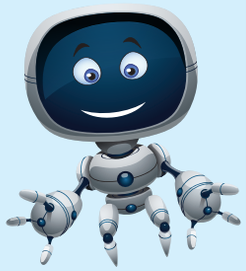
8

Introduction To QBASIC



In this chapter, you will learn about :

- *Introduction* ● *Starting QBASIC* ● *Creating a New Program File*
- *Writing Programs* ● *To Save the Program File* ● *Running a Program*
- *Opening a Saved Program* ● *Exiting QBASIC*
- *Elements of QBASIC Programming Language* ● *Commands/Statements*
- *Using Semicolon with PRINT*

INTRODUCTION

QBASIC is a variant of BASIC programming language. BASIC was developed by Professor J.G. Kemeny and Professor T. E. Kurtz of Dartmouth college, New Hampshire, USA. It was developed as a language for beginners and was implemented in 1965. As it was a simple and easy to understand programming language, it become instantly popular with the beginners who wanted to learn how to program the computer.

Since its development, BASIC has undergone many modifications and improvements, and now many versions of it are available. One of the most significant version of BASIC is GW BASIC which was developed by Bill Gates and Paul Allen, of the Microsoft Inc. Later GW BASIC was improved and modified to enable it to work on the Windows Operating system and was introduced as the QBASIC programming language.

QBASIC language can be used to write programs to instruct the computer to do various tasks such as performing calculations, drawing simple and complex graphics, creating computer games and animations, etc.

STARTING QBASIC

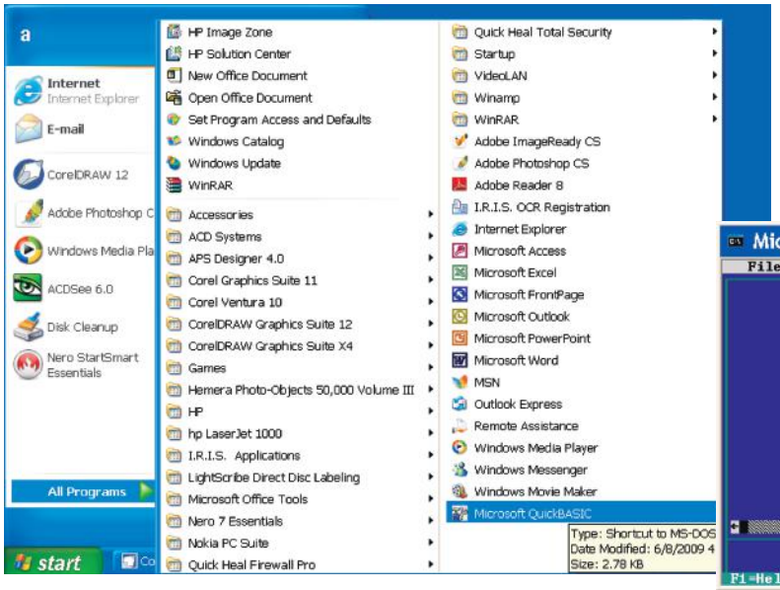
If the QBASIC is loaded on your computer and is included in the programs menu. Start it by following the given steps :

Step 1 : Click on start button.

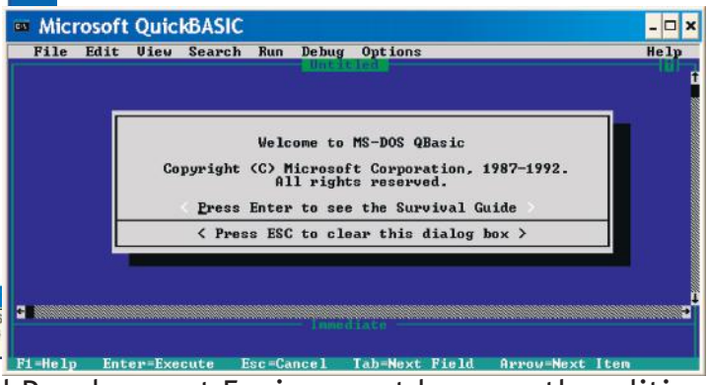
Step 2 : Click on the All Programs option.

Step 3 : From the list displayed click on the Microsoft QUICKBASIC program. QBASIC program will open and its editor window will be displayed with a welcome message on it.

