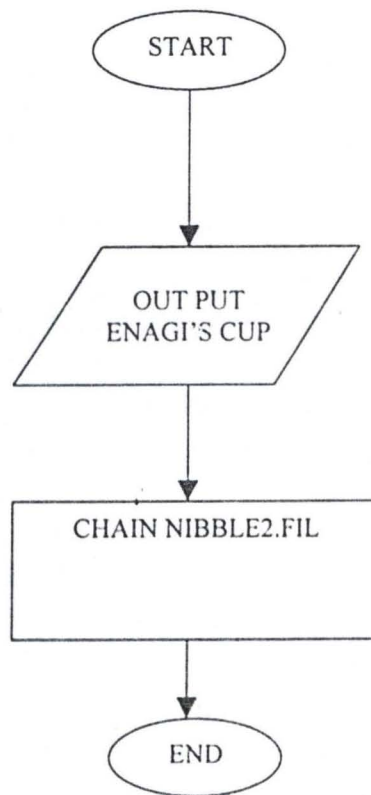
The programmer uses flowchart since it is very easy to understand due to its diagrammatic nature. The following are some of the symbols used in the flow chart.



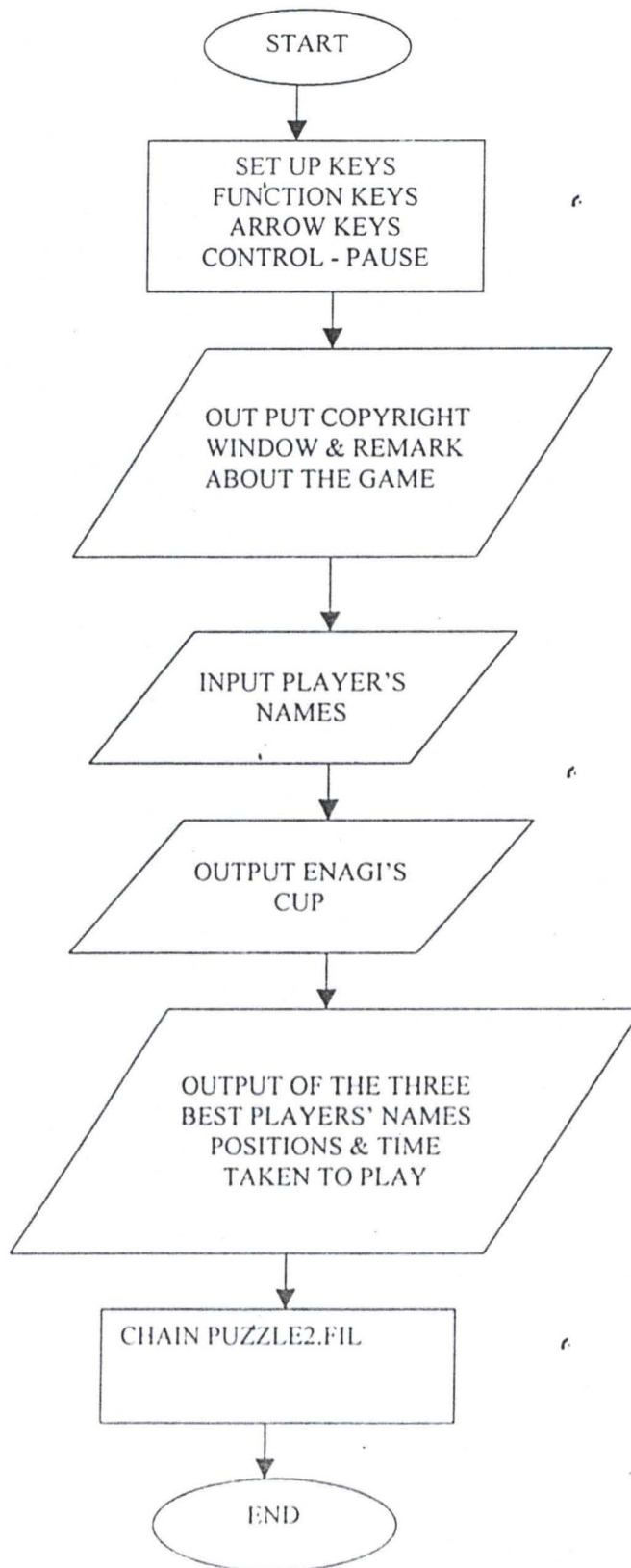
E _ MAIN. FIL * FLOW - CHART



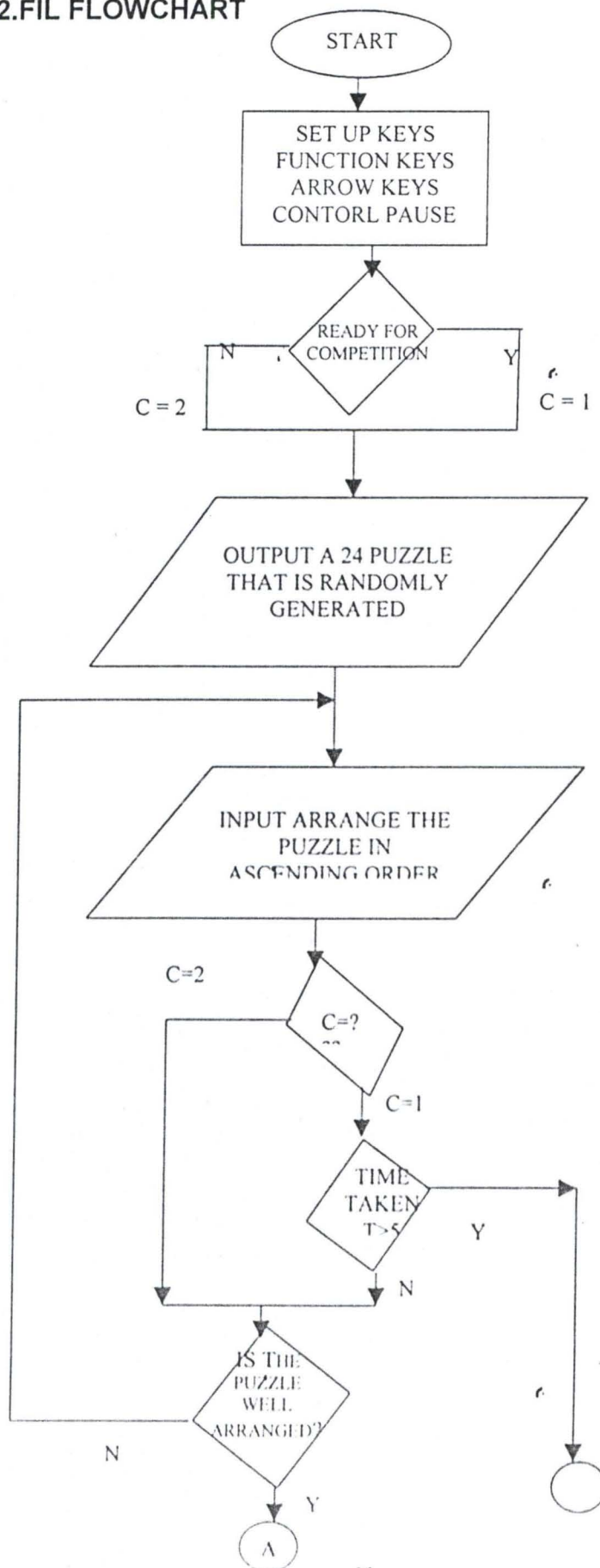
NIBBLE1.FIL FLOW CHART



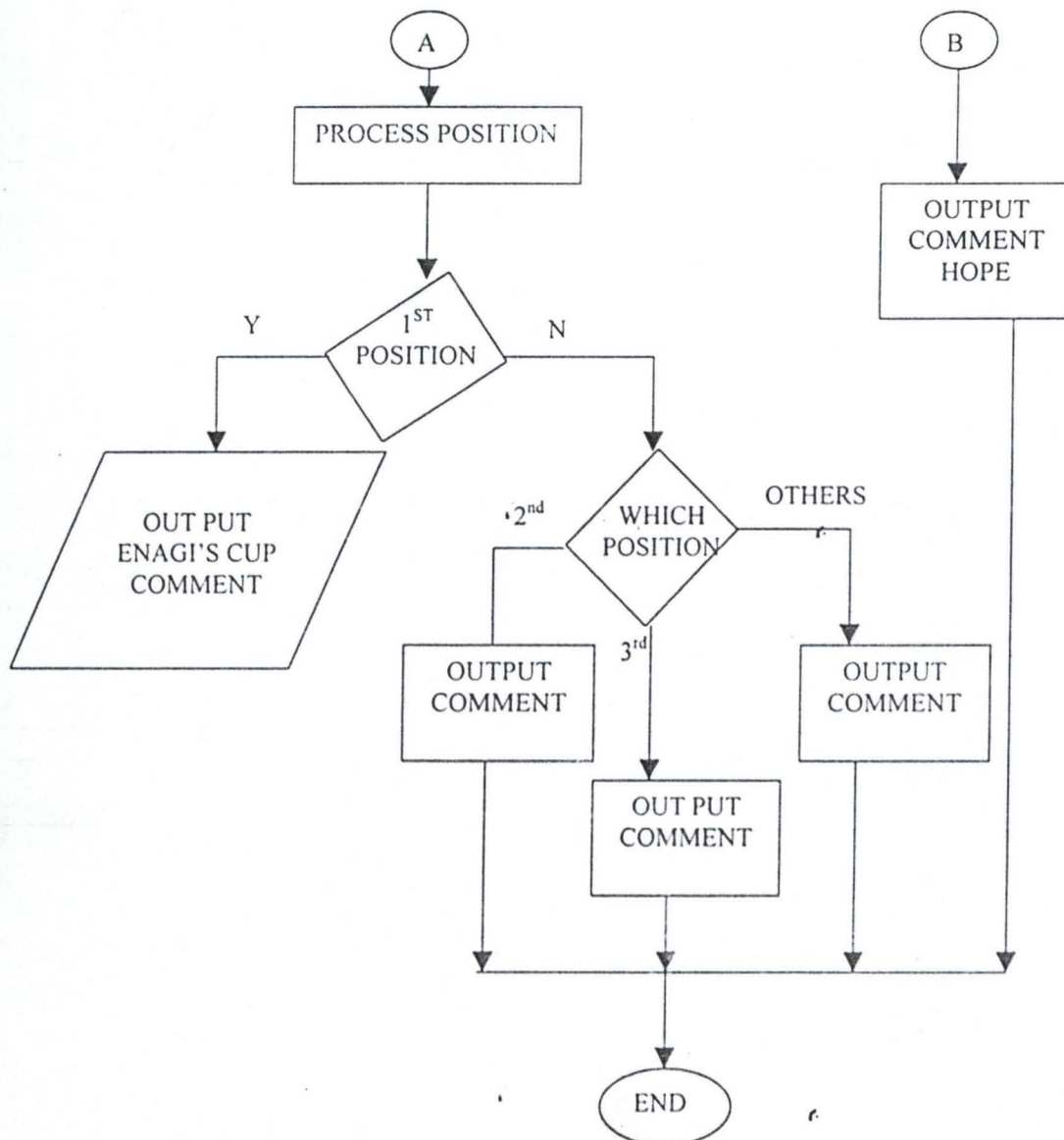
PUZZLE1. FIL FLOWCHART



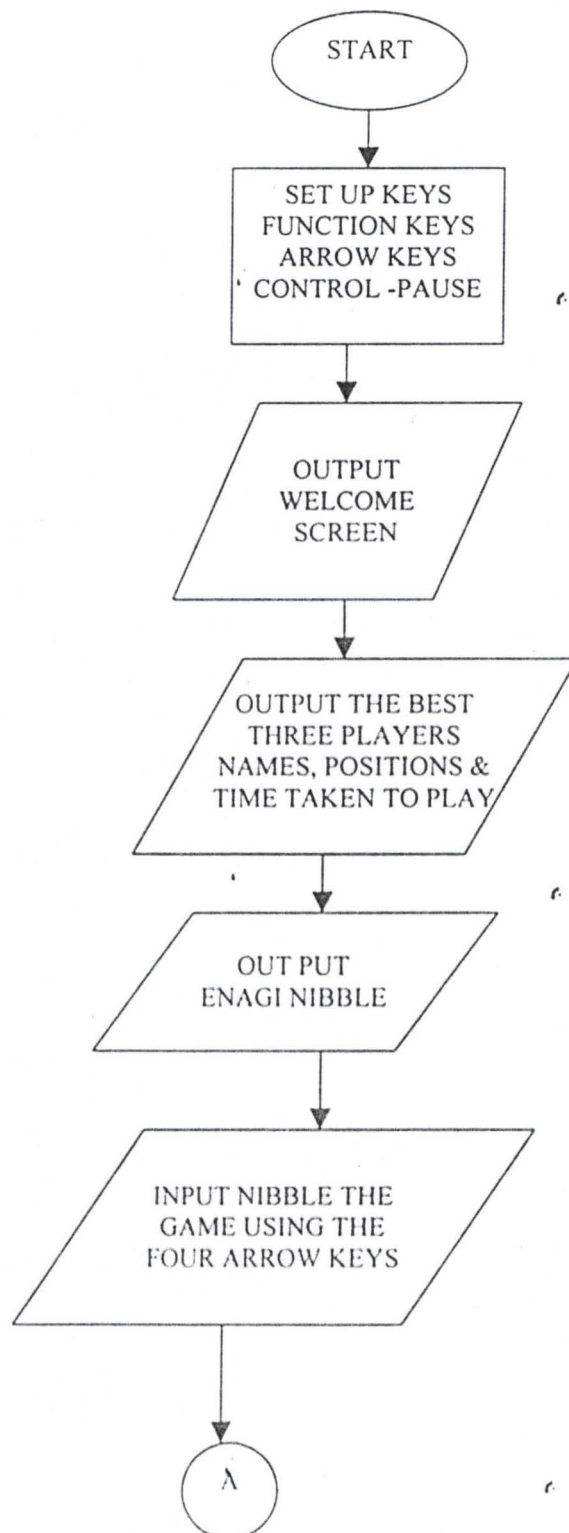
PUZZLE2.FIL FLOWCHART



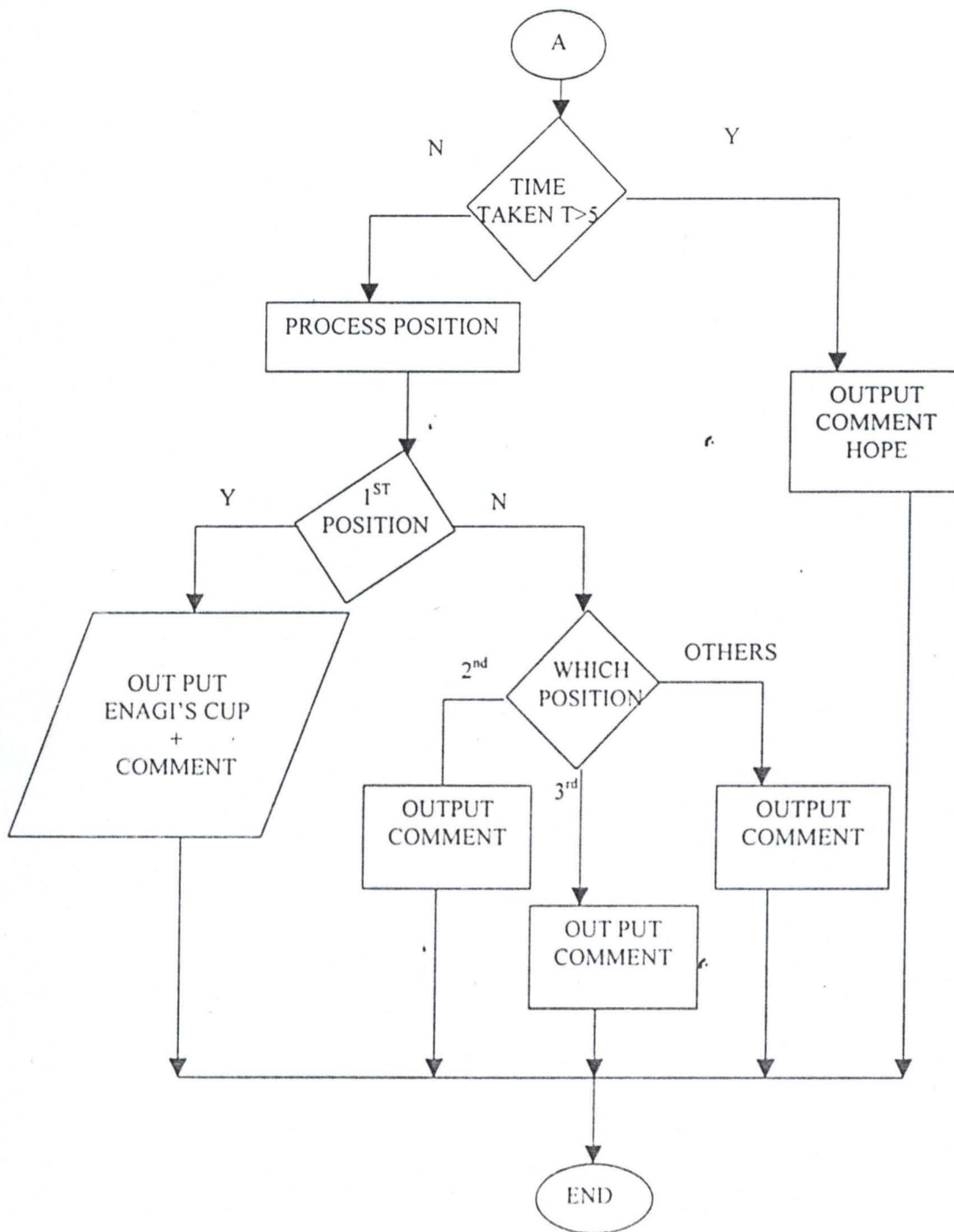
PUZZLE2.FIL FLOW CHART CONT.



NIBBLE2.FIL FLOW - CHART



NIBBLE2.FIL FLOW CHART CONTINUE



CHAPTER FOUR

PROGRAM ANALYSIS

This chapter will analyze how the games are started, played and won. It will serve as the basics (games instruction booklet) which a new player needs to read before he jumps in to playing the games. From one careful reading of the chapter, we will gain a firm command of three essentials: objectives, control, and scoring. We will know what we want, rudiments of how to get it, and beginning formulating the best and quickest way to get it. Playing the game before knowing the rules can be fun in its own way but it is rarely an effective way to gain true proficiency. Orientation is always the first step.

After booting the computer, we then type CD/ENAGI and press Enter key to change to ENAGI DIRECTORY if we are using drive C (Hard disk) or slot in the disk which contains the program in to its appropriate drive and then change to ENAGI directory. Type GAMES (all commands typed are regardless of upper or lower case letter) and press Enter key for the program to be loaded in to the computer memory. 'Please wait' appears at the top left side of the screen and after some seconds the screen clears and the following out put is seen on the screen with the some sound plays:

WELCOME TO ENAGI'S CUP
DESIGNED AND PROGRAMED
BY
ABDULLAHI IDRIS ENAGI
UNDER THE SUPERVISION OF
DR N.I. AKINWANDE

After some seconds again the player is show MATHS/CPT LAB front door.

The door gradually opens for the incoming player, as soon as the door finished opening the message 'WEL-COME' is displayed on the entrance to the lab and short music played. After some seconds the screen clears and the following message is them put on the screen

**THROUGH OUT THESE GAMES PRESS....
F5 KEY TO RESTART THE GAMES
F10 KEY TO ABANDON THE GAMES**

FOR NOW PRESS C. TO CONTINUE

Meaning pressing F5 key at any time when playing the game restart the game and similarly pressing F10 key at any time when playing the game ends the game and we are back to ENAGI directory where we have to type GAMES and press |Enter key before we can play the game again.

We then press C This bring us to the main menu.

ENAGI GAMES	
TIME	DATE
MAIN MENU	
1.	ENAGI'S PUZZLE
2.	ENAGI'S NIBBLE
SELECT A NUMBER OR PRESS F10 KEY TO QUIT	

It is at this point we make a choice of which game to play. For now let's choose 1
That is Enagi puzzle.

The screen clears and the following message is displayed enclosed in a
beautifully designed window.

TIME

**ENAGI PUZZLE
COPYRIGHT
ABDULLAHI IDRIS ENAGI
(2002)**

DATE

ENAGI'S PUZZLE IS INTENDED TO AMUSE OR EXERCISE YOUR MIND AND
TEST HOW CLEVER YOU ARE YOU SHALL BE GIVEN 5 MINUTES AS A
COMPETITOR.

PRESS C TO CONTINUE.

The player is then asked of his first and second name which must be at
least 3 letters each. Press Enter key after typing each of the names. The names
