

LOOPING

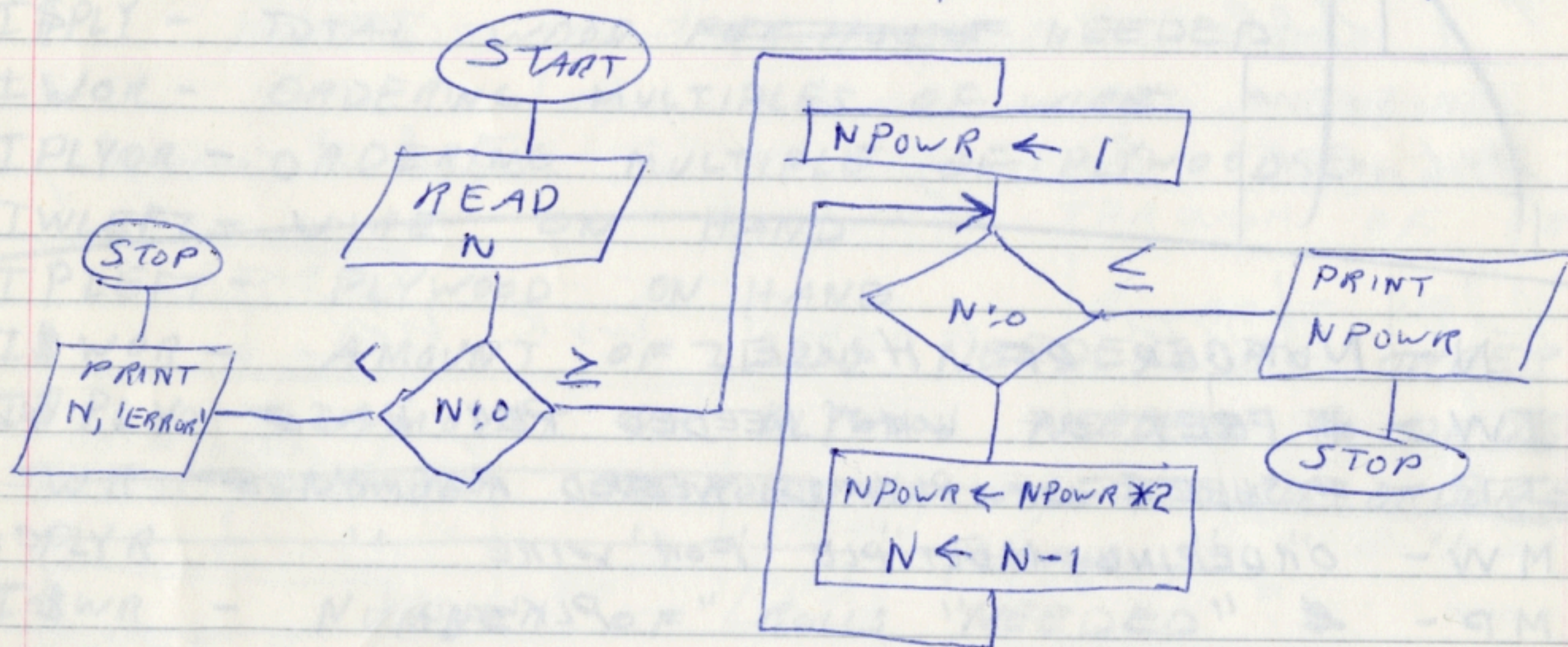
Repetitive loops

for the purpose of repeating a computation

Iterative loop

used as an integral part of computation

ex. compute 2^n by successive computation



TERMINATION METHODS :

END OF FILE

TRIP VALUE (PARTICULAR DATA USED TO SIGNAL STOP)

COUNTER

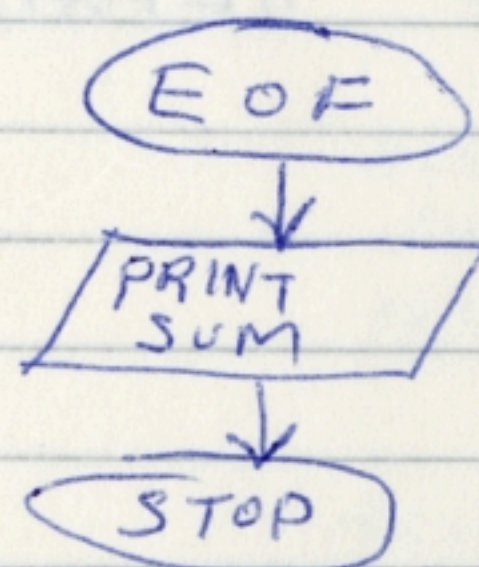
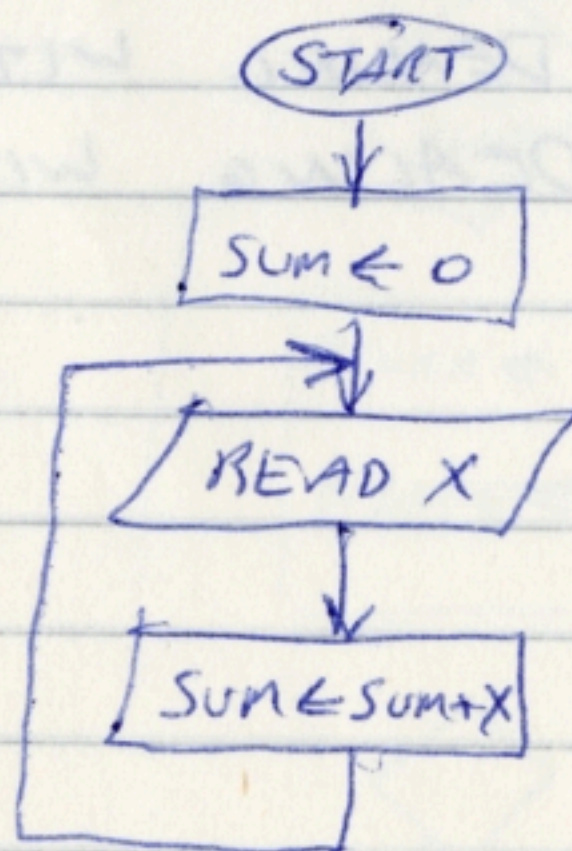
(USE A VARIABLE & INCREMENT IT
EACH TIME THROUGH UNTIL IT SIGNALS STOP)

