

Routine Matters

Programs within programs: we introduce a new feature of Basic that will keep your programs neat and manageable

In previous instalments of our Basic Programming course we have typed in programs, run them, made modifications to them and then cleared the memory (using the NEW command) when we wanted to enter new programs. When we have needed to run the old program again, it has been necessary to type the whole thing in again.

To save this repetitious work, all versions of BASIC are provided with a command that allows any program to be stored on cassette tape. The program below can be saved on tape by using the simple command SAVE followed by a file name. The program calculates the number of tiles needed to tile a room.

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10 REM THIS PROGRAM CALCULATES THE
    NUMBER OF TILES
20 REM NEEDED TO TILE A ROOM
30 PRINT "ENTER SIDE OF TILE IN MM"
40 INPUT A1
45 LET T=0
50 REM LINE 60 FINDS AREA OF TILE
60 LET A2 = A1 * A1
70 PRINT "ENTER THE NUMBER OF WALLS"
80 REM W SETS LIMIT FOR LOOP
90 INPUT W
100 FOR X = 1 TO W
110 PRINT "LENGTH OF WALL NO.:", X; "IN METRES"
120 REM D IS DIMENSION OF WALL
130 INPUT D
140 REM IT IS CONVERTED TO MM
150 REM IN THE SUBROUTINE
160 GOSUB 380
170 REM LINE 190 SETS L TO
180 REM LENGTH OF WALL IN MM
190 LET L = D2
200 PRINT "HEIGHT OF WALL NO.:", X; "IN METRES"
210 REM LINES 230 TO 250 SET H
220 REM TO HEIGHT OF WALL IN MM
230 INPUT D
240 GOSUB 380
250 LET H = D2
260 REM LINE 270 SETS A3 TO AREA OF WALL
270 LET A3 = L * H
280 REM S (SUB-TOTAL) IS AREA OF WALL DIVIDED
290 REM BY AREA OF TILE
300 LET S = A3/A2
310 REM T (TOTAL) HAS THE NEW SUB-TOTAL
320 REM ADDED EACH TIME THRU THE LOOP
330 LET T = T + S
340 NEXT X
350 REM PRINT THE TOTAL
360 PRINT T

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370 END
380 LET D2 = D*1000
390 RETURN

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Having typed in the program, all you need to do to save it on cassette tape is to use the SAVE command. First, of course, the cassette recorder must be set up in accordance with the instructions in your computer's handbook. The SAVE command is extremely easy to use. Just type SAVE followed by a file name in double quotation marks. A file name is the name given to a file, and a file, in computer terms, is like a file in a filing cabinet — a program or set of data that can be stored away or retrieved when required. It is best to use a file name that will remind you of the function of the program. Since our program calculates the number of tiles needed to tile a room, we could call it "TILES". Once the cassette recorder is set up, insert a blank tape to hold the program.

Cassette decks with a remote control socket can usually have the motor controlled directly by the computer. Otherwise, set the recorder in the record mode and then put it in the pause mode. Type in the SAVE command, including the file name. Set the recorder running by releasing the pause control and then hit RETURN.