are temporarily stored in the computer memory and shall be store permanently in
puzzle.win if the player takes first, second or third position. After typing in the
surname and pressing Enter key the following message appears.

(first name second name) Press C to continue.

We then press C to be shown Enagi's cup.

The cup is beautifully designed using Q BASIC. It has the inscription
ENAGI'S CUP on it. Below the cup is the message.

(First name second name) press C to continue.

We then press C to be shown the champions just as shown below

CHAMPIONS

POSITION	PLAYER'S NAME	TIME TAKEN
1 ST	First Best	1 min 20 sec
2 ND	Second Better	1 min 50 sec
3 RD	Third Good	2 min 33 sec

(First name second name) Press C to continue.....

We then press C again and the screen clears then display the following message.

1. Ready for competition
2. Not ready for competition

Select a number or press F10 key to Quit.

We are given two options, to either select a number (1 or 2) or press F10 key to end the game. We select 1 if we are ready for the competition or F10 key to end the game. Beginners are adviced to select 2 until when they are sure they can play a little bit fast before they start competing.

Lastly, we press C again to be shown the puzzle just as shown below.

USE THE FOUR
ARROW KEYS
TO-REARRANGE
THE PUZZLE

TIME	ENAGI PUZZLE					DATE
A	B	R	U	E	D	K
		Z	S	Y	M	H
		G	Q	W	T	P
		F	C	X	N	O
		J	L	I	V	*

5 MINUTES LEFT

F2 DIS HANG ARROW KEY(S) F3 TIME LEFT F4 VERIFY GAME F5 RESTART GAME F10

ABANDON GAME

The letters are randomly arranged by the computer, the arrangement above is not necessarily going to be like that any other time. Never the less the letters A and B are always automatically fixed and the player only need to rearrange the letters C – Z in ascending order using the arrow keys. Pressing F2 key dis hang the arrow key(s) if any of then hangs (did not work) due to mistakenly touching two or more arrow keys at the same time the message:

YOU CAN CONTINUE! ARROW KEYS DISCHANGED

Appears for you to continue immediately. F3 key is meant to tell us the remaining minutes (s) and second(s) as a competitor. For non-competitor no time limit and pressing F3 key the message:

YOU CAN CONTINUE! NO TIME LIMIT FOR YOU

Appears. Further more we press F4 key to verify our game after arranging all the letters from C – Z in ascending order just as shown below.

**USE THE FOUR
ARROW KEYS
TO RE-ARRANGE
THE PUZZLE**

ENAGI PUZZLE

A	B	C	D	E	F	G
		H	I	J	K	L
		M	N	O	P	Q
		R	S	T	U	V
		W	X	Y	Z	*

F2 DIS HANG ARROW KEY(S) F3 TIME LEFT F4 VERIFY GAME F5 RESTART GAME
F10 ABANDON GAME.

Pressing F4 key if the puzzle have not been well arranged causes the computer to beep and with the following message:

YOU HAVE NOT YET ARRANGED IT PROPERLY: CONTINUE.....

And hence we continue re – arranging.

Game is luck. A player can be able to arrange the first four rows (letters C through V) properly but unlucky if the fifth row is one of the following:

1. W X Z Y
2. W Y X Z
3. W Z Y X
4. X W Y Z
5. X Y Z W
6. X Z W Y
7. Y W Z X
8. Y X W Z
9. Y Z X W
10. Z W X Y
11. Z Y W X
12. Z X Y W

in such a situation the player presses F4 and the following message is put on the screen:

WELL DONE

SURNAME FIRST NAME

YOUR LUCK IS ON THE WAY.....

If a competing player is not able to arrange the puzzle within 5 minutes, then the game ends automatically and then put on the screen:

IT'S JUST A PITY

(SURNAME FIRST NAME)

YOU ARE NOT ABLE TO PLAY THE GAME IN 5 MINUTES.