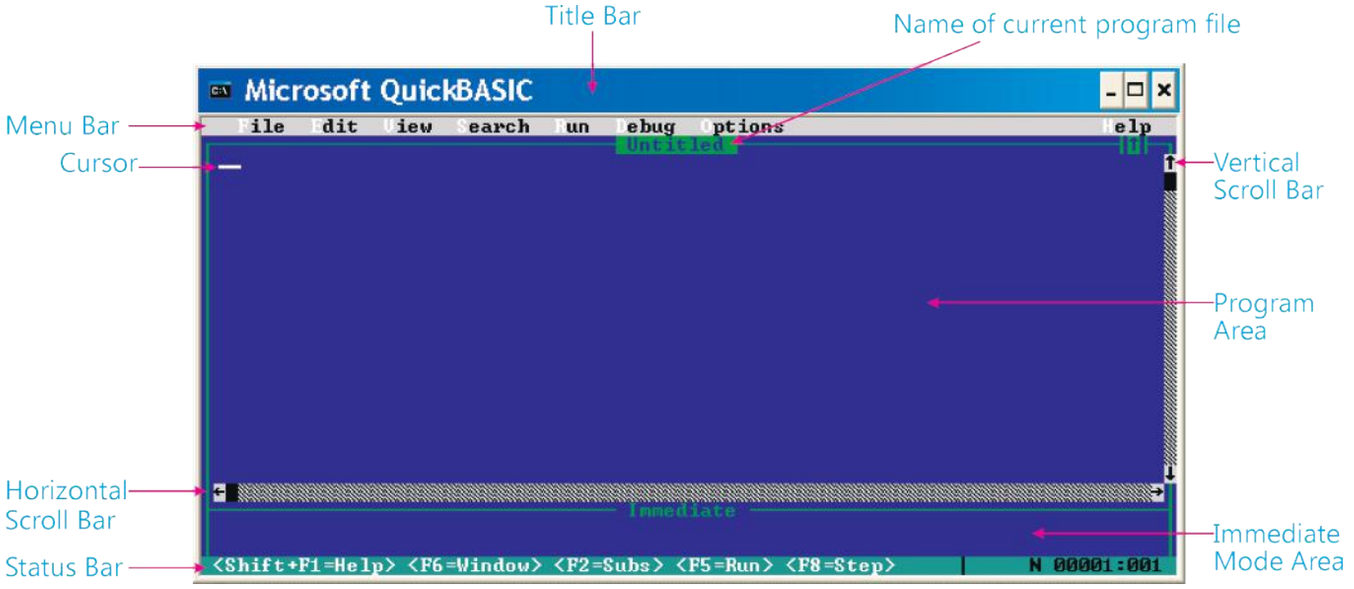
Step 4 : Press the Esc key to hide the welcome screen and see the QBASIC editor window properly.



After pressing the Esc key the QBASIC Editor Window will be displayed with the parts as shown in the.



The screen of QBASIC is called an IDE–Integrated Development Environment because the editing and creating of the program are done at the same place.



Let's take a good look at the QBASIC interface.

Title Bar : It displays the name of the application which is QBASIC. On the right hand side we see the Minimize, Maximize and Close buttons.

The Menu Bar : The menu bar has various menus : File, Edit, View, Search, Run, Debug, Options, Help.

Clicking on any of these will show you the commands under these menus.

Name of the Current Program : The name of the currently opened program file is displayed at the top of the screen.

Status Bar : The status bar at the bottom of the screen displays a list of shortcut keys to some commands.

CREATING A NEW PROGRAM FILE

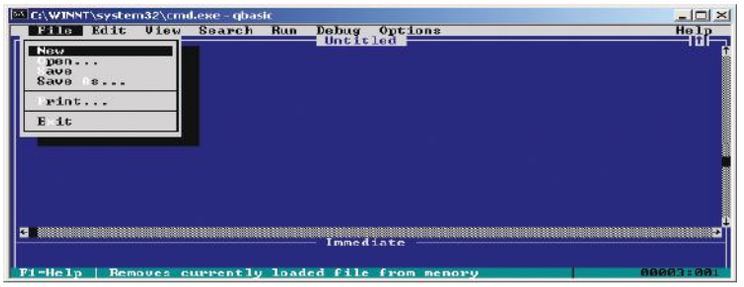
To start a new program in QBASIC :

Step 1 : Click the file menu > New Program.

OR

Press Alt+F for file menu and then N to select new program.

Step 2 : A new QBASIC window open up.