COMPUTED VALUE

TRAPPED END OF FILE

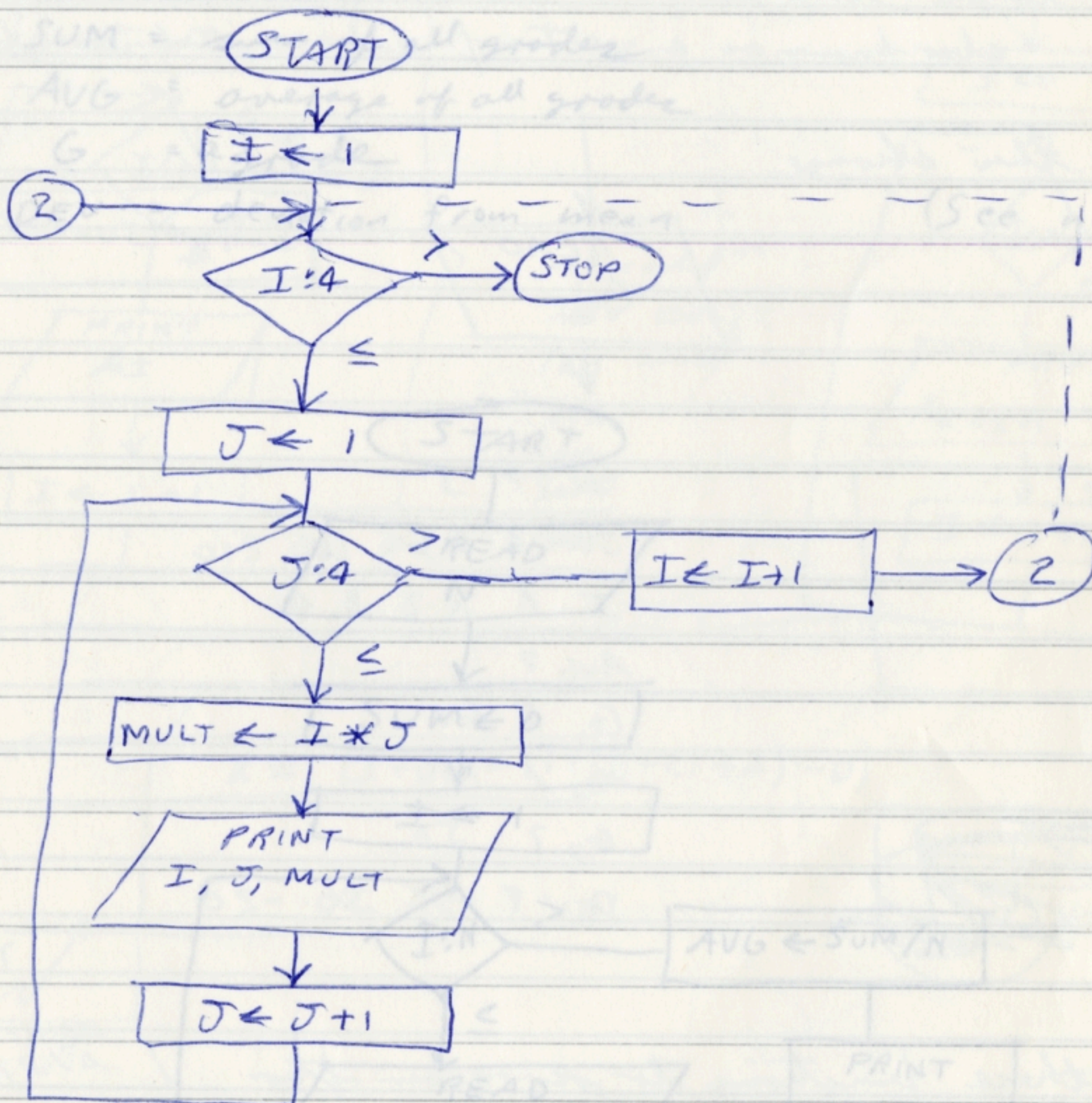
EX,

at end of
file, program
goes to
EOF



NESTED LOOP - a loop within a loop

SUPPOSE we want a multip. table
for 1 - 4



3
100
50

70

Sum X 60 160 210
I X X X X 4
AVG X 70