But in a situation where the player arranges the puzzle and press F4 key within 5 minutes, then the computer checks for the minutes and second(s) the other 3 players played before, and hence:

1. If the player is able to solve the puzzle in less than the first positioned player, then he becomes the first, the former first positioned player, becomes the then he becomes the second the former second positioned player becomes third and the former third positioned player's name is wiped off. The same thing happens if he is only faster than the original second or third player.
2. If the player is able to solve the puzzle in less than five minutes but more than the time the third positioned player takes to solve the game, then he will just be congratulated but his name will not be among the three best players and also the name will not remain in the computer's memory. Only the best of the three players wins (or carries if any) 'Enagi's cup', although, the second and third players are encourage to put more effort in order to win the cup too.

To play Enagi nibble we select 2 from the main menu and press the enter key. Enagi's cup is displayed on the screen with the message **press C to continue** under it. We then press C and the screen clears displaying the message.

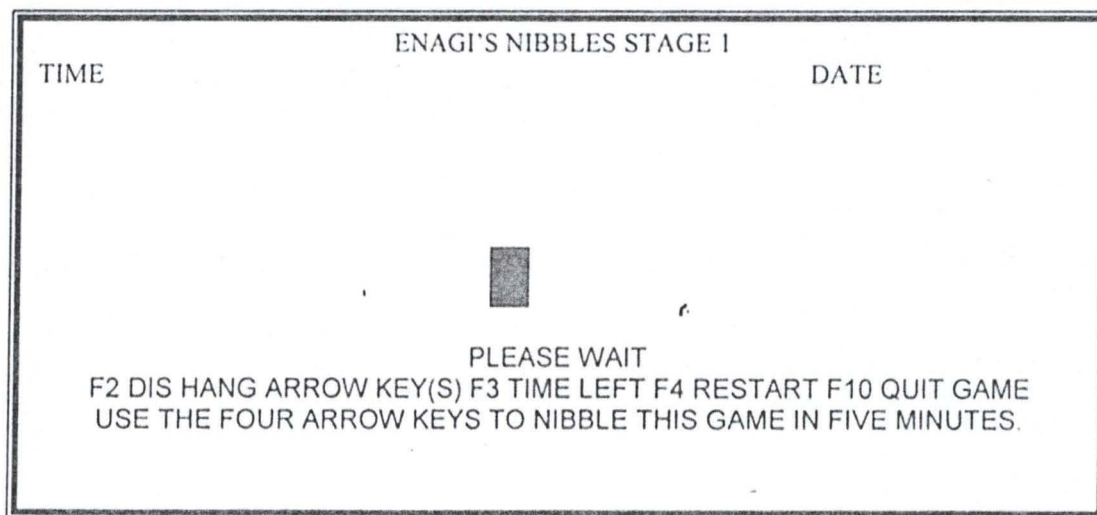
YOU ARE WELCOME TO ENAGI'S NIBBLE

After some seconds the player is asked to Enter his first name and then his surname each of which must be more than three letters and less than thirteen letters.

On pressing the enter key after typing the surname, the screen clears and the list of the champions displayed in the same way as the first game. Below the list of the champions again is the message.

First name surname press C to continue.....

The display of the cup, Entering of names and the display of the champion's list are all accompanied with different melodious sound plays. Lastly, pressing C displays the first stage of Enagi Nibble.

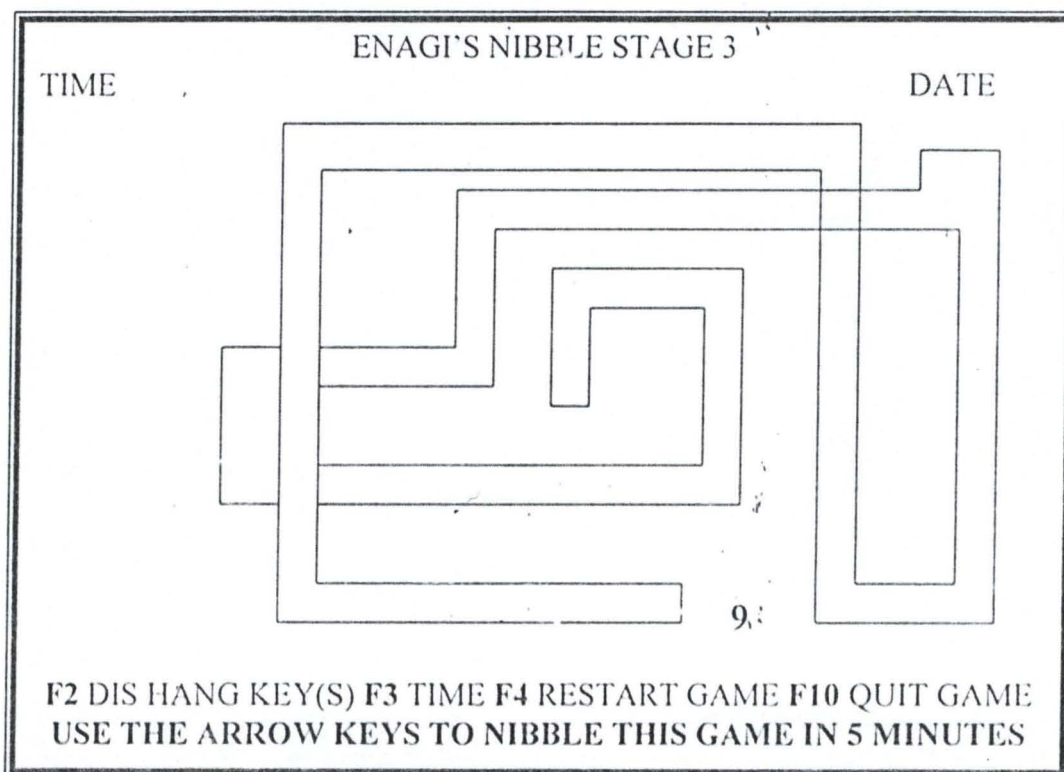


ENAGI'S NIBBLE BEFORE GAME STARTS

Unlike the puzzle, the nibble has no room for non competitors since it doesn't deserve any training before a player becomes perfect in it. It is specially designed for kids. The player uses the four arrow keys to play the game which consist of three stages.

Just like the first game, **F2** Dis hangs arrow key(s) **F3** time left, **F4** restarts Game and **F10** Quits the game.

Every other comment about the remains the same with the first game.



ENAGI'S NIBBLE TOWARDS THE END OF THE GAME.

NOTE:- The pattern may not necessarily be like this any other time.

CHAPTER FIVE

OBSERVATION, RECOMMENDATION AND CONCLUSION

5.1 OBSERVATIONS

With regular practice one become perfect in the game, and hence finds it easy to win Enagi's Cup. However, the programmer observes that:

1. There will be no solution to Enagi puzzle when after arranging the first four rows (Letter C -V) we discovered that the fifth row (that is the last row is one of the rows in the table on page 32. But as for the nibble there is always a solution unless if the player fails to beat up the time limit.
2. Mistakenly touching two or more arrow-keys at the same time may lead to hanging of one or more arrow key(s). the F2 key have been programmed in such a way that when pressed, it enables the arrow key(s) that hangs to function effectively.
3. Enagi puzzle always generates different random arrangement in different rounds and the nibble displays numbers at different locations in different rounds as programmed to do. This eliminates the situation where by one single method can be used to always solve the puzzle and the nibble.
4. QBASIC was designed to operate with standard key Boards and not enhanced or windows key boards. Hence when playing the game with windows key board only the arrow keys on the numeric key pad responds to QBASIC and should be used in playing the game. The other set of arrow keys do not respond to QBASIC.

5.2 RECOMMENDATION

There are many things we could have added to the game to make it more attractive, more educative, more entertaining, etc., than it is now but due to some reasons, we just have to make it as it is now. The programmer therefore, comes out with the following recommendations:

1. Other programmers who are willing to write and improve on this game can do so. Some of its limitations include among other things.
 - a. Mouse can not be used to play this game
 - b. The Maths/cpt lab front door and ENAGI'S CUP would have look more attractive if it had been loaded from other desktop publishing soft wares. Such as ventura, inset, print shop etc.,
2. Games are of different kinds, and one can easily design a game (not program). The programmer therefore, advises others who are willing to design games to think of games
 - a. That shall motivate the player
 - b. ^{That} ~~Which~~ both adults and children shall like playing
 - c. That shall be very educative, and
 - d. That can be of different stages (say stages 1 to 5) before a game is won.

5.3 CONCLUSION

The purpose of thes games is to test how clever and intelligent one is and hence it helps to increase the thinking faculty of an individual player. With time, the programmer was able to design the program in such a way that the game is user-friendly, and as earlier pointed out, a player becomes better by regulars practice.

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```

*****
| *****SETTINGS*****

```

*****PROGRAM INTRODUCTION*****

```
PLAY "MB": FOR I = 1 TO 200: SOUND 100, 1: NEXT I: CLS
```

*****THE GATE COPYRIGHT*****

LOCATE J, I: PRINT A\$

```

NEXT J: NEXT I

```

```
FOR I = 54 TO 75: FOR J = 12 TO 22: LOCATE J, I: PRINT A$
```

```

NEXT J: NEXT I

```

```
FOR I = 6 TO 26: LOCATE 11 I: PRINT FS: NEXT I
```

```
FOR I = 54 TO 75: LOCATE 11, I: PRINT ES: NEXT I
```

```
FOR I = 54 TO 75: LOCATE 11, I: PRINT F$: NEXT I
LOCATE 30, 3: PRINT SPACE$(25)
```

```
LOCATE 20, 2: PRINT SPACE$(25)
LOCATE 30, 55: PRINT SPACE$(25)
```

```
LOCATE 20, 55: PRINT SPACE$(25)
LOCATE 8, 34: PRINT "MATHS/CPT LAB"
```

```
LOCATE 9, 34: PRINT "MATHS/CPT LAB"
COLOR 6: FOR I = 10 TO 18: LOCATE 10, I: PRINT AS
```

```

COLOR 6: FOR I = 10 TO 18: LOCATE 10, I: PRINT AS
LOCATE 10, I: 53: PRINT AS: NEXT I

```

```
LOCATE 10, 1 + 53: PRINT A$: NEXT I
FOR I = 1 TO 3 LOCATE 13, I: PRINT GRACE$(I)
```

```
FOR I = 1 TO 3: LOCATE 13 + I, 11: PRINT SPACE$(7)
LOCATE 13, 1: PRINT SPACE$(7) NEXT I
```

LOCATE 13 + 1, 64: PRINT SPACE\$(7): NEXT I

```
LOCATE 9, 14: PRINT G$: LOCATE 9, 67: PRINT G$
```

COLOR 29: LOCATE 8, 14: PRINT E\$: LOCATE 8, 67: PRINT E\$

COLOR 6: FOR I = 27 TO 54: LOCATE 10, I: PRINT F\$: NEXT I