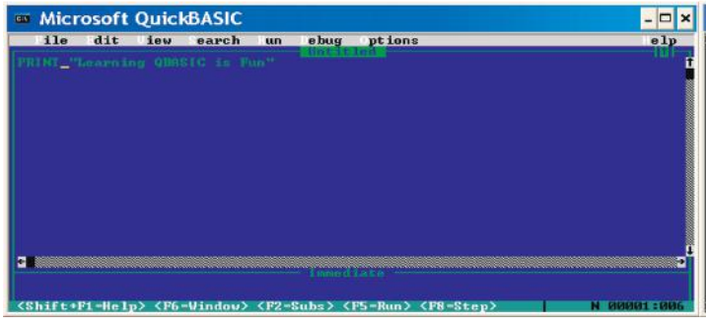


WRITING PROGRAMS

Let's write a program to display a message on the screen. Type out the following line.

PRINT "Learning QBASIC is Fun"

Be careful to put quotation marks at the beginning and end of the message which is to be displayed.

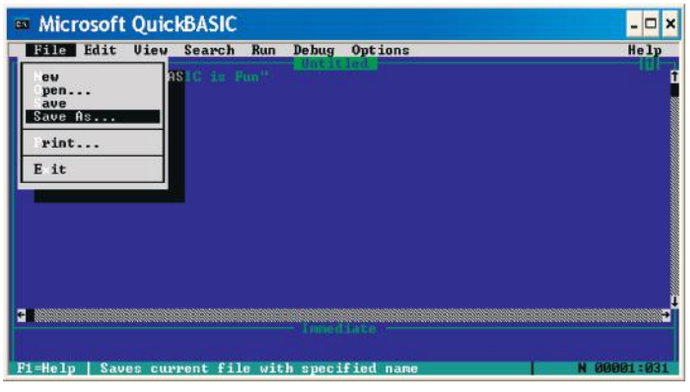


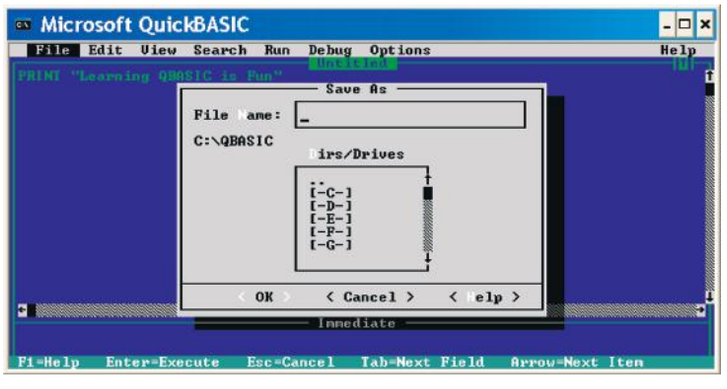
TO SAVE THE PROGRAM FILE

Step 1 : To save the program type Alt+F and you will get the File menu.

Step 2 : Click Save.

Step 3 : Enter the file name and click OK.



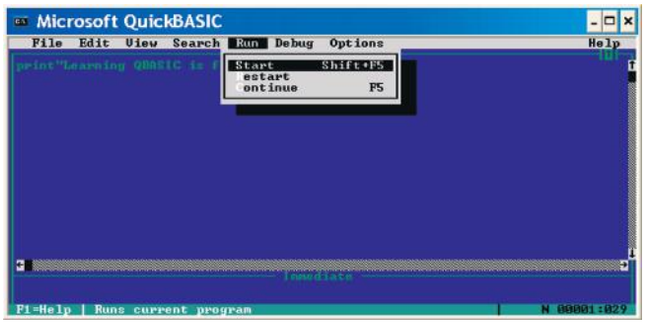


RUNNING A PROGRAM

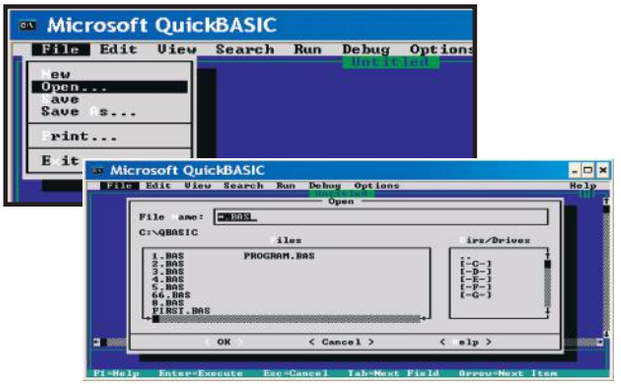
To run a program you can

- Click on Run menu > Start.

A black screen appears displaying the output. This is the Output screen.



OPENING A SAVED PROGRAM



To open a saved program

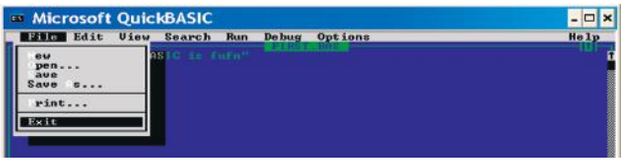
Step 1 : Click on File menu > Open.

