

IDENTIFICATION DIVISION.

PROGRAM-ID. ANNUITY.

DATA DIVISION.

WORKING-STORAGE SECTION.

*COMPUTER DIED...NEED TO WORK ON VALIDATING THE INPUT 10/03/2025

01 TOTAL-LOAN PIC 9(9)V99 VALUE 100000.

01 INTEREST-RATE PIC 999V99 VALUE 0.05. *> INTEREST OF 5%

01 INTEREST-RATEP PIC 999V99 VALUE ZERO.

01 MONTHS PIC 999 VALUE ZERO.

01 YEARS PIC 999 VALUE ZERO.

01 MONTHLY-PAYMENT PIC 9(9)V99 .

01 COUNTER PIC 999 VALUE ZERO.

***** INPUT VARIABLES TO TEST IF VALID*****

01 TOTAL-LOAN-INPUT PIC X(15) VALUE SPACE.

01 INTEREST-RATE-INPUT PIC X(15) VALUE SPACE.

01 INTEREST-RATEP-INPUT PIC X(15) VALUE SPACE.

01 YEAR-INPUT PIC X(15) VALUE SPACE.

01 VALID-INPUT PIC X(01) VALUE 'N'.

88 VALID-INPUT-RECEIVED VALUE 'Y'.

88 INVALID-INPUT-RECEIVED VALUE 'N'.

01 TEMP-VARIABLE-STORAGE.

05 TEST-INPUT PIC X(15) VALUE SPACE.

*****DISPLAY VARIABLES*****

01 DISPLAY-TOTAL-LOAN PIC Z(9).99.

01 DISPLAY-INTEREST-RATE PIC ZZZ.99.

01 DISPLAY-INTEREST-RATEP PIC ZZZ.

01 DISPLAY-INTEREST-PERCENT PIC X(8).
01 DISPLAY-MONTHLY-PAYMENT PIC Z(9).99.
01 DISPLAY-YEAR-INPUT PIC XXX.

PROCEDURE DIVISION.

ACCEPTING THE USER RESPONSE FOR VARIABLES**

DISPLAY "WHATS THE TOTAL LOAN?".

- * DOES NOT WORK FOR DECIMAL POINT INPUTS ATM (E.X: 100.00)
 - * PERFORM WITH TEST AFTER UNTIL VALID-INPUT-RECEIVED
- PERFORM 000-VALIDATE-INPUT.

IF VALID-INPUT-RECEIVED THEN

- COMPUTE TOTAL-LOAN = FUNCTION NUMVAL(TOTAL-LOAN-
 - INPUT)
 - MOVE TOTAL-LOAN TO DISPLAY-TOTAL-LOAN
- END-IF.

DISPLAY "WHATS THE INTEREST RATE(E.X: 0.05)".

PERFORM 001-VALIDATE-INTEREST-INPUT.

IF VALID-INPUT-RECEIVED THEN

- COMPUTE INTEREST-RATE = FUNCTION NUMVAL(INTEREST-RATE-
 - INPUT)
 - MOVE INTEREST-RATE TO DISPLAY-INTEREST-RATE
- END-IF.

MOVE INTEREST-RATE TO DISPLAY-INTEREST-RATE.

DISPLAY "ENTER THE YEARS:".

PERFORM 002-VALIDATE-YEAR-INPUT.

IF VALID-INPUT-RECEIVED THEN

 COMPUTE YEARS = FUNCTION NUMVAL-C(YEAR-INPUT)

 MOVE YEAR-INPUT TO DISPLAY-YEAR-INPUT

END-IF.

MOVE INTEREST-RATEP TO DISPLAY-INTEREST-RATEP.

MOVE DISPLAY-INTEREST-RATEP TO DISPLAY-

- INTEREST-PERCENT.

*****DISPLAYING THE INPUT VALUES TO ENSURE ITS ACCEPTED*****

 COMPUTE INTEREST-RATEP = INTEREST-RATE * 100.

 MOVE INTEREST-RATEP TO DISPLAY-INTEREST-RATEP.