G X 100 50

EXAM TUE Dec 19

LOOPING

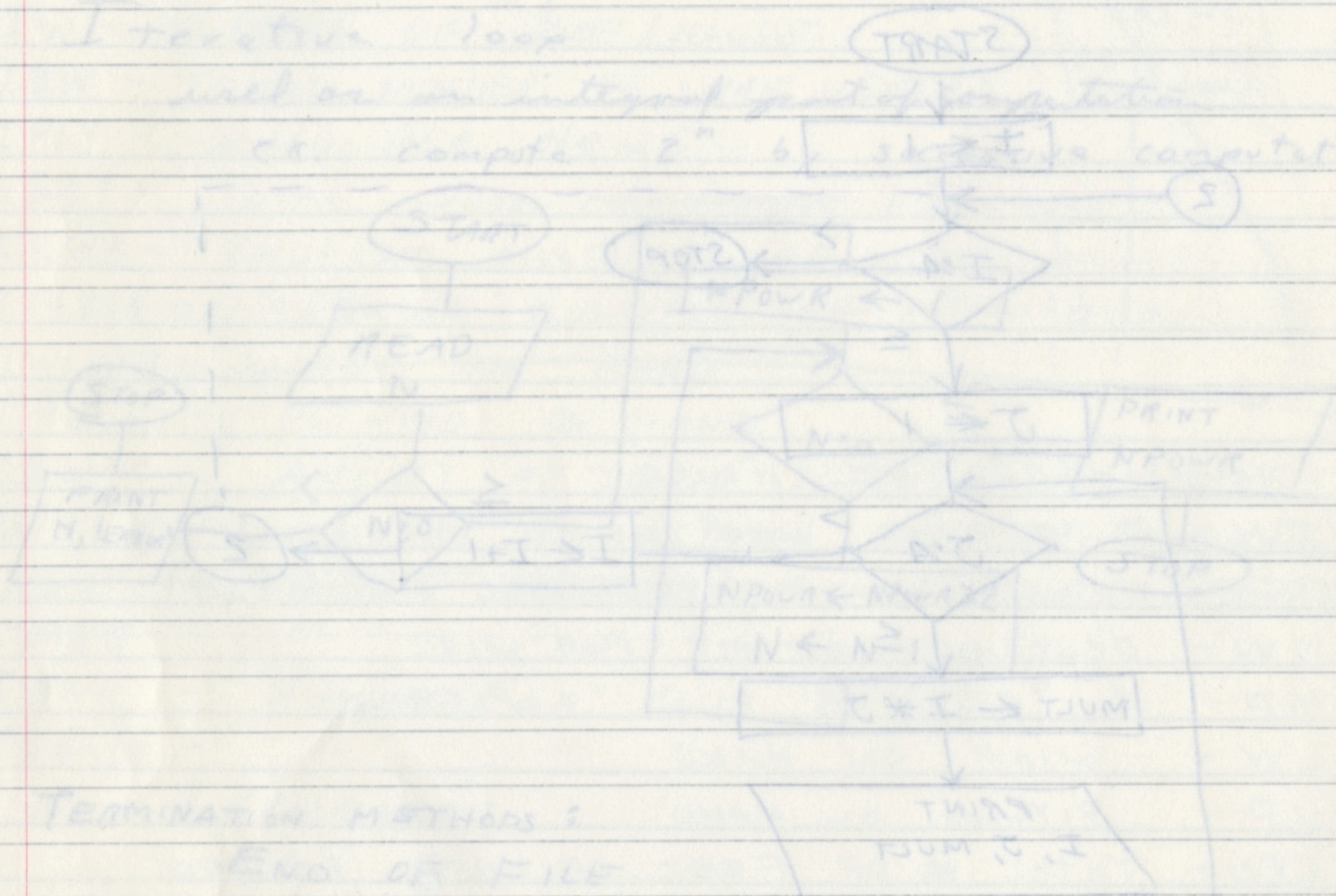
7:30 - 8:20

Rm 117 DFI

Iterative loop

used as an integral part of computation

ex. compute 2^n



TERMINATION METHODS:

END OF FILE

TRIP VALUE (PARTICULAR DATA USED TO SIGNAL STOP)

