RECOMP II USERS' PROGRAM NO. 1110

PROGRAM TITLE: LEAST SQUARES POLYNOMIAL APPROXIMATION
                         PROGRAM NO. 2

PROGRAM CLASSIFICATION: General

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PURPOSE: This program accepts up to 760 X-Y pairs
                          and computes the mean of the Y values.
                          It also computes the coefficients in the
                          zeroth, first, and second order polynomial
                          approximations to the curve defined by the
                          X-Y points. In addition, for each of these
                          polynomials, the standard deviation is
                          computed.

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Y values. It also computes the coefficients in the zeroth, first, and
second order polynomial approximations to the curve defined by the X-Y
points. In addition, for each of these polynomials, the standard deviation
is computed.

Instructions for use:

(1) Enter the least squares #2 tape.

(2) Press "Start 1". The computer will print out "N".
     Type the number of X-Y pairs that you will enter as a
     three digit number, such as 021.

(3) You may now enter the X-Y pairs as the computer asks,
     for them. Order of entry is immaterial. Entry is
     via the typewriter using any of the following formats:

                      85.32 may be entered as

     (a) 85.32   (carriage return)
     (b) +85.32   (carriage return)
     (c) +.8532+2   (carriage return)
     (d) +8.532+1   (carriage return)
     (e) +8532-2   (carriage return)
     (The carriage return may be replaced by a space or tab
     if desired.)

(4) In case an error is made on type-in, correction may be
     accomplished (before the carriage return is typed on
     "Y") by pressing "error reset", then pressing "Start 2"
     with sense switch "B" on.

(5) At the conclusion of data entry, "N" is entered again,
     this time as a number, as in (3) above, for example,
     21 (carriage return).

(6) In case an error is discovered after all data has been
     entered, press "Start 2" with all sense switches off.
     After the computer types "Error?", you may type the
     number of the X-Y pair in error. Type as a three digit
     number, such as 012. Then enter the X and Y as they are
     asked for. This procedure may be repeated as many times
     as necessary to correct all errors.

(7) After all corrections have been made, press "Start 3".
     Answers will be printed out and identified.

(8) The program is self-restoring, and may be used repeatedly
     without re-entering the program tape.

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(9)   Timing: Approximately $1.27N + 11.2$ seconds
      excluding input/output.

(10) The program occupies:

$$\left\{ \begin{array}{l} 0000 - 0700 \\ 7500 - 7531 \end{array} \right\} \quad \text{Program}$$

1000 - 1177   AN-007.1
1200 - 1437   AN-014