```
FOR I = 27 TO 31: FOR J = 11 TO 22: LOCATE J, I: PRINT F$
```

```

NEXT J: NEXT I

```

```
FOR I = 50 TO 54: FOR J = 11 TO 22: LOCATE J, I: PRINT F$ . .
```

```

NEXT J: NEXT I

```

```
FOR I = 32 TO 49: FOR J = 11 TO 22: LOCATE J, I: PRINT A$
```

```

NEXT J: NEXT I

```

```
FOR I = 27 TO 54: LOCATE 8, I: PRINT G$: NEXT I
```

```
FOR I = 27 TO 30: LOCATE 9, I: PRINT G$: NEXT I
```

```
FOR I = 51 TO 54: LOCATE 9, I: PRINT G$: NEXT I
```



```

FOR I = 35 TO 45: LOCATE 7, I: PRINT G$: NEXT I
FOR I = 37 TO 43: LOCATE 6, I: PRINT G$: NEXT I
FOR I = 39 TO 41: LOCATE 5, I: PRINT G$: NEXT I
LOCATE 4, 40: PRINT G$
COLOR 29: LOCATE 3, 40: PRINT E$: COLOR 6
FOR J = 22 TO 12 STEP -1: LOCATE J, 32: PRINT SPACE$(18)
FOR I = 1 TO 30: SOUND 80, .5: NEXT I: NEXT J
COLOR 19: LOCATE 15, 35: PRINT "WEL - COME !"
PLAY "MF": FOR I = 1 TO 10: SOUND 500, 10: SOUND 400, 10: NEXT I
'*****RESTART AND END KEYS NOTE*****
CLS : COLOR 12: LOCATE 7, 23
PRINT "THROUGH OUT THIS GAMES PRESS ...": LOCATE 9, 25: COLOR 18
PRINT "F5 KEY "; : COLOR 6: PRINT "TO RESTART THE PROGRAM"
LOCATE 11, 25: COLOR 18: PRINT "F10 KEY "; : COLOR 6
PRINT "TO ABANDON THE GAME"
LOCATE 20, 24: COLOR 14: PRINT " Now Press C to Continue !"
10 A$ = INKEY$
IF A$ = "C" OR A$ = "c" THEN 40
GOTO 10
20 RETURN 1
30 '*****EXIT PROGRAM*****
CHAIN "\ENAGI\E_EXIT.FIL"
40 '*****MAIN MENU*****
CLS : AA$ = CHR$(15): AB$ = CHR$(21): AC$ = CHR$(23)
COLOR 12: FOR I = 2 TO 34: LOCATE 2, I: PRINT AA$: NEXT I
COLOR 11: LOCATE 2, 36: PRINT "ENAGI GAMES"
COLOR 12: FOR I = 47 TO 79: LOCATE 2, I: PRINT AA$: NEXT I
FOR I = 3 TO 23: LOCATE I, 2: PRINT AC$: AC$: NEXT I
FOR I = 3 TO 23: LOCATE I, 78: PRINT AC$: AC$: NEXT I
FOR I = 2 TO 79: LOCATE 23, I: PRINT AB$: NEXT I
COLOR 6: LOCATE 5, 65: PRINT DATE$
COLOR 25: LOCATE 8, 35: PRINT "MAIN MENU"
COLOR 18: LOCATE 10, 32: PRINT 1; : COLOR 6: PRINT "ENAGI PUZZLES"
COLOR 18: LOCATE 12, 32: PRINT 2; : COLOR 6: PRINT "ENAGI NIBBLES"
COLOR 8: LOCATE 20, 22
PRINT "Select a NUMBER or Press F10 Key to QUIT"
COLOR 6: PLAY "MB"
50 LOCATE 5, 7: PRINT TIME$
SOUND 100, 1
A$ = INKEY$: BA = VAL(A$)
IF BA = 1 THEN 70
IF BA = 2 THEN 60
GOTO 50
'*****CHAINING PROGRAMMS*****
60 CHAIN "\ENAGI\E_GAMES\NIBBLE1.FIL"
70 CHAIN "\ENAGI\E_GAMES\PUZZLE1.FIL"

```

:*****:

PUZZLE1.FIL

```

10 ON KEY(5) GOSUB 60
30 ON KEY(10) GOSUB 70
32 KEY(2) ON
33 KEY(3) ON
35 GOTO 980
60 CHAIN "\ENAGI\E_MAIN.FIL"
70 CHAIN "\ENAGI\E_EXIT.FIL"
980 REM*****COPYRIGHT WINDOW*****
990 CLS : AA$ = CHR$(15): AB$ = CHR$(21): AC$ = CHR$(23)
1000 COLOR 12: FOR I = 6 TO 34: LOCATE 2, I: PRINT AB$: NEXT I
1010 COLOR 6: LOCATE 2, 35: PRINT "ENAGI PUZZLES"
1020 COLOR 12: FOR I = 47 TO 75: LOCATE 2, I: PRINT AB$: NEXT I
1030 FOR I = 3 TO 23: LOCATE I, 6: PRINT AB$: AB$: NEXT I
1040 FOR I = 3 TO 23: LOCATE I, 74: PRINT AB$: AB$: NEXT I
1050 FOR I = 6 TO 75: LOCATE 23, I: PRINT AB$: NEXT I
1055 COLOR 2: LOCATE 4, 37: PRINT "COPYRIGHT "
1056 LOCATE 6, 32: PRINT "ABDULLAHI IDRS ENAGI"
1057 LOCATE 8, 37: PRINT "(2002)"
1060 COLOR 6: LOCATE 5, 63: PRINT DATE$
1110 COLOR 6: PLAY "MB"
1120 LOCATE 5, 9: PRINT TIME$
1130 SOUND 100, 1
1700 FOR I = 1 TO 5: SOUND 500, 10: SOUND 400, 10: NEXT I
1810 LOCATE 15, 27: COLOR 7: PRINT "ENAGI'S PUZZLE IS INTENDED"
LOCATE 17, 11
1820 PRINT "TO AMUSE OR EXERCISE YOUR MIND AND TEST HOW CLEVER YOU ARE."
1830 LOCATE 19, 8: PRINT "YOU SHALL BE GIVEN ONLY 5 MINUTES AS A COMPETITOR"
1840 LOCATE 22, 20: COLOR 21: PRINT "PRESS C TO CONTINUE.....";
1850 COLOR 6: A$ = INKEY$
1620 '***** PLAYER'S NAME *****
CLS : RANDOMIZE TIMER: FOR I = 1 TO 5
SOUND 500, 10: SOUND 400, 10: NEXT I
1650 COLOR 12: LOCATE 17, 33: PRINT "YOUR FIRST NAME"
LOCATE 18, 33: INPUT PFNAM$
IF LEN(PFNAM$) < 13 THEN 1680 ELSE BEEP: GOTO 1650
1680 IF LEN(PFNAM$) > 2 THEN 1690 ELSE BEEP: GOTO 1650
1690 FOR I = 1 TO 5
SOUND 500, 10: SOUND 400, 10: NEXT I
1710 COLOR 12: LOCATE 20, 33: PRINT "YOUR SURNAME"
LOCATE 21, 33: INPUT PSNAM$
IF LEN(PSNAM$) < 13 THEN 1740 ELSE BEEP: GOTO 1710
1740 IF LEN(PSNAM$) > 2 THEN 1750 ELSE BEEP: GOTO 1710
1750 LOCATE 22, 20: COLOR 21
PRINT PFNAM$; " "; PSNAM$; " PRESS C TO CONTINUE.....";
1751 COLOR 6: A$ = INKEY$
1860 IF A$ = "C" OR A$ = "c" THEN 1870 ELSE GOTO 1751
1870 REM*****SEE ENAGI CUP*****
1880 CLS : SBC = 1: GOTO 4420
1890 LOCATE 23, 20: COLOR 21
PRINT PFNAM$; " "; PSNAM$; " PRESS C TO CONTINUE.....";
1900 SBC = 0: COLOR 6: A$ = INKEY$
1910 IF A$ = "C" OR A$ = "c" THEN 1920 ELSE GOTO 1900
1920 REM*****CHAMPIONS*****
1921 CLS : OPEN "I", #1, "\ENAGI\E_GAMES\PUZZLE.WIN"
1922 FOR I = 1 TO 3

```

```

1923 INPUT #1, WFNAM$(I), WSNAM$(I), WMIN(I), WSEC(I)
1924 NEXT I: CLOSE #1
1930 LOCATE 5, 35: COLOR 27: PRINT "CHAMPIONS": LOCATE 7, 13: COLOR 12
1940 PRINT "POSITION PLAYER'S NAME" TIME TAKEN"
1950 COLOR 29: LOCATE 9, 15: PRINT "IST"
1960 LOCATE 11, 15: PRINT "2ND"
1970 LOCATE 13, 15: PRINT "3RD"
1980 COLOR 29: J = 7: FOR I = 1 TO 3: J = J + 2
1990 LOCATE J, 25: PRINT WFNAM$(I); " "; WSNAM$(I): COLOR 6
2000 LOCATE J, 53: PRINT WMIN(I); "MIN."; WSEC(I); "SEC.": NEXT I
2010 LOCATE 22, 20: COLOR 21
PRINT PFNAM$; " "; PSNAM$; " PRESS C TO CONTINUE.....";
2020 COLOR 6: A$ = INKEY$
2030 IF A$ = "C" OR A$ = "c" THEN 2040 ELSE GOTO 2020
2040 CHAIN "\ENAGI\E_GAMES\ENAGI2.PUZ"
4400 REM*****ENAGI'S CUP*****
4420 CLS : COLOR 14: A$ = CHR$(6): B$ = CHR$(40): C$ = CHR$(41)
D$ = CHR$(47): E$ = CHR$(21): F$ = CHR$(4): G$ = CHR$(92)
H$ = CHR$(95): I$ = CHR$(196): J$ = CHR$(124): K$ = CHR$(179)
L$ = CHR$(176)
4430 M$ = CHR$(178): N$ = CHR$(15): O$ = CHR$(177): P$ = CHR$(222)
Q$ = CHR$(221): RO = 8: CO = 29
4440 LOCATE RO, CO: PRINT B$
4450 LOCATE RO, CO + 18: PRINT C$
4460 LOCATE RO + 1, CO + 1: PRINT G$
4470 LOCATE RO + 1, CO + 17: PRINT D$
4480 LOCATE RO + 2, CO + 2: PRINT G$
4490 LOCATE RO + 2, CO + 16: PRINT D$
4500 FOR I = 3 TO 15: LOCATE RO + 2, CO + I: PRINT A$: NEXT I
4510 LOCATE RO - 1, CO + 1: PRINT D$
4520 LOCATE RO - 1, CO + 17: PRINT G$
4530 LOCATE RO - 2, CO + 2: PRINT D$
4540 LOCATE RO - 2, CO + 16: PRINT G$
4550 FOR I = 3 TO 15: LOCATE RO - 2, CO + I: PRINT A$: NEXT I
4560 FOR I = 5 TO 13: LOCATE RO - 3, CO + I: PRINT A$: NEXT I
4570 FOR I = 7 TO 11: LOCATE RO - 4, CO + I: PRINT A$: NEXT I
4580 LOCATE RO - 5, CO + 9: PRINT A$
4590 LOCATE 20, 10
4600 LOCATE RO + 3, CO + 3: PRINT G$
4610 LOCATE RO + 3, CO + 15: PRINT D$
4620 LOCATE RO + 4, CO + 4: PRINT G$
4630 LOCATE RO + 4, CO + 14: PRINT D$
4640 FOR I = 6 TO 10: FOR J = 6 TO 12: LOCATE RO + I, CO + J: PRINT O$:
4650 LOCATE RO + 11, CO + 5: PRINT E$; E$; E$; E$; E$; E$; E$; E$; E$
4660 LOCATE RO + 12, CO + 4: PRINT D$
4670 LOCATE RO + 12, CO + 14: PRINT G$
4680 FOR I = 2 TO 16: LOCATE RO + 13, CO + I: PRINT L$: NEXT I
4690 FOR I = 1 TO 17: LOCATE RO, CO + I: PRINT O$: NEXT I
4700 FOR I = 2 TO 16: LOCATE RO + 1, CO + I: PRINT O$: NEXT I
4710 FOR I = 4 TO 14: LOCATE RO + 3, CO + I: PRINT O$: NEXT I
4720 FOR I = 5 TO 13: LOCATE RO + 4, CO + I: PRINT O$: NEXT I
4730 FOR I = 6 TO 12: LOCATE RO + 5, CO + I: PRINT E$: NEXT I
4740 LOCATE RO - 1, CO + 5: COLOR 12: PRINT "ENAGI CUP": COLOR 6
4750 GOTO 1890

```

NEXT J

NEXT I;

-46-

PUZZLE 2.FIL