Step 2 : The Open window appears.

Step3 : Select the file you want to open from here.

The save file will open.

EXITING QBASIC



To Exit from QBASIC

- Click on File menu > Exit.

The QBASIC window will close.

ELEMENTS OF QBASIC PROGRAMMING LANGUAGE

Like all programming languages, QBASIC is also made up of some basic elements. These elements construct the program written by us in QBASIC. These elements are as follows :

1. The Character Set

It consists of :

(i) Alpahbets A, B.. Z, a, b, c,.....z.

(ii) Number 0-9.

(iii) Special symbols like +,-,/,*,( ), etc.

2. Constants

These are the data value used in a BASIC program. Constants cannot be changed and remain the same during the entire program execution.

Constants can be either Numeric or String type.

(i) Numeric constants can be positive, negative and can even have decimal points. For example, 3, 73, -56, 3.7 etc.

(ii) String constants or alphanumeric constants are enclosed within double quotes and

can be made up of letters, digits, special characters and blank spaces. For example, "Meghna", "D 311 Nehru Nagar".

3. Variables

It is a name given to a memory location that contains a value. The value stored in a variable is not fixed and can change during program execution.

Variables are of two types : Numeric and String.

(i) Numeric Variables : Numeric variables store numeric data. It's name can be formed by letters and digits. It should however always begin with an alphabet and should not contain any special characters or spaces. For example, (i) age = 30 (ii) mark1 = 73.6. Here age is a numeric variable which stores the constant value 30.

Some invalid variable names are– 1num, student-age, payamt.

(ii) String Variables : String variables are used to store a string of characters. String variable names should always end with a $ sign. For example, name$="Radha", items$="eraser".

Rules for giving variable names

While naming variables we must follow certain rules. These are :

- Both numeric and string variables must begin with alphabets.
- Variable names can contain numbers also but not at the starting position.
- The variable name must not have any space in between.
- Variable name must not contain any special characters.

4. Operators

Operators are used to perform various operations on constants or variables. For example, consider the operation 1+2.

Here 1 and 2 are constants and called the operands while + is the operator which is causing the 1 and 2 to be added.

QBASIC has three types of operators :

(i) Arithmetic Operators : These are used with numeric constants and variables. They are :

- + Addition
- – Subtraction
- * Multiplication
- / Division
- ^ Exponential

(ii) Relational Operators : These are used to compare two values. They are:

- >Greater than
- < Lesser than
- = Equal To
- >= Greater than equal to
- <= Lesser than equal to
- <> Not equal to

(iii) Logical Operators : These are used to combine two or more relational expressions which can then be evaluated to return a single value which will be either True or False. Logical operators are used in decision making statements. The logical operators are :

AND OR NOT

COMMANDS/STATEMENTS

Statements are those commands that are typed as program statements.

Some of these are as follows :

PRINT : The Print statement is used to display the output on the screen. The Print statement can display constants, variables or expressions on the screen.

Syntax : PRINT: <constants /variables/ expressions>

For example, PRINT "Let peace be everywhere"

PRINT 295

Press F5 to run the program.

To print a string always enclose it in double quotes but to print a number simply write the number after the PRINT statement without quotation marks.

```
PRINT "Gopal"
PRINT "Swaroop"
PRINT "Sharma"
```

Output :

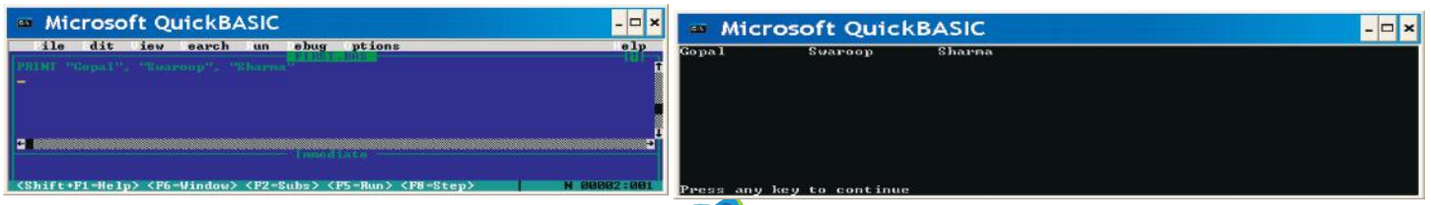
The Print statement can be used with a comma or semicolon. If you want to print the three words in a line, use a semicolon with Print.

