Problem Statement 3:

Develop pseudocode for a student grading system. The system should calculate the average grade, determine the grade letter, and handle exceptions for invalid input. Implement loops to handle multiple students' data.

Psudocode:

START

    DECLARE studentName as STRING

    DECLARE numberOfSubjects, i as INTEGER

    DECLARE gradeSum, average as FLOAT

    DECLARE grade as INTEGER

    DECLARE continueProgram as BOOLEAN

    SET continueProgram = TRUE

    FUNCTION CalculateGradeLetter(FLOAT average):

      IF average >= 90:

        RETURN "A"

      ELSE IF average >= 80:

        RETURN "B"

      ELSE IF average >= 70:

        RETURN "C"

      ELSE IF average >= 60:

        RETURN "D"

      ELSE:

        RETURN "F"

    FUNCTION Main():

      WHILE continueProgram:

        SET gradeSum = 0 // Reset grade sum for each student

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SET i = 0

PRINT "Enter the student's name:"
INPUT studentName

PRINT "Enter the number of subjects:"
INPUT numberOfSubjects

IF numberOfSubjects <= 0:
    PRINT "Invalid number of subjects. Please enter a positive integer."
    CONTINUE  // Restart the loop for current student

FOR i FROM 1 TO numberOfSubjects:
    PRINT "Enter grade for subject " + i + " (0 - 100):"
    INPUT grade

    IF grade < 0 OR grade > 100:
        PRINT "Invalid grade entered. Please enter a value between 0 and 100."
        SET i = i - 1  // Decrement counter to re-enter the current subject grade
        CONTINUE

    SET gradeSum = gradeSum + grade

SET average = gradeSum / numberOfSubjects
SET gradeLetter = CalculateGradeLetter(average)

PRINT studentName + "'s Average Grade: " + average
PRINT studentName + "'s Grade Letter: " + gradeLetter
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PRINT "Do you want to enter data for another student? (yes/no):"

INPUT response

IF response == "no" OR response == "No":

   SET continueProgram = FALSE

  CALL Main()

END