```

120 KEY OFF
130 CLS : RESET: CLEAR
135 ON KEY(5) GOSUB 150
136 ON KEY(10) GOSUB 151
137 KEY(5) ON: KEY(10) ON
138 GOTO 160
150 CHAIN "\ENAGI\E_MAIN.FIL"
151 CHAIN "\ENAGI\E_EXIT.FIL"
160 COLOR 6: AA = 0: AB = 0: AC = 0: AD = 0: HLP = 0: MDF = 0: NRC = 0
170 AA$ = CHR$(15): AB$ = CHR$(21): AC$ = CHR$(23): RANDOMIZE TIMER
180 CLS : COLOR 18: LOCATE 14, 25: PRINT 1; : COLOR 6: PRINT "READY FOR COMPETITION"
190 COLOR 18: LOCATE 16, 25: PRINT 2; : COLOR 6: PRINT "NOT READY FOR COMPETITION"
200 COLOR 18: LOCATE 22, 22: PRINT "SELECT A NUMBER OR PRESS F10 KEY TO QUIT"
210 COLOR 6: PLAY "MB"
220 SOUND 100, 1
230 A$ = INKEY$: BA = VAL(A$)
240 IF BA = 1 THEN 1290
250 IF BA = 2 THEN 260 ELSE 220
260 NRC = 1: GOTO 1290
1290 REM *****LOADING PUZZLE.WIN*****
1300 CLS : OPEN "I", #1, "\ENAGI\E_GAMES\PUZZLE.WIN"
1310 FOR I = 1 TO 3
1320 INPUT #1, WFNAM$(I), WMIN(I), WSEC(I)
1330 NEXT I: CLOSE #1: SBC = 0: GOTO 2040
1340 REM*****F2(DISHANG ARROW KEYS)*****
1350 HLP = 1: KEY(11) OFF
1360 KEY(12) OFF
1370 KEY(13) OFF
1380 KEY(14) OFF
1390 GOSUB 2540
1400 LOCATE 19, 19: COLOR 27: PRINT "YOU CAN NOW CONTINUE! ARROW KEYS DISHANG."
1410 REM*****F3(TIME LEFT)*****
1420 HLP = 1: IF NRC THEN 1430 ELSE 1440
1430 LOCATE 19, 21: COLOR 27: PRINT "YOU CAN CONTINUE !NO TIME LIMIT FOR YOU..
1440 HLP = 1: CTTIM$ = TIME$: CMIN$ = MID$(CTIM$, 4, 2): CSEC$ = MID$(CTIM$, 7
1450 CMIN = VAL(CMIN$): CSEC = VAL(CSEC$): MIN = CMIN - IMIN: LSEC = 60 - CSEC
1460 IF IMIN = 56 AND CMIN = 0 THEN MIN = 4
1470 IF IMIN = 57 AND CMIN = 0 THEN MIN = 3
1480 IF IMIN = 57 AND CMIN = 1 THEN MIN = 4
1490 IF IMIN = 58 AND CMIN = 0 THEN MIN = 2
1500 IF IMIN = 58 AND CMIN = 1 THEN MIN = 3
1510 IF IMIN = 58 AND CMIN = 2 THEN MIN = 4
1520 IF IMIN = 59 AND CMIN = 0 THEN MIN = 1
1530 IF IMIN = 59 AND CMIN = 1 THEN MIN = 2
1540 IF IMIN = 59 AND CMIN = 2 THEN MIN = 3
1550 IF IMIN = 59 AND CMIN = 3 THEN MIN = 4
1560 LMIN = 4 - MIN
1570 IF LMIN = 1 THEN 1580 ELSE 1590
1580 MIN$ = "MINUTE": GOTO 1630
1590 IF LMIN = 0 THEN 1600 ELSE 1620
1600 LOCATE 19, 21: PRINT SPACE$(78)
1610 LOCATE 19, 35: COLOR 27: PRINT LSEC; "SECOND LEFT": GOTO 1670
1620 MIN$ = "MINUTES"
1630 IF LSEC = 0 THEN 1640 ELSE 1650
1640 SC$ = "SECOND ": GOTO 1660
1650 SC$ = "SECONDS"
1660 LOCATE 19, 27: COLOR 27: PRINT LMIN; " "; MN$; " "; LSEC; " "; SC$; " LEFT"
1670 RETURN 3510

```

```

2040 REM*****FIXING LETTERS*****
2050 CL = 25: DIM A(CL), A$(CL)
2060 K = 25
2070 CLS: COLOR 12: FOR I = 19 TO 64: LOCATE 5, I: PRINT AB$: NEXT I
2080 LOCATE 5, 36: COLOR 26: PRINT "ENAGI PUZZLE"
2090 COLOR 12: FOR I = 19 TO 64: LOCATE 17, I: PRINT AB$: NEXT I
2100 FOR I = 6 TO 16: LOCATE I, 19: PRINT AB$: AB$: NEXT I
2110 FOR I = 6 TO 16: LOCATE I, 63: PRINT AB$: AB$: NEXT I
2120 LOCATE 21, 16: COLOR 27: PRINT "F2 "; : COLOR 6: PRINT "DISHANG ARROW KEY"
2130 LOCATE 23, 24: COLOR 27: PRINT " F5 "; : COLOR 6: PRINT "RESTART GAME";
2140 LOCATE 3, 53: PRINT DATE$
2141 COLOR 15: LOCATE 7, 24: PRINT "A  B": COLOR 6
2150 PLAY "MB"
2160 FOR H = 1 TO 5: SOUND 500, 10: SOUND 400, 10: NEXT H
2170 FOR V = 1 TO 24
2180 A(V) = INT(RND * K)
2190 IF A(V) = 0 THEN 2180
2191 IF V > 1 THEN 2192 ELSE 2195
2192 FOR W = 1 TO (V - 1)
2193 IF A(V) = A(W) THEN 2180 ELSE 2194
2194 NEXT W
2195 GOSUB 2204
2196 GOTO 2245
2204 IF A(V) = 1 THEN A$(V) = "C": GOTO 2240
2205 IF A(V) = 2 THEN A$(V) = "D": GOTO 2240
2206 IF A(V) = 3 THEN A$(V) = "E": GOTO 2240
2207 IF A(V) = 4 THEN A$(V) = "F": GOTO 2240
2208 IF A(V) = 5 THEN A$(V) = "G": GOTO 2240
2209 IF A(V) = 6 THEN A$(V) = "H": GOTO 2240
2210 IF A(V) = 7 THEN A$(V) = "I": GOTO 2240
2211 IF A(V) = 8 THEN A$(V) = "J": GOTO 2240
2212 IF A(V) = 9 THEN A$(V) = "K": GOTO 2240
2213 IF A(V) = 10 THEN A$(V) = "L": GOTO 2240
2214 IF A(V) = 11 THEN A$(V) = "M": GOTO 2240
2215 IF A(V) = 12 THEN A$(V) = "N": GOTO 2240
2216 IF A(V) = 13 THEN A$(V) = "O": GOTO 2240
2217 IF A(V) = 14 THEN A$(V) = "P": GOTO 2240
2218 IF A(V) = 15 THEN A$(V) = "Q": GOTO 2240
2219 IF A(V) = 16 THEN A$(V) = "R": GOTO 2240
2220 IF A(V) = 17 THEN A$(V) = "S": GOTO 2240
2221 IF A(V) = 18 THEN A$(V) = "T": GOTO 2240
2222 IF A(V) = 19 THEN A$(V) = "U": GOTO 2240
2223 IF A(V) = 20 THEN A$(V) = "V": GOTO 2240
2224 IF A(V) = 21 THEN A$(V) = "W": GOTO 2240
2225 IF A(V) = 22 THEN A$(V) = "X": GOTO 2240
2226 IF A(V) = 23 THEN A$(V) = "Y": GOTO 2240
2227 IF A(V) = 24 THEN A$(V) = "Z": GOTO 2240
2240 RETURN
2245 I = V: COLOR 6: IF I = 1 OR I = 6 OR I = 11 OR I = 16 OR I = 21 THEN 2250
2250 PS = 28
2260 PS = PS + 4
2270 IF I < 6 THEN 2310
2280 IF I < 11 THEN 2320
2290 IF I < 16 THEN 2330
2300 IF I < 21 THEN 2340 ELSE 2350
2310 LOCATE 7, PS: PRINT A$(I): GOTO 2360
2320 LOCATE 9, PS: PRINT A$(I): GOTO 2360
2330 LOCATE 11, PS: PRINT A$(I): GOTO 2360
2340 LOCATE 13, PS: PRINT A$(I): GOTO 2360
2350 LOCATE 15, PS: PRINT A$(I): GOTO 2360
2360 NEXT V

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2370 COLOR 27: LOCATE 15, 48: PRINT "*"
2380 LOCATE 19, 35: COLOR 29: PRINT "PLEASE WAIT!"
2390 SOUND 80, .5
2400 TM$ = TIME$: ISEC$ = MID$(TM$, 7, 2): ISEC = VAL(ISEC$)
2410 IF ISEC = 0 THEN 2420 ELSE 2390
2420 TM$ = TIME$: IMIN$ = MID$(TM$, 4, 2): IMIN = VAL(IMIN$)
2430 LOCATE 19, 1: PRINT SPACE$(78)
2440 IF NRC THEN 2460 ELSE 2450
2450 LOCATE 19, 35: PRINT "5 MINUTES LEFT"
2460 COLOR 6: SOUND 100, 0: HLP = 1
2470 LOCATE 8, 5: PRINT "USE THE FOUR "
2480 LOCATE 10, 6: PRINT "ARROW KEYS"
2490 LOCATE 12, 5: PRINT "TO RE-ARRANGE"
2500 LOCATE 14, 6: PRINT "THE PUZZLE"
2510 REM*****ARROW KEYS*****
2520 A(25) = 0: GOSUB 2540
2530 GOTO 3510
2540 KEY(2) OFF
2550 KEY(3) OFF
2560 KEY(4) OFF
2570 ON KEY(14) GOSUB 3280
2580 ON KEY(12) GOSUB 3140
2590 ON KEY(13) GOSUB 3380
2600 ON KEY(11) GOSUB 2720
2610 ON KEY(4) GOSUB 3770
2620 ON KEY(3) GOSUB 1410
2630 ON KEY(2) GOSUB 1350
2640 KEY(11) ON
2650 KEY(12) ON
2660 KEY(13) ON
2670 KEY(14) ON
2680 KEY(2) ON
2690 KEY(3) ON
2700 KEY(4) ON
2710 RETURN
2720 REM ***** UP ARROW KEY*****
2730 FOR V = 1 TO 20
2740 IF A(V) = 0 THEN 2760 ELSE 2750
2750 NEXT V: BEEP: RETURN 3520
2760 FOR I = 2500 TO 2480 STEP -5
2770 SOUND I, .5: NEXT I
2780 SWAP A(V), A(V + 5)
2785 GOSUB 2204
2790 GOSUB 2810
2800 GOTO 3110
2810 IF V < 6 THEN 2850
2820 IF V < 11 THEN 2860
2830 IF V < 16 THEN 2870
2840 IF V < 21 THEN 2880 ELSE 2890
2850 CU = 7: GOTO 2900
2860 CU = 9: GOTO 2900
2870 CU = 11: GOTO 2900
2880 CU = 13: GOTO 2900
2890 CU = 15: GOTO 2900
2900 FOR PL = 1 TO 21 STEP 5
2910 IF V = PL THEN 2930 ELSE 2920
2920 NEXT PL: GOTO 2940
2930 CV = 32: GOTO 3100
2940 FOR PL = 2 TO 22 STEP 5
2950 IF V = PL THEN 2970 ELSE 2960
2960 NEXT PL: GOTO 2980

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2970 CV = 36: GOTO 3100
2980 FOR PL = 3 TO 23 STEP 5
2990 IF V = PL THEN 3010 ELSE 3000
3000 NEXT PL: GOTO 3020
3010 CV = 40: GOTO 3100
3020 FOR PL = 4 TO 24 STEP 5
3030 IF V = PL THEN 3050 ELSE 3040
3040 NEXT PL: GOTO 3060
3050 CV = 44: GOTO 3100
3060 FOR PL = 5 TO 25 STEP 5
3070 IF V = PL THEN 3090 ELSE 3080
3080 NEXT PL
3090 CV = 48: GOTO 3100
3100 RETURN
3110 LOCATE CU, CV: PRINT A$(V)
3120 LOCATE CU + 2, CV: COLOR 27: PRINT "*": COLOR 6: RETURN 3520
3130 REM ***** LT ARROW KEY*****
3140 FOR Y = 5 TO 25 STEP 5
3150 IF A(Y) = 0 THEN 3170 ELSE 3160
3160 NEXT Y: GOTO 3180
3170 BEEP: RETURN 3520
3180 FOR V = 1 TO 25
3190 IF A(V) = 0 THEN 3210 ELSE 3200
3200 NEXT V: BEEP: RETURN 3520
3210 FOR I = 2500 TO 2480 STEP -5
3220 SOUND I, .5: NEXT I
3230 SWAP A(V), A(V + 1)
3235 GOSUB 2204
3240 GOSUB 2810
3250 LOCATE CU, CV: PRINT A$(V)
3260 LOCATE CU, CV + 4: COLOR 27: PRINT "*": COLOR 6: RETURN 3520
3270 REM ***** DN ARROW KEY*****
3280 FOR V = 6 TO 25
3290 IF A(V) = 0 THEN 3310 ELSE 3300
3300 NEXT V: BEEP: RETURN 3520
3310 FOR I = 2500 TO 2480 STEP -5
3320 SOUND I, .5: NEXT I
3330 SWAP A(V), A(V - 5)
3335 GOSUB 2204
3340 GOSUB 2810
3350 LOCATE CU, CV: PRINT A$(V)
3360 LOCATE CU - 2, CV: COLOR 27: PRINT "*": COLOR 6: RETURN 3520
3370 REM ***** RT ARROW KEY*****
3380 FOR X = 1 TO 21 STEP 5
3390 IF A(X) = 0 THEN 3410 ELSE 3400
3400 NEXT X: GOTO 3420
3410 BEEP: RETURN 3520
3420 FOR V = 1 TO 25
3430 IF A(V) = 0 THEN 3450 ELSE 3440
3440 NEXT V: BEEP: GOTO 3520
3450 FOR I = 2500 TO 2480 STEP -5
3460 SOUND I, .5: NEXT I
3470 SWAP A(V), A(V - 1)
3475 GOSUB 2204
3480 GOSUB 2810
3490 LOCATE CU, CV: PRINT A$(V)
3500 LOCATE CU, CV - 4: COLOR 27: PRINT "*": COLOR 6: RETURN 3520
3510 REM ***** TIME*****
3520 COLOR 6: LOCATE 3, 21: PRINT TIME$
3530 A$ = IKEY$
3540 IF NRC THEN 3720

