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ANALYSIS

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INPUT:

EX1: INTEGER

EX2: INTEGER

ASSIGN1: INTEGER

ASSIGN2: INTEGER

NUM\_STUDENTS: INTEGER

OUTPUT:

AVERAGE\_STUDENT: FLOAT

AVERAGE: FLOAT

INTERNAL DATA:

WEIGHT\_EX2 = 100- WEIGHT\_EX1 : INTEGER

WEIGHT\_ASSIGN2 = 100- WEIGHT\_ASSIGN1 : INTEGER

ARRAY\_GRADE[NUM\_STUDENTS] : ARRAY OF INTEGER WITH LENGHT OF NUMBER OS STUDENTS

PROCEDURE:

- READ THE NUMBER OF STUDENTS IN THIS CLASS

- READ THE WEIGHT OF EACH GRADE (EXAMS AND ASSINGS)

- TEST IF EACH GRADE IS BETWEEN 0 AND 100

IF EACH GRADE EX1 , EX2, ASSIGN1, ASSIGN2 >=0 AND <=100 THEN

CALCULATE THE PERCENT OF EACH GRADE REPRESENT

TEST IF SUM OF EX1 AND EX2 IS EQUAL 100

TEST IF SUM OF ASSIGN1 AND ASSIGN2 IS EQUAL 100

- READ THE 4 GRADES FOR EACH STUDENT

CALCULATE THE FINAL STUDENT GRADE

TEST IF FINAL STUDENT GRADE IS >= 60 THEN

DISPLAY THE RESULT

( GRADE >= 60) : APPROVED

( GRADE < 60) : REPROVED

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DISPLAY THE ERROR OF THE GRADE VALUE

- CALCULATE THE AVERAGE OF CLASS

AVERAGE = SUM OF ALL GRADE STUDENT / NUM\_STUDENTS

- DISPLAY THIS AVERAGE;

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VARIABLES:

EX1: INTEGER

EX2: INTEGER

WEIGHT\_EX1: INTEGER

WEIGHT\_EX2: INTEGER

ASSIGN1: INTEGER

ASSIGN2: INTEGER

WEIGHT\_ASSIGN1: INTEGER

WEIGHT\_ASSIGN2: INTEGER

NUM\_STUDENTS: INTEGER

ARRAY\_GRADE[NUM\_STUDENTS]: ARRAY INTEGER

AVERAGE: FLOAT

AVERAGE\_STUDENT : FLOAT

START:

