SHORT COMMUNICATION

PROGRAMME FOR DRAWING LINE GRAPHS ON IBM PERSONAL COMPUTERS

N. ANANDHKUMAR AND A. NAMASIVAYAM*

*Department of Physiology,
Dr. A.L.M. PG. Institute of Basic Medical Sciences,
University of Madras, Taramani, Madras - 600 113*

Abstract : A simple program for drawing line graphs on IBM Personal Computers is described here. This program is written in Basic language and is user friendly. This program allows the operator to plot the line graphs with standard error of each of the observations. After plotting suitable legend can also be added at appropriate places in the graph. In the graphic mode a hard copy can be obtained from a dot matrix printer using print screen command.

Key words :   basic program for line graphs   line graphs on IBM PC

Line graphs are one of the commonest methods by which scientific data is presented both in publications and during conferences. We have developed a simple computer program to do this job more efficiently & conveniently than manual methods. Although several commercial software packages have this facility, only few, plot the standard deviation/error in the graph. Keeping this in mind a user friendly program was developed in this department and has been used successfully for the past four years.

The listing of the program is given below :

```
10   'LINE GRAPH BY N. ANANDH KUMAR
     & A. NAMASIVAYAM 21.10.88'

11   'DEVELOPED IN THE DEPARTMENT OF
     PHYSIOLOGY, DR. ALM. PGIBMS'

12   'UNIVERSITY OF MADRAS, TARAMANI,
     MADRAS-600 113, INDIA'

20   KEY OFF : SCREEN 2 : CLS

30   PRINT    "- - - - LINE-GRAPH- - - "

40   INPUT" NO. OF DIVISIONS OF Y-AXIS";
     YD

50   INPUT" STARTING VALUE OF Y-AXIS";
     YS

60   INPUT" ENDING VALUE OF Y-AXIS"; YE

70   PRINT

80   INPUT" NO. OF DIVISIONS OF X-AXIS";
     XD

90   INPUT" STARTING VALUE OF OF
     X-AXIS"; XS

100  INPUT" ENDING VALUE OF X-AXIS"; XE

110  PRINT

120  INPUT "NO. OF POINTS"; NP

130  INPUT "NO. OF GRAPHS"; NG

140  CLS: SCREEN 2

150  LINE (60, 170) – (580, 170)

160  LINE (60, 170) – (60, 20)

170  YZ = 150/YD : XZ = 520/XD

180  FOR A = 170 TO 20 STEP - YZ

190  LINE (60, A) – (54, A) : NEXT

200  FOR A = 60 TO 580 STEP - XZ

210  LINE (A, 170) – (A, 174) : NEXT

220  XM = XE – XS : YM = YE – YS

230  YN = 150/YM : XN = 520/XM

240  FOR G = 1 TO NG
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*Corresponding Author

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250     BEEP : LOCATE 1,1 : PRINT" GRAPH"; G
260     XX = 0 : YY = 0 : AS = 0
270     FOR I = 1 TO NP
280     LOCATE 2, 1 : PRINT SPACE$ (80)
290     LOCATE 2, 1 : INPUT "X, Y, SE"; X, Y,
        SE
300     QW = X* XN : RT = Y* YN
310     ER = SE* YN : TR = 170 –   RT : WQ = 60
        + QW
320     AS = AS + 1 : IF AS = 1 THEN 340
330     LINE (XX, YY) – WQ, TR)
340     XX = WQ : YY = TR
350     LINE (WQ, TR – ER) – (WQ, TR + ER)
360     LINE (WQ – 2, TR – ER) – (WQ + 2, TR –
        ER)
370     LINE (WQ – 2, TR + ER) – (WQ + 2, TR +
        ER)
380     NEXT I
390     NEXT G
```

The program is used as follows : If you have a PC-XT load the program in the hard disk in Basica Directory and save with a name (Linegraph). If you have only a PC with two floppy drives, start the computer with DOS, load graphics in to memory, then load basica, and then load the program. Save the same with a name.

To use the program, go to Graphics mode from DOS, then load the program and run the same. The program will ask a series of questions to scale Y axis and X axis, followed by questions on number of points to be plotted and number of graphs to be plotted. Once these questions are answered, the computer will show the X & Y axes in the monitor and will ask you to input the data to be plotted. Give the X, Y & SE values with comma in between. As you are inputting the data, the computer will draw the appropriate lines which can be seen in the monitor. When all the data has been loaded and the required graph is completed OK will appear on the screen. Once OK sign has appeared, move the cursor over the displayed test lines and erase them out using "Del" key. After the unnecessary lines are removed from the screen you are free to move the cursor to the appropriate locations in the screen type the caption, X & Y axes parameters and other relevant information.

When the graph is ready for printing, move the cursor to one corner of the screen and use print screen command (shift key & PRISC key pressed together) to get a hard copy from a dot matrix printer. An example of the graph plotted using the above program is shown in Fig. 1.
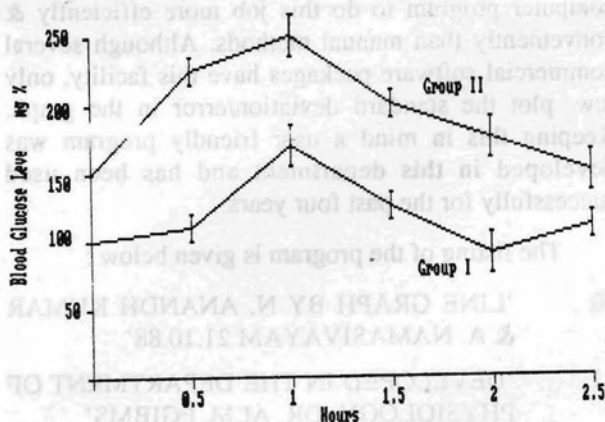

Fig. 1