USING SEMICOLON WITH PRINT

Using a semicolon with the Print command inserts a single blank space in between the words.

```
PRINT "Gopal"; "Swaroop"; "Sharma".
```

Output :



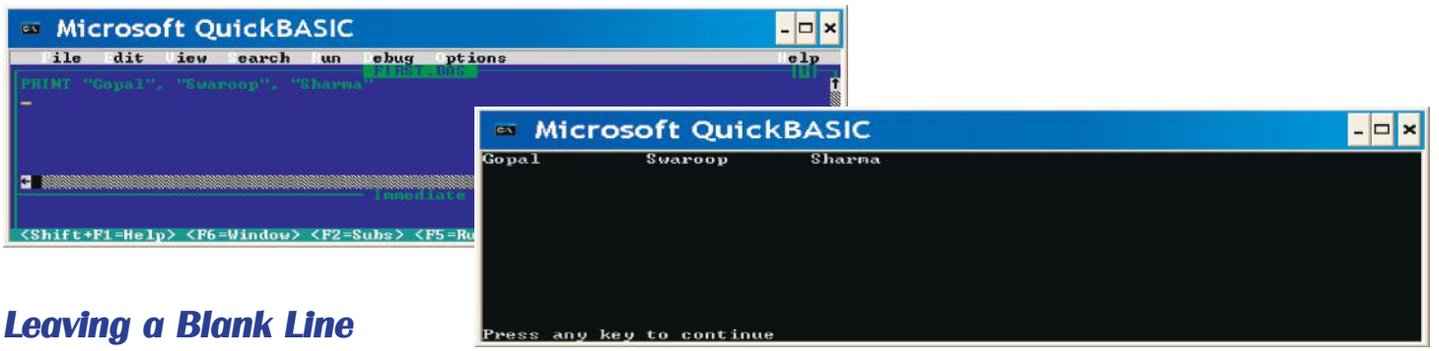
Using Comma with PRINT

A line on the QBASIC screen is separated into 5 zones, each with 14 spaces.

We can use commas to put our text in different zones of the line.

PRINT "Gopal", Swaroop"; "Sharma"

Output :



Leaving a Blank Line

To leave a blank line in between lines, the print statement can be given without any data or variable.

PRINT "Gopal"

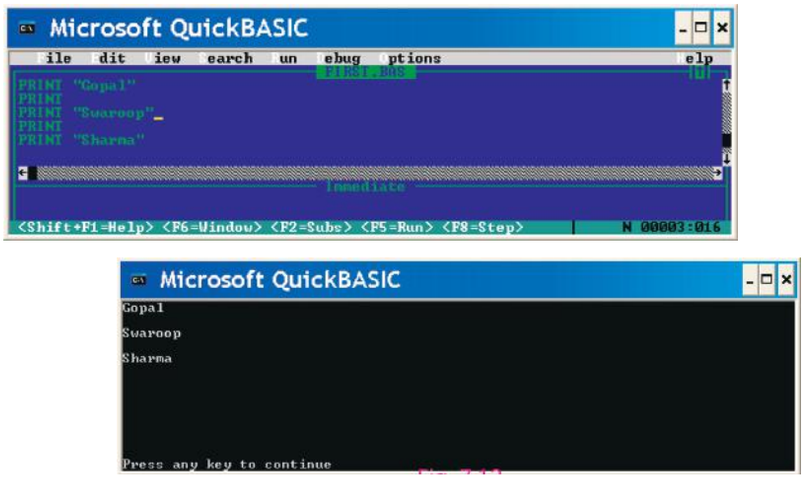
PRINT

PRINT "Swaroop"

PRINT

PRINT "Sharma"

Output : Fig. (7.12)



CALCULATIONS WITH PRINT

We can use the Print command to do calculations like addition, subtraction, multiplication and division.

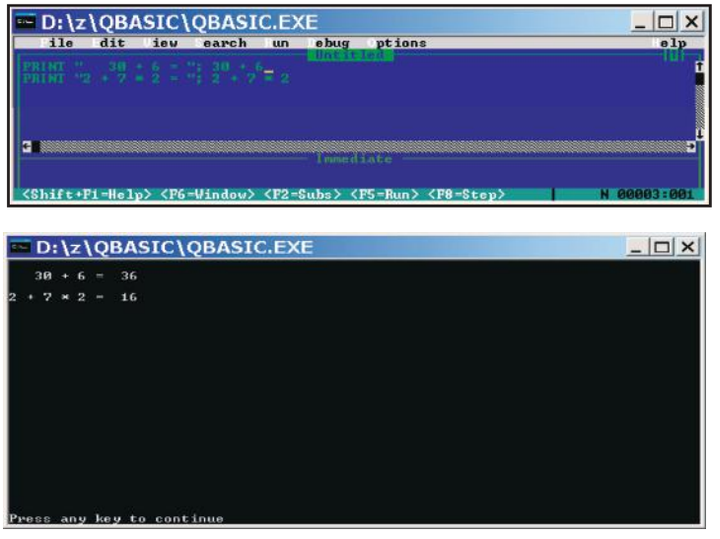
For this we use the arithmetic operators.

