--------------------

ANALYSIS

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INPUT:

AWARD : FLOAT;

RATE : FLOAT;

TIME : INTEGER;

OUTPUT:

SAVINGS: FLOAT;

INTERNAL DATA:

AWARD = 500000.00;

RATE = 0.10;

TIME = 5;

PROCEDURE:

* THE PROGRAM CALCULATE THE SAVINGS USING:
  + SAVINGS = AWARD, THIS IS TO MAINTAIN THE ORIGINAL AWARD VALUE SAFETY.
  + FOR LOOP I = 0 TO TIME WITH INC IN 1
    - SAVINGS = SAVINGS \* (1 + RATE);
  + AT END OF TIME (NUMBER OF YEARS) WRITE SAVINGS CALCULATED.

OPTION A)

THE VALUES ARE ON THE VARIABLES:

AWARD = 500000.00;

RATE = 0.10;

TIME = 5;

OPTION B)

THE VALUES ARE PASSED BY THE USER:

WRITE “AWARD = “;

READ AWARD;

WRITE “RATE = “;

READ RATE;

WRITE “TIME = “;

READ TIME;

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PSEUDOCODE

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VARIABLES:

AWARD = FLOAT;

RATE = FLOAT;

TIME = INTEGER;

SAVINGS = FLOAT;

IF OPTION A)

AWARD = 500000.00;

RATE = 0.10;

TIME = 5;

SAVINGS = AWARD;

FOR LOOP I = 0 TO TIME WITH INC IN 1 DO

SAVINGS = SAVINGS \* (1 + RATE);

WRITE SAVINGS;

IF OPTION B)

WRITE “AWARD = “;

READ AWARD;

WRITE “RATE = “;

READ RATE;

WRITE “TIME = “;

READ TIME;

SAVINGS = AWARD;

FOR LOOP I = 0 TO TIME WITH INC IN 1 DO

SAVINGS = SAVINGS \* (1 + RATE);

WRITE SAVINGS;

START:

|  |  |  |
| --- | --- | --- |
|  | OPTION A | OPTION B |
| 1. | AWARD = 500000.00; | WRITE “ENTER THE AWARD: $ “; |
| 2. | RATE = 0.10; | READ AWARD; |
| 3. | TIME = 5; | WRITE “ENTER THE RATE PER YEAR: % “; |
| 4. | SAVINGS = AWARD; | READ RATE; |
| 5. | FOR LOOP I = 0 TO TIME WITH INC IN 1 DO | WRITE “ENTER THE NUMBER OF YEARS: “; |
| 6. | SAVINGS = SAVINGS \* (1 + RATE); | READ TIME; |
| 7. | END FOR LOOP; | SAVINGS = AWARD; |
| 8. | WRITE SAVINGS; | FOR LOOP I = 0 TO TIME WITH INC IN 1 DO |
| 9. |  | SAVINGS = SAVINGS \* (1 + RATE); |
| 10. |  | END FOR LOOP; |

END;

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TRACE TABLE

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|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | OPTION A | AWARD | RATE | TIME | I | SAVINGS | OUTPUT |
| SAVINGS |
| 1. | AWARD = 500000.00; | 500000 |  |  |  | 500000 |  |
| 2. | RATE = 0.10; | 500000 | 0.1 |  |  | 500000 |  |
| 3. | TIME = 5; | 500000 | 0.1 | 5 |  | 500000 |  |
| 4. | SAVINGS = AWARD; | 500000 | 0.1 | 5 |  | 500000 |  |
| 5. | FOR LOOP I = 0 TO TIME WITH INC 1 | 500000 | 0.1 | 5 | 0 | 550000 |  |
| 6. | SAVINGS = SAVINGS \* (1 + RATE); | 500000 | 0.1 | 5 | 1 | 605000 |  |
| 7. | END FOR LOOP; | 500000 | 0.1 | 5 | 2 | 665500 |  |
| 8. | WRITE SAVINGS; | 500000 | 0.1 | 5 | 3 | 732050 |  |
|  |  | 500000 | 0.1 | 5 | 4 | 805255 | 805255 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | OPTION A | AWARD | RATE | TIME | I | SAVINGS | OUTPUT |
| SAVINGS |
| 1. | WRITE “ENTER THE AWARD: $ “; |  |  |  |  |  |  |
| 2. | READ AWARD; | 500000 |  |  |  |  |  |
| 3. | WRITE “ENTER THE RATE PER YEAR: % “; | 500000 |  |  |  |  |  |
| 4. | READ RATE; | 500000 | 0.1 |  |  |  |  |
| 5. | WRITE “ENTER NUMBER OF YEARS: “; | 500000 | 0.1 |  |  |  |  |
| 6. | READ TIME; | 500000 | 0.1 | 5 |  |  |  |
| 7. | SAVINGS = AWARD; | 500000 | 0.1 | 5 |  | 500000 |  |
| 8. | FOR LOOP I = 0 TO TIME WITH INC 1 | 500000 | 0.1 | 5 | 0 | 550000 |  |
| 9. | SAVINGS = SAVINGS \* (1 + RATE); | 500000 | 0.1 | 5 | 1 | 605000 |  |
| 10. | END FOR LOOP; | 500000 | 0.1 | 5 | 2 | 665500 |  |
|  |  | 500000 | 0.1 | 5 | 3 | 732050 |  |
|  |  | 500000 | 0.1 | 5 | 4 | 805255 | 805255 |