 DISPLAY 'TOTAL-LOAN: ' DISPLAY-TOTAL-LOAN ' USD - INTEREST-

- 'RATE: ' DISPLAY-INTEREST-RATEP '%'.
 DISPLAY ' Y M AMOUNT '

 DISPLAY '--- --- -----'

PERFORM 003-CALCULATE-ANNUITY.

* ACCEPT OMITTED

GOBACK.

*****EVALUATE INPUT PARAGRAPH*****

000-VALIDATE-INPUT.

INITIALIZE VALID-INPUT.

PERFORM WITH TEST AFTER UNTIL VALID-INPUT-RECEIVED

ACCEPT TOTAL-LOAN-INPUT

* MOVE FUNCTION NUMVAL-C(TOTAL-LOAN-INPUT) TO TEST-INPUT

IF FUNCTION TEST-NUMVAL-C(TOTAL-LOAN-INPUT) = 0 THEN

SET VALID-INPUT-RECEIVED TO TRUE

ELSE

SET INVALID-INPUT-RECEIVED TO TRUE

DISPLAY "THIS IS NOT A NUMBER/VALID INPUT"

END-IF

END-PERFORM.

001-VALIDATE-INTEREST-INPUT.

INITIALIZE VALID-INPUT.

PERFORM WITH TEST AFTER UNTIL VALID-INPUT-RECEIVED

ACCEPT INTEREST-RATE-INPUT

* MOVE FUNCTION NUMVAL-C(TOTAL-LOAN-INPUT) TO TEST-INPUT

IF FUNCTION TEST-NUMVAL-C(INTEREST-RATE-INPUT) = 0 THEN

SET VALID-INPUT-RECEIVED TO TRUE

ELSE

SET INVALID-INPUT-RECEIVED TO TRUE

DISPLAY "THIS IS NOT A NUMBER/VALID INPUT"

END-IF

END-PERFORM.

002-VALIDATE-YEAR-INPUT.

INITIALIZE VALID-INPUT.

PERFORM WITH TEST AFTER UNTIL VALID-INPUT-RECEIVED

ACCEPT YEAR-INPUT

MOVE INTEREST-RATE-INPUT TO INTEREST-RATEP-INPUT

* MOVE FUNCTION NUMVAL-C(TOTAL-LOAN-INPUT) TO TEST-INPUT

IF FUNCTION TEST-NUMVAL-C(YEAR-INPUT) = 0 THEN

SET VALID-INPUT-RECEIVED TO TRUE

DISPLAY "YEAR IS VALID"

ELSE

SET INVALID-INPUT-RECEIVED TO TRUE

DISPLAY "THIS IS NOT A NUMBER/VALID INPUT"

END-IF

END-PERFORM.

003-CALCULATE-ANNUITY.

COMPUTE YEARS = FUNCTION NUMVAL-C(DISPLAY-YEAR-INPUT).

PERFORM VARYING COUNTER FROM 1 BY 1 UNTIL COUNTER > YEARS

COMPUTE MONTHS = COUNTER * 12

COMPUTE MONTHLY-PAYMENT = TOTAL-LOAN * FUNCTION ANNUITY

- ((INTEREST-RATE / 12), MONTHS)

MOVE MONTHLY-PAYMENT TO DISPLAY-MONTHLY-PAYMENT

DISPLAY COUNTER ' ' MONTHS ' '

- DISPLAY-MONTHLY-PAYMENT " USD"

END-PERFORM.

THIS IS THE RESULT AFTER RUNNING THE ANNUITY PROGRAM

```
S990086.S0Q1.SPFL0G2.LIST has been kept.
READY
call 's990086.cobol.load(annuity)'
WHATS THE TOTAL LOAN?
200000
WHATS THE INTEREST RATE(E.X: 0.05)
0.08
ENTER THE YEARS:
12
YEAR IS VALID
TOTAL-LOAN:      200000.00 USD - INTEREST-  RATE:   8%
Y   M          AMOUNT
-----
001 012      17397.69 USD
002 024      9045.46 USD
003 036      6267.27 USD
004 048      4882.58 USD
005 060      4055.28 USD
006 072      3506.65 USD
007 084      3117.24 USD
008 096      2827.34 USD
009 108      2603.74 USD
010 120      2426.55 USD
011 132      2283.09 USD
012 144      2164.91 USD
READY
```