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3550 CTIM$ = TIME$: CMIN$ = MID$(CTIM$, 4, 2): CSEC$ = MID$(CTIM$, 7, 2)
3560 CMIN = VAL(CMIN$): CSEC = VAL(CSEC$): MIN = CMIN - IMIN
3570 IF IMIN = 56 AND CMIN = 0 THEN MIN = 4
3580 IF IMIN = 56 AND CMIN = 1 THEN MIN = 5
3590 IF IMIN = 57 AND CMIN = 0 THEN MIN = 3
3600 IF IMIN = 57 AND CMIN = 1 THEN MIN = 4
3610 IF IMIN = 57 AND CMIN = 2 THEN MIN = 5
3620 IF IMIN = 58 AND CMIN = 0 THEN MIN = 2
3630 IF IMIN = 58 AND CMIN = 1 THEN MIN = 3
3640 IF IMIN = 58 AND CMIN = 2 THEN MIN = 4
3650 IF IMIN = 58 AND CMIN = 3 THEN MIN = 5
3660 IF IMIN = 59 AND CMIN = 0 THEN MIN = 1
3670 IF IMIN = 59 AND CMIN = 1 THEN MIN = 2
3680 IF IMIN = 59 AND CMIN = 2 THEN MIN = 3
3690 IF IMIN = 59 AND CMIN = 3 THEN MIN = 4
3700 IF IMIN = 59 AND CMIN = 4 THEN MIN = 5
3710 LMIN = 5 - MIN: IF LMIN = 0 AND CSEC = 0 THEN 5020 ELSE 3720
3720 IF HLP THEN 3730 ELSE 3760
3730 TIMDEL = TIMDEL + 1
3740 IF TIMDEL = 1000 THEN 3750 ELSE 3760
3750 HLP = 0: TIMDEL = 2: LOCATE 19, 1: PRINT SPACE$(78)
3760 GOTO 3510
3770 REM*****F4 KEY (VERIFY)*****
3780 CTIM$ = TIME$: CMIN$ = MID$(CTIM$, 4, 2): CSEC$ = MID$(CTIM$, 7, 2)
3790 FOR I = 1 TO 20
3800 IF A(I) = I THEN 3810 ELSE 4340
3810 NEXT I
3820 FOR I = 21 TO 24
3830 IF A(I) = I THEN 3840 ELSE 3850
3840 NEXT I: GOTO 3970
3850 IF A(21) = 21 AND A(22) = 22 AND A(23) = 24 AND A(24) = 23 THEN 5080
3860 IF A(21) = 21 AND A(22) = 23 AND A(23) = 22 AND A(24) = 24 THEN 5080
3870 IF A(21) = 21 AND A(22) = 24 AND A(23) = 23 AND A(24) = 22 THEN 5080
3880 IF A(21) = 22 AND A(22) = 21 AND A(23) = 23 AND A(24) = 24 THEN 5080
3890 IF A(21) = 22 AND A(22) = 23 AND A(23) = 24 AND A(24) = 21 THEN 5080
3900 IF A(21) = 22 AND A(22) = 24 AND A(23) = 21 AND A(24) = 23 THEN 5080
3910 IF A(21) = 23 AND A(22) = 21 AND A(23) = 24 AND A(24) = 22 THEN 5080
3920 IF A(21) = 23 AND A(22) = 22 AND A(23) = 21 AND A(24) = 24 THEN 5080
3930 IF A(21) = 23 AND A(22) = 24 AND A(23) = 22 AND A(24) = 21 THEN 5080
3940 IF A(21) = 24 AND A(22) = 21 AND A(23) = 22 AND A(24) = 23 THEN 5080
3950 IF A(21) = 24 AND A(22) = 22 AND A(23) = 23 AND A(24) = 21 THEN 5080
3960 IF A(21) = 24 AND A(22) = 23 AND A(23) = 22 AND A(24) = 21 THEN 5080 ELSE
3970 IF NRC THEN 4950 ELSE 3980
3980 CMIN = VAL(CMIN$): CSEC = VAL(CSEC$): MIN = CMIN - IMIN
3990 IF IMIN = 56 AND CMIN = 0 THEN MIN = 4
4000 IF IMIN = 56 AND CMIN = 1 THEN MIN = 5
4010 IF IMIN = 57 AND CMIN = 0 THEN MIN = 3
4020 IF IMIN = 57 AND CMIN = 1 THEN MIN = 4
4030 IF IMIN = 57 AND CMIN = 2 THEN MIN = 5
4040 IF IMIN = 58 AND CMIN = 0 THEN MIN = 2
4050 IF IMIN = 58 AND CMIN = 1 THEN MIN = 3
4060 IF IMIN = 58 AND CMIN = 2 THEN MIN = 4
4070 IF IMIN = 58 AND CMIN = 3 THEN MIN = 5
4080 IF IMIN = 59 AND CMIN = 0 THEN MIN = 1
4090 IF IMIN = 59 AND CMIN = 1 THEN MIN = 2
4100 IF IMIN = 59 AND CMIN = 2 THEN MIN = 3
4110 IF IMIN = 59 AND CMIN = 3 THEN MIN = 4
4120 IF IMIN = 59 AND CMIN = 4 THEN MIN = 5
4130 IF IMIN < WMIN(1) THEN 4160 ELSE 4140
4140 IF MIN = WMIN(1) THEN 4150 ELSE 4210
4150 IF CSEC < WSEC(1) THEN 4160 ELSE 4210

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4160 WFNAM$(3) = WFNAM$(2): WSNAM$(3) = WANAM$(2): WMIN(3) = WMIN(2): WSEC(3)
4170 WFNAM$(2) = WFNAM$(1): WFNAM$(2) = WSNAM$(1): WMIN(2) = WMIN(1)
4180 WFNAM$(1) = PFNAM$: WSNAM$(1) = PSNAM$: WMIN(1) = MIN: WSEC(1) = CSEC - 1
4190 GOSUB 4350
4200 GOTO 4400
4210 IF MIN < WMIN(2) THEN 4240 ELSE 4220
4220 IF MIN = WMIN(2) THEN 4230 ELSE 4280
4230 IF CSEC < WSEC(2) THEN 4240 ELSE 4280
4240 WFNAM$(3) = WFNAM$(2): WSNAM$(3) = WSNAM$(2): WMIN(3) = WMIN(2): WSEC(3)
4250 WFNAM$(2) = PFNAM$: WSNAM$(2) = PSNAM$: WMIN(2) = MIN: WSEC(2) = CSEC - 1
4260 GOSUB 4350
4270 GOTO 4810
4280 IF MIN < WMIN(3) THEN 4310 ELSE 4290
4290 IF MIN < WMIN(3) THEN 4300 ELSE 4950
4300 IF CSEC < WSEC(3) THEN 4310 ELSE 4950
4310 WFNAM$(3) = PFNAM$(3): WSNAM$(3) = PSNAM$: WMIN(3) = MIN: WSEC(3) = CSEC
4320 GOSUB 4350
4330 GOTO 4880
4340 HLP = 1: BEEP: LOCATE 19, 17: COLOR 27: PRINT "YOU HAVE NOT YET ARRANGE I
4350 REM*****SAVING*****
4360 CLOSE : OPEN "0", #1, "\ENAGI\E_GAMES\PUZZLE.WIN"
4370 FOR I = 1 TO 3
4380 PRINT #1, WFNAM$(I); ", "; WSNAM$(I); ", "; WMIN(I); ", "; WSEC(I)
4390 NEXT I: CLOSE #1: RETURN
4400 REM*****GAME WON/ENAGI'S CUP*****
4410 GOSUB 5210
4420 CLS : COLOR 14: A$ = CHR$(6): B$ = CHR$(40): C$ = CHR$(41): D$ = CHR$(47)
4430 M$ = CHR$(178): N$ = CHR$(15): O$ = CHR$(177): P$ = CHR$(222): Q$ = CHR$(
4440 LOCATE RO, CO: PRINT B$
4450 LOCATE RO, CO + 18: PRINT C$
4460 LOCATE RO + 1, CO + 1: PRINT G$
4470 LOCATE RO + 1, CO + 17: PRINT D$
4480 LOCATE RO + 2, CO + 2: PRINT G$
4490 LOCATE RO + 2, CO + 16: PRINT D$
4500 FOR I = 3 TO 15: LOCATE RO + 2, CO + I: PRINT A$: NEXT I
4510 LOCATE RO - 1, CO + 1: PRINT D$
4520 LOCATE RO - 1, CO + 17: PRINT G$
4530 LOCATE RO - 2, CO + 2: PRINT D$
4540 LOCATE RO - 2, CO + 16: PRINT G$
4550 FOR I = 3 TO 15: LOCATE RO - 2, CO + I: PRINT A$: NEXT I
4560 FOR I = 5 TO 13: LOCATE RO - 3, CO + I: PRINT A$: NEXT I
4570 FOR I = 7 TO 11: LOCATE RO - 4, CO + I: PRINT A$: NEXT I
4580 LOCATE RO - 5, CO + 9: PRINT A$
4590 LOCATE 20, 10
4600 LOCATE RO + 3, CO + 3: PRINT G$
4610 LOCATE RO + 3, CO + 15: PRINT D$
4620 LOCATE RO + 4, CO + 4: PRINT G$
4630 LOCATE RO + 4, CO + 14: PRINT D$
4640 FOR I = 6 TO 10: FOR J = 6 TO 12: LOCATE RO + I, CO + J: PRINT O$: NEXT
4650 LOCATE RO + 11, CO + 5: PRINT E$; E$; E$; E$; E$; E$; E$; E$; E$
4660 LOCATE RO + 12, CO + 4: PRINT D$
4670 LOCATE RO + 12, CO + 14: PRINT G$
4680 FOR I = 2 TO 16: LOCATE RO + 13, CO + I: PRINT L$: NEXT I
4690 FOR I = 1 TO 17: LOCATE RO, CO + I: PRINT O$: NEXT I
4700 FOR I = 2 TO 16: LOCATE RO + 1, CO + I: PRINT O$: NEXT I
4710 FOR I = 4 TO 14: LOCATE RO + 3, CO + I: PRINT O$: NEXT I
4720 FOR I = 5 TO 13: LOCATE RO + 4, CO + I: PRINT O$: NEXT I
4730 FOR I = 6 TO 12: LOCATE RO + 5, CO + I: PRINT E$: NEXT I
4740 LOCATE RO - 1, CO + 5: COLOR 12: PRINT "ENAGI'S CUP": COLOR 6
4760 COG$ = "CONGRATULATIONS"