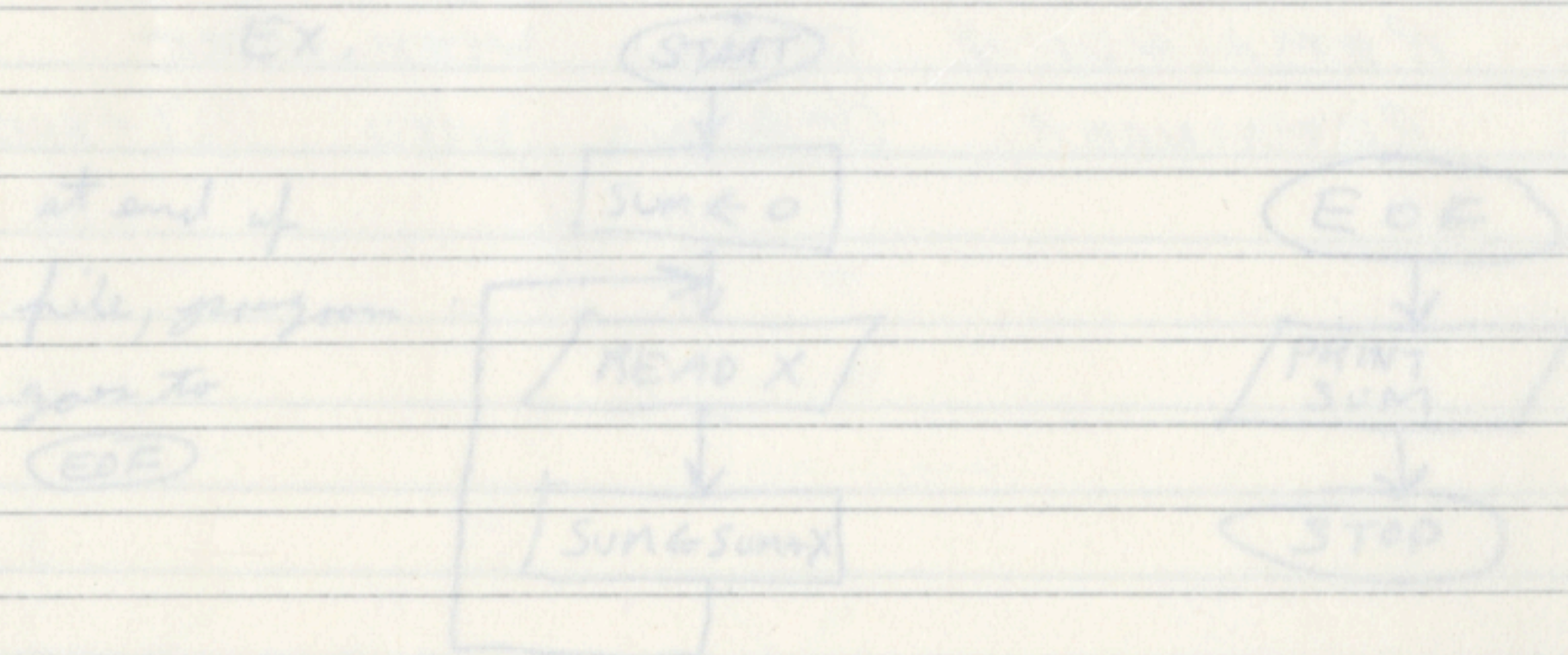
COUNTER (USE A VARIABLE TO INCREMENT 1)

EACH TIME THROUGH UNTIL IT REACHES STOP

COMPUTED VALUE

TRAPPED END OF FILE

EX.



ARRAYS

PROG: ~~read~~ ^{read} in grades and find average

N = No. of Grades

I = COUNTER

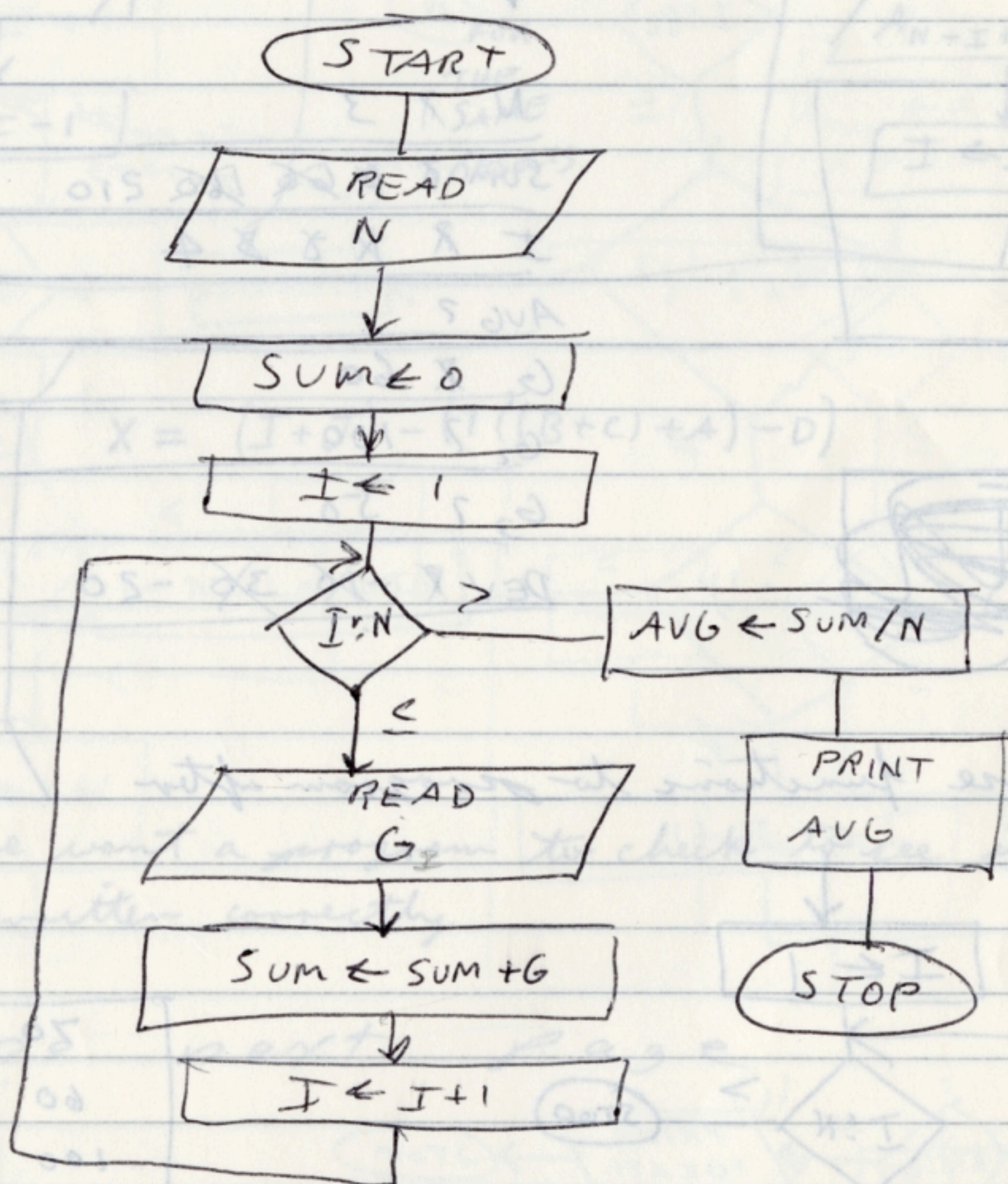
SUM = sum of all grades

AVG = average of all grades

G = a grade

DEV = deviation from mean

(See next page)