+, –, *, /,

PRINT 30 + 6 → 36

PRINT 2 + 7 * 2 → 16

Output :



END STATEMENT

Every program must have an END statement which is written as the last statement in every program. The END statement is used to terminate or end the program.

Syntax : line no. END

For example : 30 END

INPUT STATEMENT

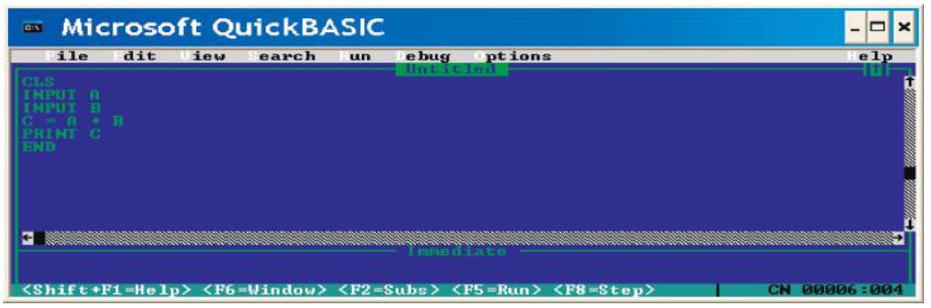
The Input statement allows us to enter values into the computer's memory at run time i.e. while the program is being executed.

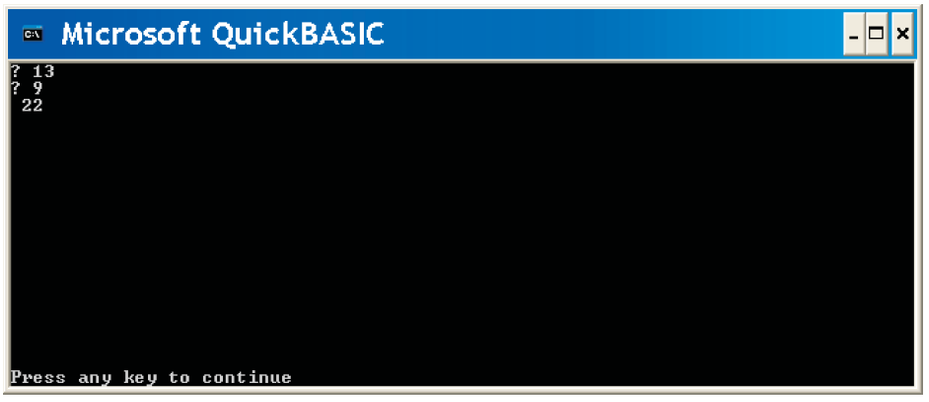
Syntax

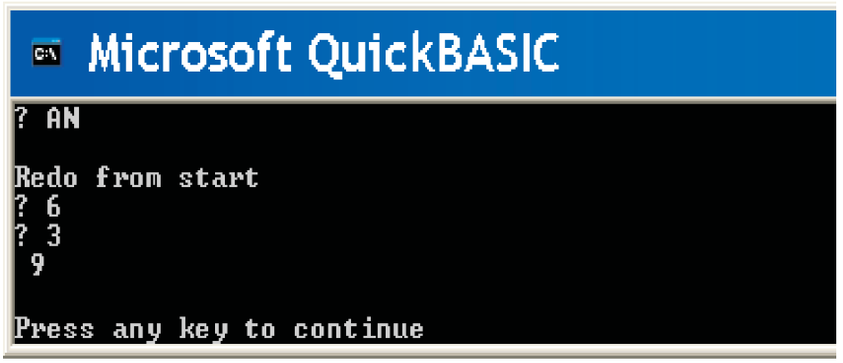
INPUT <variable>

Example

Output :



