516 - 71 IIL 2/8/73

FSNAP Debugging Aids

Some new features have been added to the FSNAP programming language to give one greater flexibility in debugging an FSNAP program. It is now possible to "break", "trap", or "stop" a program in execution. A program may be resumed in execution after either a "break" or a "trap". A "break" in a program may be achieved by hitting the "break" or "interrupt" key on a terminal while the program is computing or typing out text. If the "break" occurs while type out is taking place, the current TYPE statement will be completed before breaking out of execution. A "trap" is 'achieved by executing a STOP instruction in a program after checking for the condition at which a trap is to occur. After a "brick" or "trap" the values of the variables may be examined by means of the P command at the FSNAP- level. Now one has the option of modifying variables by means of the M command and then typing in assignments such as:

VARl = 24.7VAR2 = 40etc.

Execution of the program may now be resumed by means of the R command with an optional format specification if desired. A "stop" in a program is achieved by explicit use of a STOP instruction in the program or by means of an implied STOP at the end of the program. One may resume after a STOP statement only if STOP does not occur at the end of the program. Examples of the uses of these new features are as indicated on the next page.

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:1516 TSS

```
PWD? HL
```

SYS? F. TEST

FSNAP- 'E

```
*EDIT
P1,99
                                            TOTAL SUM"!
                    SUM SINSO
                                 SUM COSSO
            I
  1 1YPE "
 2 FØR I=1,20
  3 SMSN=0; SMCS=0
  4 FØR J=1,20
  5 SMSN=SMSN+SIN(I/J)+2
  6 SMCS=SMCS+C0S(I/J)+2
 7 NEX1 J
 8 TYPE I, SMSN, SMCS, SMSN+SMCS!
  9 IF(I=10)ST0P
 10 NEXT I
 11 < EØF>
Х
FSNAP- G
             SUM SINSO SUM COSSO TOTAL SUM
      I
 0.9999999E+00 0.1277563E+01 0.1872241E+02 0.1999997E+
BREAK, AT 8
FSNAP- R, 89.4
                        17.1812 20.0000
                2.8188
     2.0000
                                  20.0000
                         16.35
     3.0000 3.6484
BREAK, AT 8
FSNAP- M
I=9
Х
FSNAP- R, 79.4
                          9.3044 20.0000
             10.6956
   10.0000
STOP, AT 9
FSNAP- P. 79.5
         10.00000
I
    =
SMSN =
         10.69559
SMCS =
          9.30433
J =
         20.00000
FSNAP- M
M= 4
??
I=19
X
FSNAP- R. 29.5
                         6 • 43256
                                   19.99997
 20.00000 13.56742
```

. 5

S10P, AT 11