3
60
160
50

70

N	X	3
SUM	X	210
I	X	4
AVG	X	70
G	X	50

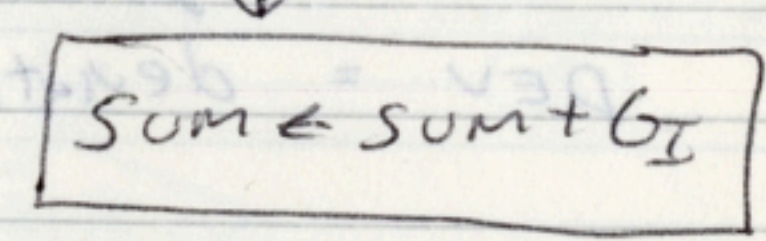
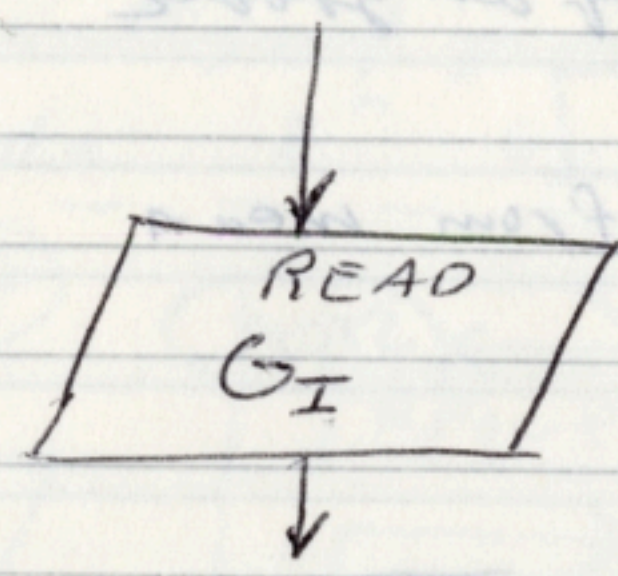
E X A M TUE Dec 19

INFO PART 1
ON 201 DUE 15TH
00440

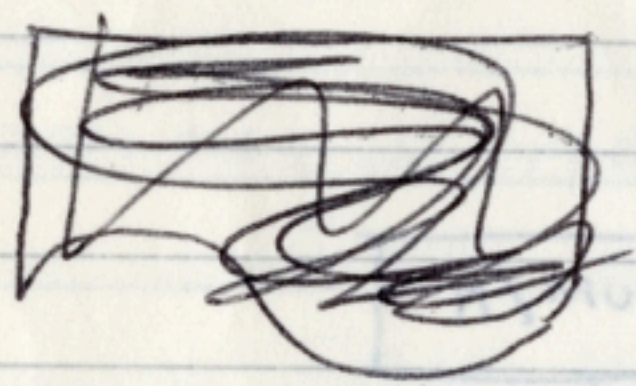
suppose that in addition to this, we wish to print out each student's grade and the deviation from the average

To do this we must use an ARRAY - I also know as a vector of subscripted variables