|  |  |
| --- | --- |
| 1. | WRITE "ENTER THE NUMBER OF STUDENTS; |
| 2. | READ NUM\_STUDENTS; |
| 3. | WRITE "ENTER THE WEIGHT OF EXAM1; |
| 4. | READ WEIGHT\_EX1; |
| 5. | IF WEIGHT\_EX1 > 100 OR WEIGHT\_EX1 <0 |
| 6. | WRITE "WEIGHT HAS BEEN BETWEEN 0 AND 100" |
| 7. | ELSE  IF WEIGHT\_EX1 = 100 |
| 8. | WRITE "WEIGHT IS THE LIMIT EXAM2 WILL BE NOT CONSIDERED IN THE FINAL GRADE" |
| 9. | ELSE |
| 10. | WEIGHT\_EX2 = 100- WEIGHT\_EX1; |
| 11. | IF WEIGHT\_ASSIGN1 > 100 OR WEIGHT\_ASSIGN1 <0 |
| 12. | WRITE "WEIGHT HAS BEEN BETWEEN 0 AND 100" |
| 13. | ELSE  IF WEIGHT\_ASSIGN1 = 100 |
| 14. | WRITE "WEIGHT IS THE LIMIT ASSIGN2 WILL BE NOT CONSIDERED IN THE FINAL GRADE" |
| 15. | ELSE |
| 16. | WEIGHT\_ASSIGN2 = 100- WEIGHT\_ASSIGN1; |
| 17. | WRITE "ENTER THE GRADES OF STUDENTS"; |
| 18. | AVERAGE = 0; |
| 19. | FOR LOOP POSITION FROM 0 TO NUM\_STUDENTS INC IN 1 |
| 20. | WRITE "EX1: " |
| 21. | READ EX1; |
| 22. | IF EX1 >= 0 AND EX1 <= 100 |
| 23. | WRITE "EX2: " |
| 24. | READ EX2; |
| 25. | IF EX2 >= 0 AND EX2 <= 100 |
| 26. | WRITE "ASSGIN1: " |
| 27. | READ ASSING1; |
| 28. | IF ASSIG1 >= 0 AND ASSIG1 <= 100 |
| 29. | WRITE "ASSIGN2: " |
| 30. | READ ASSIGN2; |
| 31. | IF ASSIG2 >= 0 AND ASSIG2 <= 100 |
| 32. | ARRAY\_GRADE[POSITION] = (EX1\*WEIGHT\_EX1 +  EX2\*WEIGHT\_EX2 +  ASSIGN1\*WEIGHT\_ASSIG1 +  ASSIGN2\*WEIGHT\_ASSIG2)/100; |
| 33. | AVERAGE\_STUDENT = ARRAY\_GRADE[POSITION] / 2; |
| 34. | AVERAGE = AVERAGE + ARRAY\_GRADE[POSITION]; |
| 35. | IF AVERAGE\_STUDENT >= 60 THEN |
| 36. | WRITE "APPROVED" |
| 37. | ELSE |
| 38. | WRITE "REPROVED" |
| 39. | ELSE |
| 40. | WRITE "INVALID GRADE" |
| 41. | ELSE |
| 42. | WRITE "INVALID GRADE" |
| 43. | ELSE |
| 44. | WRITE "INVALID GRADE" |
| 45. | ELSE |
| 46. | WRITE "INVALID GRADE" |
| 47. | END LOOP |
| 48. | AVERAGE = AVERAGE / NUM\_STUDENTS; |
| 49. | WRITE " THE FINAL AVERAGE OF CLASS IS: "; |
| 50. | WRITE AVERAGE; |

END;

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TRACE TABLE

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EXAMPLE FOR 2 STUDENTS

|  |  |  |  |
| --- | --- | --- | --- |
| NUM\_STUDENTS | 2 |  |  |
| WEIGHT\_EX1 | 50 |  |  |
| WEIGHT\_EX2 = 100 - WEIGHT\_EX1 | 50 |  |  |
| WEIGHT\_ASSIG1 | 50 |  |  |
| WEIGHT\_ASSIGN2 = 100 - WEIGHT\_ ASSIGN1 | 50 |  |  |
| AVERAGE | 0 |  |  |
| POSITION i | 0 | 1 | 2 |
| FOR I < NUM\_STUDENTS | TRUE | TRUE | FALSE |
| EX1 | 70 | 50 |  |
| EX1 >= 0 AND EX1 <= 100 | TRUE | TRUE |  |
| EX2 | 80 | 50 |  |
| EX2 >= 0 AND EX2 <= 100 | TRUE | TRUE |  |
| ASSIG1 | 80 | 60 |  |
| ASSIG1>= 0 AND ASSIG1<= 100 | TRUE | TRUE |  |
| ASSIGN2 | 70 | 60 |  |
| ASSIGN2>= 0 AND ASSIGN2<= 100 | TRUE | TRUE |  |
| ARRAY\_GRADE[POSITION] = (EX1\*WEIGHT\_EX1 + EX2\*WEIGHT\_EX2 +  ASSIGN1\*WEIGHT\_ASSIG1 +  ASSIGN2\*WEIGHT\_ASSIG2)/100 | 150 | 110 |  |
| AVERAGE\_STUDENT = ARRAY\_GRADE[POSITION] / 2; | 75 | 55 |  |
| AVERAGE\_STUDENT >= 60 | TRUE | FALSE |  |
| OUTPUP | APPROVED | REPROVED |  |
| AVERAGE = AVERAGE + ARRAY\_GRADE[POSITION] | 75 | 140 |  |
| AVERAGE = AVERAGE / NUM\_STUDENTS; |  |  | 70 |
| OUTPUP |  |  | CLASS AVERAGE 70 |