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770 COLOR 29: LOCATE 1, 12: PRINT COG$; "!"; COG$; "!!"; COG$; "!!!"; COG$; "!!!!"
780 COLOR 6: LOCATE 2, 27: PRINT "EXCELLENT ! YOU ARE CLEVER!"
790 WFN = INT(LEN(PFNAM$) * .5): WSN = INT(LEN(PSNAM$) * .5): LNA = WFN + WSN
800 COLOR 12: LOCATE 3, 39 - LNA: PRINT PFNAM$; "; PSNAM$: COLOR 6: GOTO 515
810 REM*****2ND POSITON*****
820 CLS : GOSUB 5210
830 COLOR 12: LOCATE 5, 29: PRINT "GOOD! SECOND POSITION!"
840 WFN = INT(LEN(PFNAM$) * .5): WSN = INT(LEN(PSNAM$) * .5): LNA = WFN + WSN
850 COLOR 21: LOCATE 7, 39 - LNA: PRINT PFNAM$; "; PSNAM$: COLOR 6
860 LOCATE 9, 18: PRINT "YOU SOLVE THE PUZZLE IN"; MIN; "MINUTES"; CSEC - 1;
870 LOCATE 11, 28: PRINT "BUT DID NOT WIN BIMA'S CUP": GOTO 5150
880 REM*****3RD POSITION*****
890 CLS : GOSUB 5210
900 COLOR 12: LOCATE 5, 29: PRINT "GOOD! THIRD POSITION!"
910 WFN = INT(LEN(PFNAM$) * .5): WSN = INT(LEN(PSNAM$) * .5): LNA = WFN + WSN
920 COLOR 21: LOCATE 7, 39 - LNA: PRINT PFNAM$; "; PFNAM$: COLOR 6
930 LOCATE 9, 18: PRINT "YOU SOLVE THE PUZZLE IN"; MIN; "MINUTES "; CSEC - 1;
940 LOCATE 11, 25: PRINT "MORE CHANCE TO WIN BIMA'S CUP": GOTO 5150
950 REM*****PUZZLE SOLVE*****
960 CLS : GOSUB 5210
970 COLOR 12: LOCATE 5, 29: PRINT "GOOD! YOU ARE CLEVER!"
980 WFN = INT(LEN(PFNAM$) * .5): WSN = INT(LEN(PSNAM$) * .5): LNA = WFN + WSN
990 COLOR 21: LOCATE 7, , 39 - LNA: PRINT PFNAM$; " 'PSNAM$:COLOR 6"
5000 LOCATE 9, 25: PRINT "YOU ARE ABLE TO SOLVE THE PUZZLE"
5010 LOCATE 11, 28: PRINT "MORE ROOM FOR IMPROVEMENT": GOTO 5150
5020 REM*****GAME LOST*****
5030 CLS : GOSUB 5210
5040 COLOR 12: LOCATE 3, 25: PRINT "ITS JUST A PITY YOU ARE A SLOW THINKER"
5050 WFN = INT(LEN(PFNAM$) * .5): WSN = INT(LEN(PFNAM$) * .5): LNA = WFN + WSN
5060 COLOR 29: LOCATE 9, 39 - LNA: PRINT PFNAM$; " "; PSNAM$: COLOR 6: LOCATE
5070 PRINT "YOU ARE NOT ABLE TO WIN THE GAME IN 5 MINUTES": GOTO 5150
5080 REM*****UNLUCKY PLAYER*****
5090 CLS : GOSUB 5210
5100 COLOR 12: LOCATE 5, 37: PRINT "WELL DONE!"
5110 WFN = INT(LEN(PFNMA$) * .5): WSN = INT(LEN(PFNAM$) * .5): LNA = WFN + WSN
5120 COLOR 21: LOCATE 7, 39 - LNA: PRINT PFNAM$; "; PSNAM$: COLOR 6
5130 LOCATE 9, 25: PRINT "YOU HAVE TRIED ,BUT NOT LUCKY ENOUGH."
5140 LOCATE 11, 32: PRINT "YOUR LUCK IS ON THE WAY .....": GOTO 5150
5150 REM*****RESTART ANOTHER*****
5160 LOCATE 23, 1: PRINT SPACE$(78)
5170 LOCATE 23, 28: COLOR 29: PRINT "PRESS F5 KEY TO PLAY AGAIN....."
5180 SOUND 500, 10
5190 SOUND 440, 10
5200 A$ = INKEY$: GOTO 5180
5210 CLS : TIMER OFF: KEY(1) OFF: KEY(2) OFF: KEY(3) OFF: KEY(11) OFF: KEY(12)
5220 FOR I = 1 TO 20: SOUND RND * 1000 + 57, 2: NEXT I
5230 RETURN