make this change

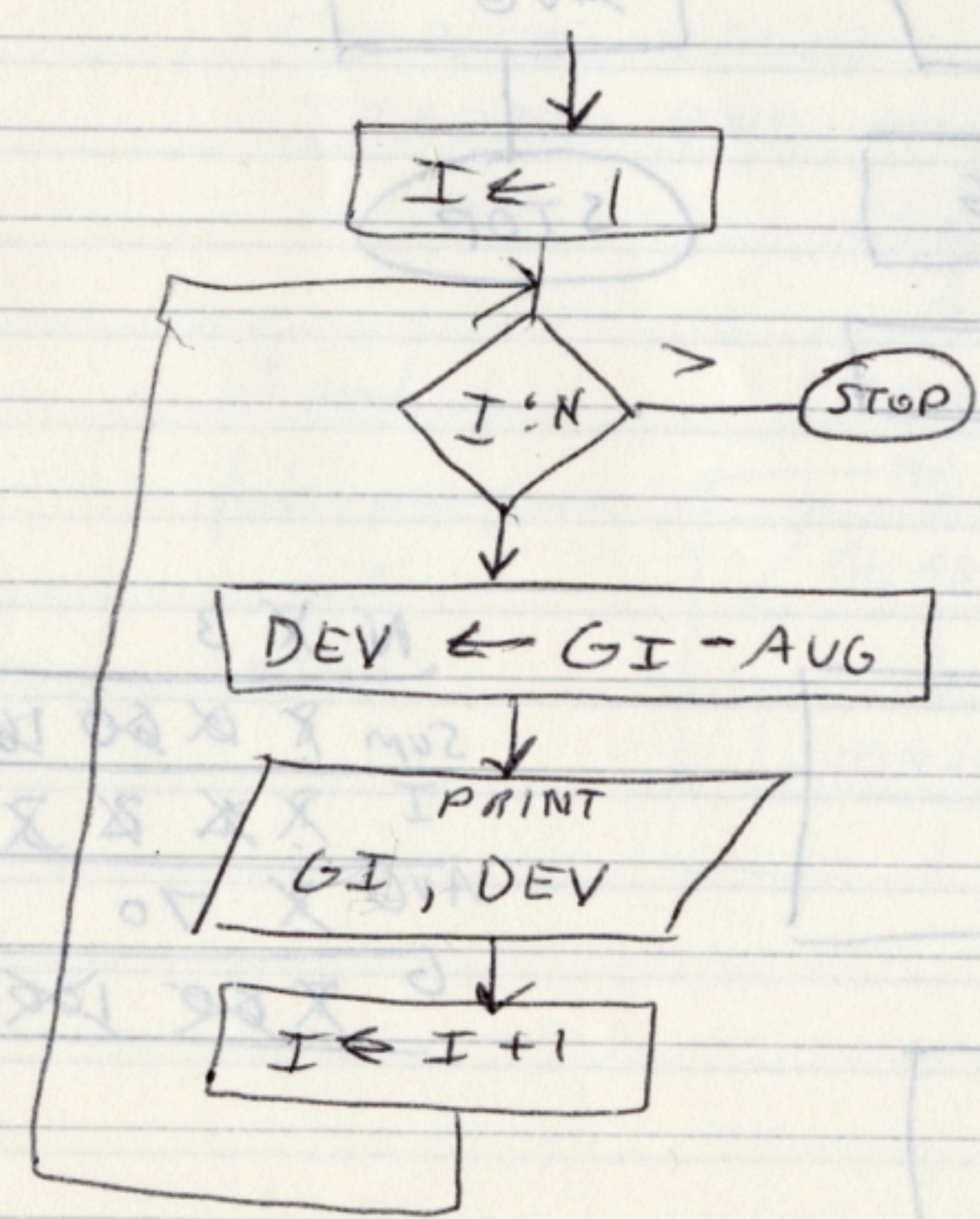
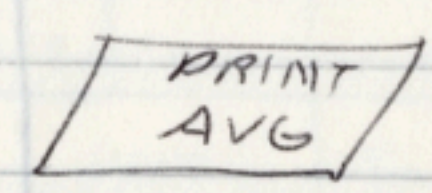