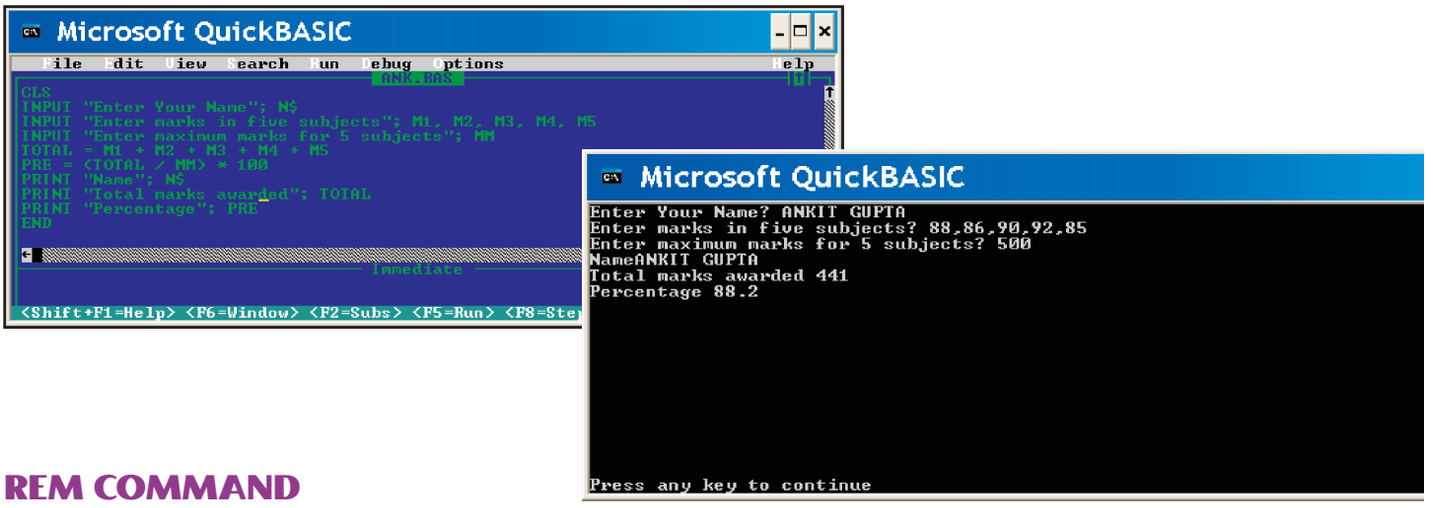




When we run the program the computer will display a ? on the screen. It will wait for the user to input the value. The program will continue to run only after the user's response. The data entered by the user must be as required by the variable. If the user enters the wrong data, an error message "Redo from Start" will be displayed and the user is allowed to enter the data again.

Input statement also allows displaying a message to make the program user friendly and to guide the user to enter correct data. You can also enter multiple data and multiple variables in one INPUT statement. In that case the variables must be separated by a comma and the data entered must also be separated by a comma.

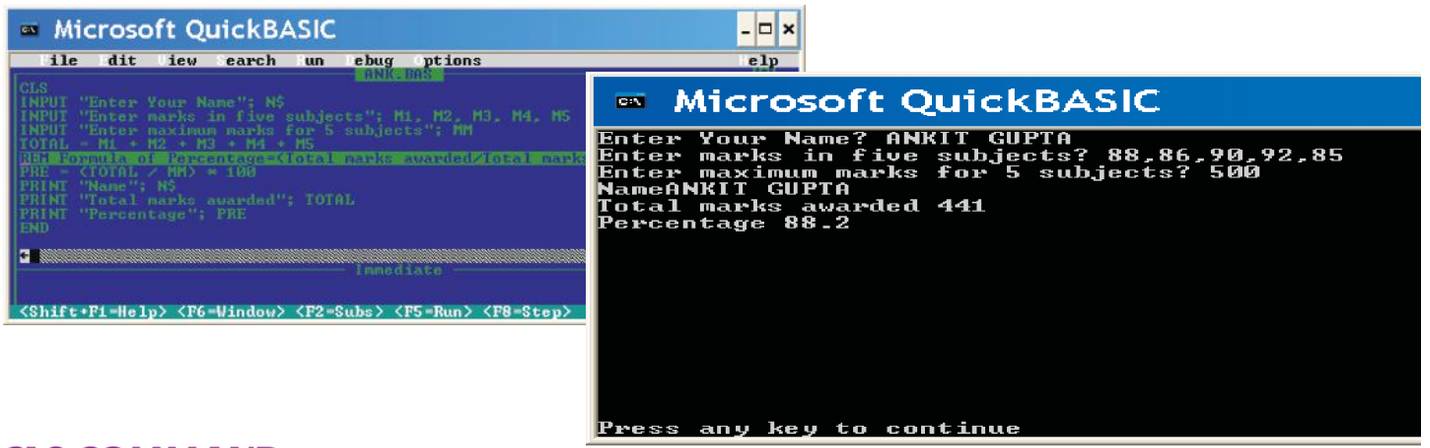
Given below is a program to print the percentage scored by a student.