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NIBBLE1.FIL

```
REM*****ENAGI'S CUP*****
CLS : COLOR 14: A$ = CHR$(6): B$ = CHR$(40): C$ = CHR$(41)
D$ = CHR$(47): E$ = CHR$(21): F$ = CHR$(4): G$ = CHR$(92)
H$ = CHR$(95): I$ = CHR$(196): J$ = CHR$(124): K$ = CHR$(179)
L$ = CHR$(176)
M$ = CHR$(178): N$ = CHR$(15): O$ = CHR$(177): P$ = CHR$(222)
Q$ = CHR$(221): RO = 8: CO = 29
LOCATE RO, CO: PRINT B$
LOCATE RO, CO + 18: PRINT C$
LOCATE RO + 1, CO + 1: PRINT G$
LOCATE RO + 1, CO + 17: PRINT D$
LOCATE RO + 2, CO + 2: PRINT G$
LOCATE RO + 2, CO + 16: PRINT D$
FOR I = 3 TO 15: LOCATE RO + 2, CO + I: PRINT A$: NEXT I
LOCATE RO - 1, CO + 1: PRINT D$
LOCATE RO - 1, CO + 17: PRINT G$
LOCATE RO - 2, CO + 2: PRINT D$
LOCATE RO - 2, CO + 16: PRINT G$
FOR I = 3 TO 15: LOCATE RO - 2, CO + I: PRINT A$: NEXT I
FOR I = 5 TO 13: LOCATE RO - 3, CO + I: PRINT A$: NEXT I
FOR I = 7 TO 11: LOCATE RO - 4, CO + I: PRINT A$: NEXT I
LOCATE RO - 5, CO + 9: PRINT A$
LOCATE 20, 10
LOCATE RO + 3, CO + 3: PRINT G$
LOCATE RO + 3, CO + 15: PRINT D$
LOCATE RO + 4, CO + 4: PRINT G$
LOCATE RO + 4, CO + 14: PRINT D$
FOR I = 6 TO 10: FOR J = 6 TO 12: LOCATE RO + I, CO + J: PRINT O$
NEXT J: NEXT I
LOCATE RO + 11, CO + 5: PRINT E$: E$: E$: E$: E$: E$: E$: E$: E$
LOCATE RO + 12, CO + 4: PRINT D$
LOCATE RO + 12, CO + 14: PRINT G$
FOR I = 2 TO 16: LOCATE RO + 13, CO + I: PRINT L$: NEXT I
FOR I = 1 TO 17: LOCATE RO, CO + I: PRINT O$: NEXT I
FOR I = 2 TO 16: LOCATE RO + 1, CO + I: PRINT O$: NEXT I
FOR I = 4 TO 14: LOCATE RO + 3, CO + I: PRINT O$: NEXT I
FOR I = 5 TO 13: LOCATE RO + 4, CO + I: PRINT O$: NEXT I
FOR I = 6 TO 12: LOCATE RO + 5, CO + I: PRINT E$: NEXT I
LOCATE RO - 1, CO + 5: COLOR 12: PRINT "ENAGI'S CUP": COLOR 6
5 LOCATE 23, 25: COLOR 21: PRINT "PRESS C TO CONTINUE...";
COLOR 6: A$ = INKEY$
IF A$ = "C" OR A$ = "c" THEN 10 ELSE GOTO 5
10 CHAIN "\ENAGI\E_GAMES\NIBBLE2.FIL"
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```
ON KEY(5) GOSUB 10
ON KEY(10) GOSUB 20
KEY(4) ON
KEY(5) ON
KEY(10) ON
GOTO 160
7 RETURN 4
10 RETURN 15
15 CHAIN "\ENAGI\E_MAIN.FIL"
20 RETURN 25
25 CHAIN "\ENAGI\E_EXIT.FIL"
160 COLOR 6: HLP = 0: NIB = 1: NS = 1: NST = 0
PLAY "MB": FOR I = 1 TO 5: SOUND 100, 1: NEXT I
CLS : COLOR 18: LOCATE 7, 23: PRINT "YOU ARE WELCOME TO ENAGI NIBBLE"
PLAY "MB": FOR I = 1 TO 150: SOUND 100, 1: NEXT I
'*****LOADING CHAMPIONS*****
CLS : OPEN "I", #1, "\ENAGI\E_GAMES\NIBBLE.WIN"
FOR I = 1 TO 3
INPUT #1, WFNAM$(I), WSNAM$(I), WMIN(I), WSEC(I)
NEXT I: CLOSE #1: GOTO 1620
1320 '***** F2 (DISHANG ARROW KEYS) *****
HLP = 1: GOSUB 2140
LOCATE 21, 1: PRINT SPACE$(78)
LOCATE 21, 19: COLOR 27: PRINT "YOU CAN NOW CONTINUE ! ARROW KEYS DISHANG."
RETURN 2420
1360 '***** F3 (TIME LEFT) *****
HLP = 1: CTIM$ = TIME$: CMIN$ = MID$(CTIM$, 4, 2): CSEC$ = MID$(CTIM$, 7,
CMIN = VAL(CMIN$): CSEC = VAL(CSEC$): MIN = CMIN - IMIN: LSEC = 60 - CSEC
IF IMIN = 56 AND CMIN = 0 THEN MIN = 4
IF IMIN = 57 AND CMIN = 0 THEN MIN = 3
IF IMIN = 57 AND CMIN = 1 THEN MIN = 4
IF IMIN = 58 AND CMIN = 0 THEN MIN = 2
IF IMIN = 58 AND CMIN = 1 THEN MIN = 3
IF IMIN = 58 AND CMIN = 2 THEN MIN = 4
IF IMIN = 59 AND CMIN = 0 THEN MIN = 1
IF IMIN = 59 AND CMIN = 1 THEN MIN = 2
IF IMIN = 59 AND CMIN = 2 THEN MIN = 3
IF IMIN = 59 AND CMIN = 3 THEN MIN = 4
LMIN = 4 - MIN
IF LMIN = 1 THEN 1510 ELSE 1520
1510 MN$ = "MINUTE": GOTO 1560
1520 IF LMIN = 0 THEN 1530 ELSE 1550
1530 LOCATE 21, 1: PRINT SPACE$(78)
LOCATE 21, 31: COLOR 27: PRINT LSEC; " SECONDS LEFT": GOTO 1610
1550 MN$ = "MINUTES"
1560 IF LSEC = 0 THEN 1570 ELSE 1580
1570 SC$ = "SECOND": GOTO 1590
1580 SC$ = "SECONDS"
1590 LOCATE 21, 1: PRINT SPACE$(78)
LOCATE 21, 27: COLOR 27: PRINT LMIN; " "; MN$; " "; LSEC; " "; SC$; " LEFT"
1610 RETURN 2420
1620 '***** PLAYER'S NAME *****
CLS : RANDOMIZE TIMER: FOR I = 1 TO 5
SOUND 500, 10: SOUND 400, 10: NEXT I
1650 COLOR 12: LOCATE 17, 33: PRINT "YOUR FIRST NAME"
LOCATE 18, 33: INPUT PFNAM$
IF LEN(PFNAM$) < 13 THEN 1680 ELSE BEEP: GOTO 1650
1680 IF LEN(PFNAM$) > 2 THEN 1690 ELSE BEEP: GOTO 1650
1690 FOR I = 1 TO 5
SOUND 500, 10: SOUND 400, 10: NEXT I
1710 COLOR 12: LOCATE 20, 33: PRINT "YOUR SURNAME"
LOCATE 21, 33: INPUT PSNAM$
IF LEN(PSNAM$) < 13 THEN 1740 ELSE BEEP: GOTO 1710
1740 IF LEN(PSNAM$) > 2 THEN 1750 ELSE BEEP: GOTO 1710
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1750 '***** SEE CHAMPIONS *****
CLS : LOCATE 5, 35: COLOR 27: PRINT "CHAMPIONS": LOCATE 7, 13: COLOR 12
PRINT "POSITION      PLAYERS NAME                TIME TAKEN"
COLOR 29: LOCATE 9, 15: PRINT "1st"
LOCATE 11, 15: PRINT "2nd"
LOCATE 13, 15: PRINT "3rd"
COLOR 29: J = 7: FOR I = 1 TO 3: J = J + 2
LOCATE J, 25: PRINT WFNAM$(I); " "; WSNAM$(I): COLOR 6
LOCATE J, 53: PRINT WMIN(I); "min."; WSEC(I); "sec.": NEXT I
LOCATE 22, 25: COLOR 21: PRINT PFNAM$; " "; PSNAM$; " Press C to continue."
1850 COLOR 6: A$ = INKEY$
IF A$ = "C" OR A$ = "c" THEN 1870 ELSE 1850
1870 '***** FIXING NUMBERS *****
SOUND 100, 0
PLAY "MB": FOR J = 1 TO 3: FOR I = 1000 TO 540 STEP -10: SOUND I, .5: NEXT
FOR I = 540 TO 1000 STEP 10: SOUND I, .5: NEXT I: NEXT J
1900 CLS : DIM ROW(9), COL(9): CROW = 10: CCOL = 40: MVC$ = CHR$(176)
LOCATE 2, 27: COLOR 29: PRINT "ENAGI'S NIBBLES  STAGE"; NS
LOCATE 2, 67: COLOR 2: PRINT DATE$
COLOR 12: LOCATE CROW, CCOL: PRINT MVC$: COLOR 6
LOCATE 23, 2: COLOR 27: PRINT "F2 "; : COLOR 6: PRINT "DISHANG ARROW KEY(S
COLOR 27: PRINT " F3 "; : COLOR 6: PRINT "TIME LEFT";
COLOR 27: PRINT " F4 "; : COLOR 6: PRINT "RESTART THE GAME";
COLOR 27: PRINT " F10 "; : COLOR 6: PRINT "QUIT GAME"
LOCATE 24, 7: COLOR 4
PRINT "USE THE FOUR ARROW KEYS TO NIBBLE THIS GAME IN FIVE MINUTES"
IF NST THEN 2040
LOCATE 21, 33: COLOR 18: PRINT "Please Wait !"
1970 SOUND 80, .5
TM$ = TIME$: ISEC$ = MID$(TM$, 7, 2): ISEC = VAL(ISEC$)
IF ISEC = 0 THEN 2000 ELSE 1970
2000 TM$ = TIME$: IMIN$ = MID$(TM$, 4, 2): IMIN = VAL(IMIN$)
LOCATE 21, 1: PRINT SPACE$(78)
LOCATE 21, 35: PRINT "5 Minutes Left..."
COLOR 6: SOUND 100, 0: HLP = 1
2040 FOR I = 1 TO 9
2050 ROW(I) = INT(RND * 19)
IF ROW(I) < 3 THEN 2050
2070 COL(I) = INT(RND * 78)
IF COL(I) = 0 THEN 2070
NEXT I
COLOR 18: LOCATE ROW(NIB), COL(NIB): PRINT NIB: COLOR 6
'***** KEYS TRAP *****
GOSUB 2140
GOTO 2420
2140 KEY(2) OFF: KEY(3) OFF: KEY(11) OFF: KEY(12) OFF
KEY(13) OFF: KEY(14) OFF
ON KEY(2) GOSUB 1320
ON KEY(3) GOSUB 1360
ON KEY(11) GOSUB 2280
ON KEY(12) GOSUB 2330
ON KEY(13) GOSUB 2390
ON KEY(14) GOSUB 2360
KEY(2) ON: KEY(3) ON: KEY(11) ON: KEY(12) ON: KEY(13) ON: KEY(14) ON
RETURN
2280 '***** UP ARROW *****
IF CROW = 3 THEN 2310
CROW = CROW - 1: GOTO 2320
2310 BEEP: RETURN 2420
2320 COLOR 12: LOCATE CROW, CCOL: PRINT MVC$: COLOR 6: RETURN 2420
2330 '***** LEFT ARROW *****
IF CCOL = 1 THEN 2310
CCOL = CCOL - 1: GOTO 2320
2360 '***** DOWN ARROW *****

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IF CROW = 20 THEN 2310
CROW = CROW + 1: GOTO 2320
2390 '***** RIGTH ARROW *****
IF CCOL = 78 THEN 2310
CCOL = CCOL + 1: GOTO 2320
2420 '***** TIME *****
COLOR 6: LOCATE 2, 5: PRINT TIMES$
AS$ = INKEY$
CTIM$ = TIMES$: CMIN$ = MID$(CTIM$, 4, 2): CSEC$ = MID$(CTIM$, 7, 2)
CMIN = VAL(CMIN$): CSEC = VAL(CSEC$): MIN = CMIN - IMIN
IF IMIN = 56 AND CMIN = 0 THEN MIN = 4
IF IMIN = 56 AND CMIN = 1 THEN MIN = 5
IF IMIN = 57 AND CMIN = 0 THEN MIN = 3
IF IMIN = 57 AND CMIN = 1 THEN MIN = 4
IF IMIN = 57 AND CMIN = 2 THEN MIN = 5
IF IMIN = 58 AND CMIN = 0 THEN MIN = 2
IF IMIN = 58 AND CMIN = 1 THEN MIN = 3
IF IMIN = 58 AND CMIN = 2 THEN MIN = 4
IF IMIN = 58 AND CMIN = 3 THEN MIN = 5
IF IMIN = 59 AND CMIN = 0 THEN MIN = 1
IF IMIN = 59 AND CMIN = 1 THEN MIN = 2
IF IMIN = 59 AND CMIN = 2 THEN MIN = 3
IF IMIN = 59 AND CMIN = 3 THEN MIN = 4
IF IMIN = 59 AND CMIN = 4 THEN MIN = 5
LMIN = 5 - MIN: IF LMIN = 0 AND CSEC = 0 THEN 3820 ELSE 2620
2620 IF CROW = ROW(NIB) THEN 2630 ELSE 2700
2630 IF CCOL = COL(NIB) + 1 THEN 2640 ELSE 2700
2640 PLAY "MBABCD": NIB = NIB + 1
IF NIB < 10 THEN 2660 ELSE 2670
2660 COLOR 18: LOCATE ROW(NIB), COL(NIB): PRINT NIB: COLOR 6: GOTO 2700
2670 KEY(2) OFF: KEY(3) OFF
KEY(11) OFF: KEY(12) OFF: KEY(13) OFF: KEY(14) OFF
IF NS = 3 THEN 3110 ELSE 2690
2690 NS = NS + 1: NIB = 1: NST = 1: ERASE ROW, COL: GOTO 1900
2700 IF HLP THEN 2710 ELSE 2740
2710 TIMDEL = TIMDEL + 1
IF TIMDEL = 500 THEN 2730 ELSE 2740
2730 HLP = 0: TIMDEL = 2: LOCATE 21, 1: PRINT SPACE$(78)
2740 GOTO 2420
3110 '***** GAME NOT LOST *****
CTIM$ = TIMES$: CMIN$ = MID$(CTIM$, 4, 2): CSEC$ = MID$(CTIM$, 7, 2)
CMIN = VAL(CMIN$): CSEC = VAL(CSEC$): MIN = CMIN - IMIN
IF IMIN = 56 AND CMIN = 0 THEN MIN = 4
IF IMIN = 56 AND CMIN = 1 THEN MIN = 5
IF IMIN = 57 AND CMIN = 0 THEN MIN = 3
IF IMIN = 57 AND CMIN = 1 THEN MIN = 4
IF IMIN = 57 AND CMIN = 2 THEN MIN = 5
IF IMIN = 58 AND CMIN = 0 THEN MIN = 2
IF IMIN = 58 AND CMIN = 1 THEN MIN = 3
IF IMIN = 58 AND CMIN = 2 THEN MIN = 4
IF IMIN = 58 AND CMIN = 3 THEN MIN = 5
IF IMIN = 59 AND CMIN = 0 THEN MIN = 1
IF IMIN = 59 AND CMIN = 1 THEN MIN = 2
IF IMIN = 59 AND CMIN = 2 THEN MIN = 3
IF IMIN = 59 AND CMIN = 3 THEN MIN = 4
IF IMIN = 59 AND CMIN = 4 THEN MIN = 5
IF MIN < WMIN(1) THEN 3310 ELSE 3290
3290 IF MIN = WMIN(1) THEN 3300 ELSE 3360
3300 IF CSEC < WSEC(1) THEN 3310 ELSE 3360
3310 WFNAM$(3) = WFNAM$(2): WSNAM$(3) = WSNAM$(2)
WMIN(3) = WMIN(2): WSEC(3) = WSEC(2)
WFNAM$(2) = WFNAM$(1): WSNAM$(2) = WSNAM$(1)
WMIN(2) = WMIN(1): WSEC(2) = WSEC(1)
WFNAM$(1) = PFNAM$: WSNAM$(1) = PSNAM$: WMIN(1) = MIN: WSEC(1) = CSEC - 1

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GOSUB 3500
GOTO 3550
3360 IF MIN < WMIN(2) THEN 3390 ELSE 3370
3370 IF MIN = WMIN(2) THEN 3380 ELSE 3430
3380 IF CSEC < WSEC(2) THEN 3390 ELSE 3430
3390 WFNAM$(3) = WFNAM$(2): WSNAM$(3) = WSNAM$(2)
WMIN(3) = WMIN(2): WSEC(3) = WSEC(2)
WFNAM$(2) = PFNAM$: WSNAM$(2) = PSNAM$: WMIN(2) = MIN: WSEC(2) = CSEC -
GOSUB 3500
GOTO 3630
3430 IF MIN < WMIN(3) THEN 3460 ELSE 3440
3440 IF MIN = WMIN(3) THEN 3450 ELSE 3750
3450 IF CSEC < WSEC(3) THEN 3460 ELSE 3750
3460 WFNAM$(3) = PFNAM$: WSNAM$(3) = PSNAM$
WMIN(3) = MIN: WSEC(3) = CSEC - 1
GOSUB 3500
GOTO 3690
3500 '***** SAVING NEW CHAMPIONS *****
CLOSE : OPEN "O", #1, "NIBBLE.WIN"
FOR I = 1 TO 3
PRINT #1, WFNAM$(I); ", "; WSNAM$(I); ", "; WMIN(I); ", "; WSEC(I)
NEXT I: CLOSE #1: RETURN
3550 '***** 1st POSITION *****
CLS : GOSUB 4020
COG$ = "CONGRATULATION"
COLOR 29: LOCATE 3, 12: PRINT COG$; " ! "; COG$; " !! "; COG$; " !!!"
COLOR 12: LOCATE 5, 20: PRINT "EXCELLENT ! YOU ARE THE BEST NIBBLER SO
GOSUB 3570
3570 WFN = INT(LEN(PFNAM$) * .5): WSN = INT(LEN(PSNAM$) * .5): LNA = WFN
COLOR 21: LOCATE 7, 39 - LNA: PRINT PFNAM$; " "; PSNAM$: COLOR 6
LOCATE 9, 18: PRINT "YOU NIBBLE ENAGI'S GAME IN"; MIN; "MINUTES"; CSEC
RETURN 3960
3630 '***** 2nd POSITION *****
CLS : GOSUB 4020
COLOR 12: LOCATE 5, 29: PRINT "GOOD ! SECOND POSITION !"
GOSUB 3570
3690 '***** 3rd POSITION *****
CLS : GOSUB 4020
COLOR 12: LOCATE 5, 29: PRINT "GOOD ! THIRD POSTION !"
GOSUB 3570
3750 '***** NIBBLER *****
CLS : GOSUB 4020
COLOR 12: LOCATE 5, 20: PRINT "YOU TRY ! MORE ROOMS FOR IMPROVEMENT"
GOSUB 3570
3820 '***** GAME LOST *****
CLS : GOSUB 4020
COLOR 12: LOCATE 3, 25: PRINT "ITS JUST A PITY YOU ARE A SLOW NIBBLER"
WFN = INT(LEN(PFNAM$) * .5): WSN = INT(LEN(PSNAM$) * .5): LNA = WFN +
COLOR 29: LOCATE 9, 39 - LNA: PRINT PFNAM$; " "; PSNAM$: COLOR 6:
LOCATE 13, 17: PRINT "YOU ARE NOT ABLE TO NIBBLE ENAGI'S GAME IN 5 MIN
GOTO 3960
3960 '*****PLAY THE GAME AGAIN *****
LOCATE 23, 1: PRINT SPACE$(78)
LOCATE 23, 20: COLOR 29
PRINT "PRESS F4 KEY TO PLAY AGAIN OR F10 KEY TO QUIT...";
3990 SOUND 500, 10: SOUND 400, 10
A$ = INKEY$: GOTO 3990
4020 '*****KEYS OFF *****
CLS : TIMER OFF: KEY(2) OFF: KEY(3) OFF
KEY(11) OFF: KEY(12) OFF: KEY(13) OFF: KEY(14) OFF
FOR I = 1 TO 5: SOUND RND * 1000 + 57, 2: NEXT I
RETURN

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CLS : COLOR 12

LOCATE 12, 23: PRINT "BYE NOW FROM ENAGI'S COMPUTERIZED GAMES"

COLOR 6

SYSTEM