3
60
100
50



START
N X 3
Sum X ~~60~~ 160 210
I X ~~3~~ 4
AVG ?
G₁ X 60
G₂ ? 100
G₃ ? 50
DEV X ~~-10~~ 30 -20

add these functions to program after

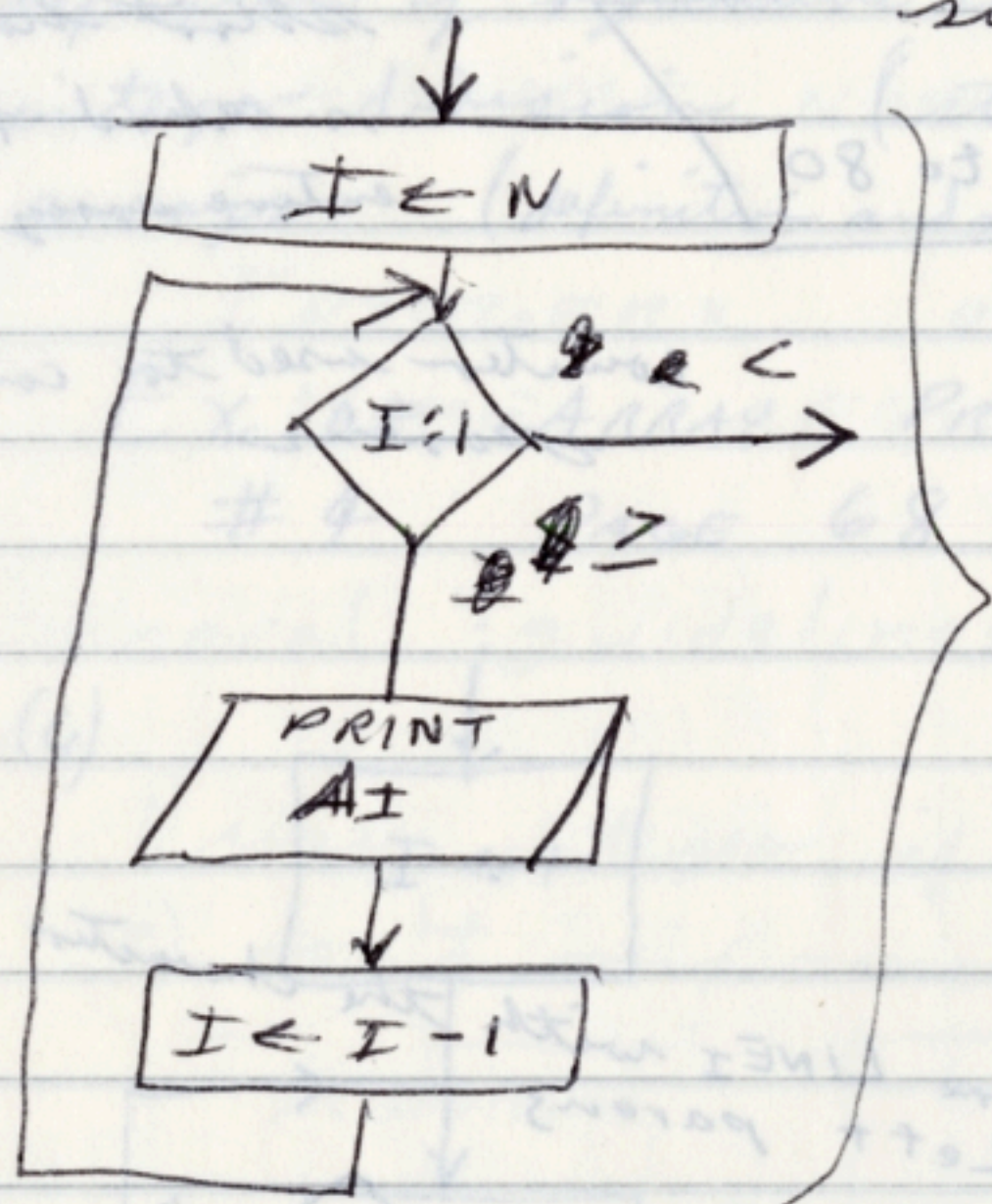


70	
60	-10
100	30
50	-20

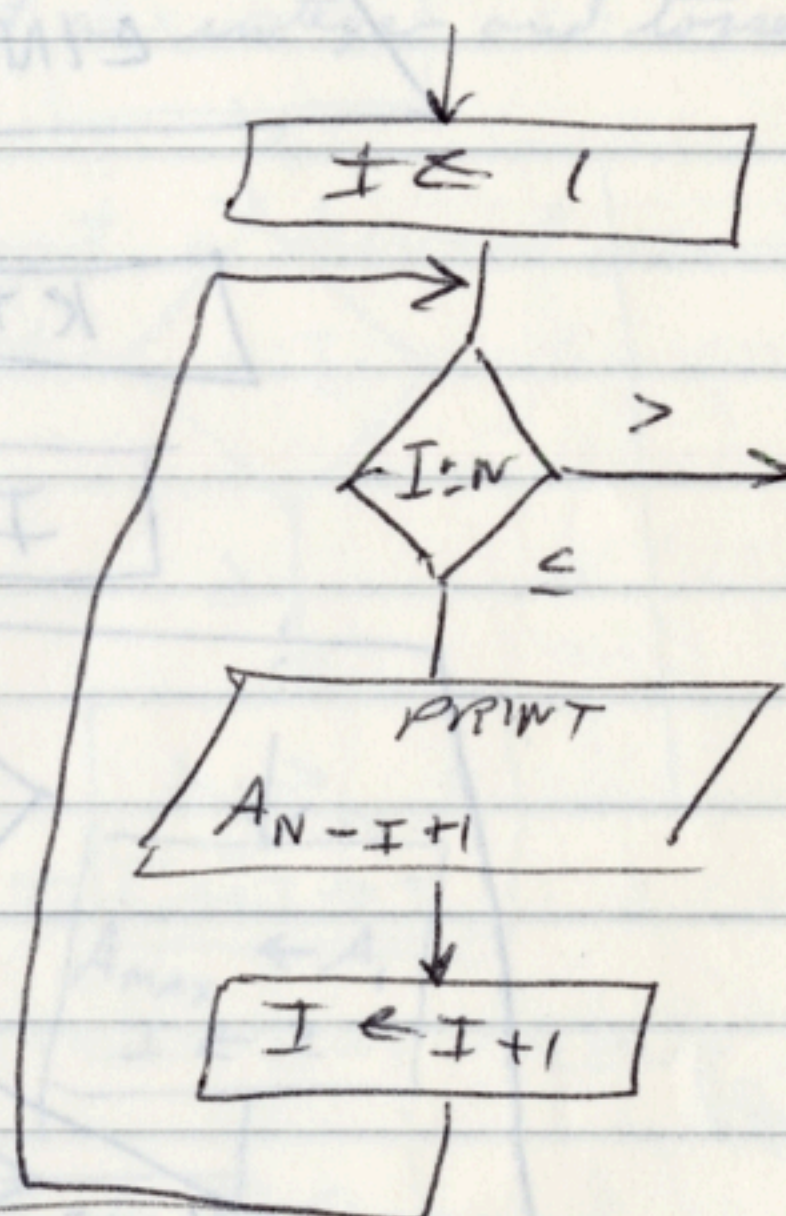
FOR MEMORY OF DEV, SEE ABOVE

Let us look at a partial program and assume that there is an array, A , in memory