0.1 10/12/25.285 10:00PM zos.ospreys.biz a 27,1

Below is an image showing the error handling. It will keep the user in a loop until they input a valid input.

```
Vista TN3270 Session A
File Edit Font Transfer Macro Options Window Help
[Icons] [A] [B] [C] [?]

READY
CALL 'S990086.COBOL.LOAD(ANNUITY)'
```

WHATS THE TOTAL LOAN?

200000

ENTERED PERFORM

VALID INPUT RECEIVED AND MOVED

YOUR TOTAL-LOAN IS: 200000.00

WHATS THE INTEREST RATE(E.X: 0.05)

0.05

VALID INTEREST RATE RECEIVED AND MOVED

ENTER THE YEARS:

TOTAL-LOAN: 200000.00 USD - INTEREST- RATE: 5%

Y	M	AMOUNT

CALCULATE		
001	012	17121.50 USD
002	024	8774.28 USD
003	036	5994.18 USD
004	048	4605.86 USD
005	060	3774.25 USD
006	072	3220.99 USD
007	084	2826.78 USD
008	096	2531.98 USD
009	108	2303.45 USD
010	120	2121.31 USD
011	132	1972.90 USD
012	144	1849.78 USD

READY

```
CALL 'S990086.COBOL.LOAD(ANNUITY)'
```

WHATS THE TOTAL LOAN?

woienf

THIS IS NOT A NUMBER/VALID INPUT

200

ENTERED PERFORM

VALID INPUT RECEIVED AND MOVED

YOUR TOTAL-LOAN IS: 200.00

WHATS THE INTEREST RATE(E.X: 0.05)

sefwefg

THIS IS NOT A NUMBER/VALID INPUT

1.23fewfsf

THIS IS NOT A NUMBER/VALID INPUT

52

```

Vista TN3270 Session A
File Edit Font Transfer Macro Options Window Help
[Icons]
|
READY
ACCEPT YEAR-INPUT.
21.29.27 J0B08121 $HASP165 ANNUITY ENDED AT SV5CJES2 MAXCC=0000 CN(INTERNAL)
THIS IS NOT A NUMBER/VALID INPUT
IKJ56500I COMMAND ACCEPT NOT FOUND
READY
call 'e990086.cobol.load(annuity)'  

WHAT5 THE TOTAL LOAN?
200000
WHAT5 THE INTEREST RATE(E,X: 0.05)
0.08
ENTER THE YEARS:
lowhig
THIS IS NOT A NUMBER/VALID INPUT
uiguig
THIS IS NOT A NUMBER/VALID INPUT
15
YEAR IS VALID
TOTAL-LOAN:      200000.00 USD - INTEREST-   RATE:    8%
  Y      M      AMOUNT
---
001 012      17397.69 USD
002 024      9845.46 USD
003 036      6267.27 USD
004 048      4882.58 USD
005 060      4055.28 USD
006 072      3506.65 USD
007 084      3117.24 USD
008 096      2827.34 USD
009 108      2603.74 USD
010 120      2426.55 USD
011 132      2283.09 USD
012 144      2164.91 USD
013 156      2066.15 USD
014 168      1982.64 USD
015 180      1911.30 USD
READY

```

The hardest part about this project was the logic behind accepting a valid input from the user. I was stuck on it for a few days until I finally figured out how the **PERFORM** and **NUMVAL** works. I resorted to using documentation for pretty much the entire project especially when it came to error checking. Such as the use of "**Numval-C**" and the use of more than one paragraph to call throughout the program while making the program more readable. I had a lot of fun doing this project despite wanting to rip my hair out occasionally. I learned good practice with labeling separate paragraphs, such as naming them 000 and 001. This helps as the program gets more complicated and lines start looking like hieroglyphics. It also helps me look for the source of bugs/errors in the program during testing.