REM COMMAND

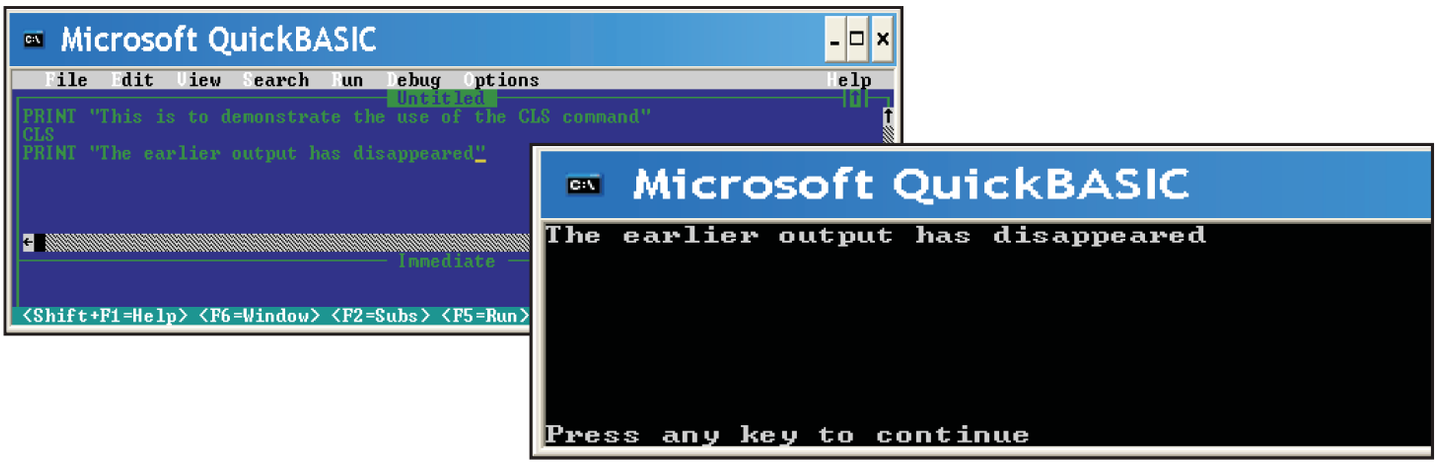
REM command is used to put a comment line in your program. It is like a program heading. This line is ignored by the interpreter QBASIC and is not considered as an instruction.

This is a program to display your report card.



CLS COMMAND

It is a command used to clear the output screen. When we run a program containing CLS command, it clears the output screen (Fig. 7.18).



Example : • REM program to enter the radius of a circle and print the area (Fig. 7.19).

• REM program to print the area of a rectangle (Fig. 7.20).

Points to Remember

- QBASIC is a variant of the BASIC programming language.
- QBASIC language can be used to write programs to instruct the computer to do various tasks.
- Constants are the data values used in a BASIC program.
- Values are of two types–Numeric and String.
- The END statement is used to terminate or end the program.

EXERCISE

A. Tick (✓) the correct option :

1. This statement is used to terminate or end the program.

   (a) Input ☐ (b) END ☐ (c) CLS ☐

2. This command is used to clear the output screen.

   (a) REM ☐ (b) END ☐ (c) CLS ☐

3. This command is like a program heading.

(a) INPUT ☐ (b) REM ☐ (c) END ☐

4. A line on the QBASIC screen is separated into _____.

(a) 2 zones ☐ (b) 5 zones ☐ (c) 7 zones ☐

5. This variable are used to store a string of character.

(a) Numeric ☐ (b) String ☐ (c) Constants ☐

B. Fill in the blank :

1. _____ are the data values used in a BASIC program.
2. _____ is a version of BASIC.
3. AND/OR are the _____ operators.
4. _____ variable store numeric data.

C. Answer the following questions :

1. What do you understand by QBASIC ?
2. Why is QBASIC environment called an IDE ?
3. What are constants ? How many types of constants are there ?
4. What are variables? Describe its kinds also.
5. For what do we use QBASIC ?
6. Write the steps to save the program file.
7. State the use of logical operators.
8. What is Input statement ?

ACTIVITY

- Write a program to calculate the cost of cementing the wall and floor of a room when the dimensions of the room are provided by the user at the RUN time.