suppose we want to print out A backwards



we could
also use
this →
for
the
same
results



MUST
HAVE SAME
NUMBER
OF LEFT
PARENS
AS RIGHT
PARENS
PARENS
MUST MATCH UP

$$X = (I+J) - (1((B+C)+A)-D)$$

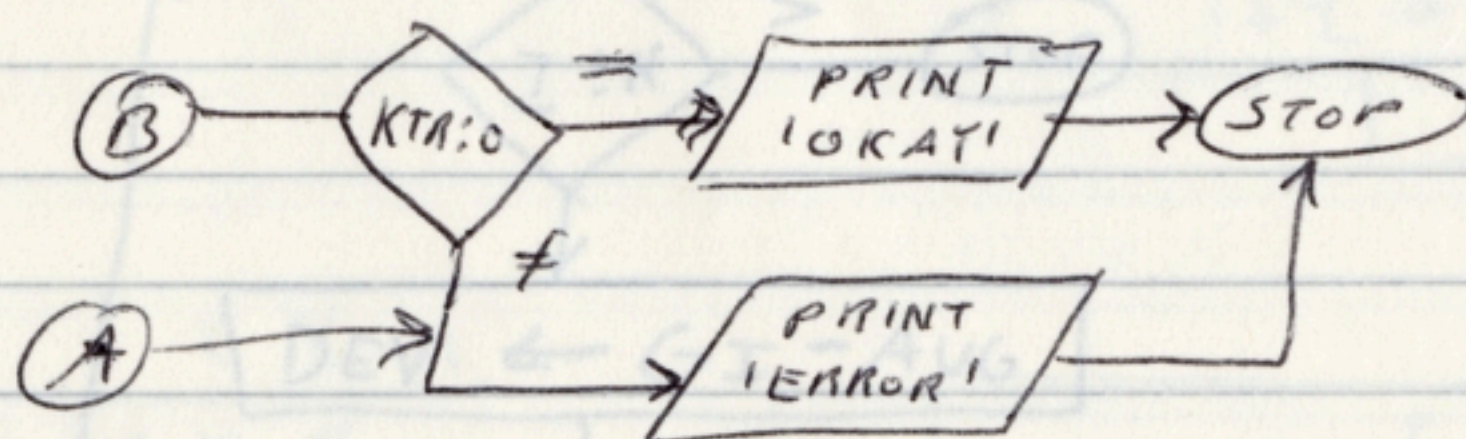
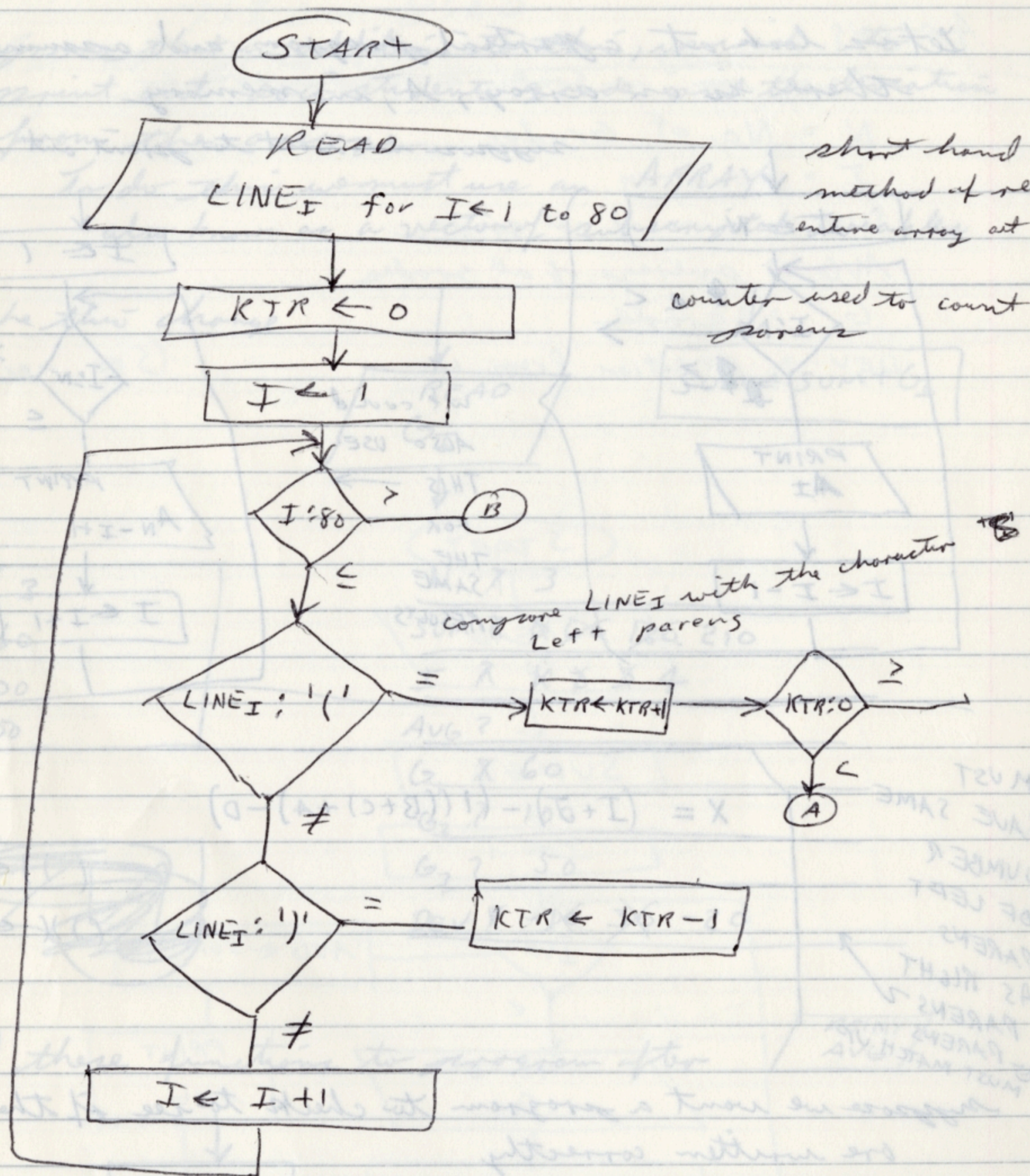
$()) \leftarrow$ error

$()) (\leftarrow$ error

NOTE: SAME #
OF PARENS
BUT DON'T
MATCH UP

suppose we want a program to check to see if the parens
are written correctly

See next page



5 termination method; (c.o.f., trapped c.o.f., counter, try, etc)

definition of repetitive and iterative loops

arrays (definition and manipulation)

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