**Grader Psuedocode**

Int main(){

create variables

Integers sum,rint, max\_grade, min\_grade, range

Initialize integer array to hold 99 elements of student numeric grades // Integers array[100]

Initialize integer array to hold 11 elements of grades //Integers grades[11]={0}

Double standard deviation, average, variance, variance total

Int c , arr //counter variable

read in from file

While (not at end of file)

    Read a grade from file into grade array at index arr // File >> int , Array[arr] = rint

    increment arr // arr++

endwhile

calculate sum, avg, max, min, range, std\_dev using a for loop

For (index 0 to index of last grade)

    Add current grade to sum

    Determine if current grade is highest, lowest, or neither

Endfor

calculate average with formula of avg = sum /c

calculate standard deviation via for loop by finding variance first

For( index 0 to counter variable c)

Initialize variance to the array with 99 elements, then square it

Set the variance total equal to 0 plus variance

endfor

calculate standard deviation with the formula standard deviation = Squareroot of (variance total / array[c] as a double).

classify grades with the grades array and with a while/ if/ else if statements

While (c (which is set to 0) is less than arr)

If(array[c] >= ((avg+4/3)\*(standard deviation))){grades[0]++}

Else If(array[c] >= ((avg+1)\*(standard deviation))){grades[1]++}

Else If(array[c] >= ((avg+2/3)\*(standard deviation))){grades[2]++}

Else If(array[c] >= ((avg+1/3)\*(standard deviation))){grades[3]++}

Else If(array[c] >= ((avg+0)\*(standard deviation))){grades[4]++}

Else If(array[c] >= ((avg-1/3)\*(standard deviation))){grades[5]++}

Else If(array[c] >= ((avg-2/3)\*(standard deviation))){grades[6]++}

Else If(array[c] >= ((avg-1)\*(standard deviation))){grades[7]++}

Else If(array[c] >= ((avg-4/3)\*(standard deviation))){grades[8]++}

Else If(array[c] >= ((avg-5/3)\*(standard deviation))){grades[9]++}

Else If(array[c] < ((avg-5/3)\*(standard deviation))){grades[10]++}

endwhile

create output file

Input the grades and classify them correctly along with the standard deviation, highest grade, lowest grade, and range into the output file

Tell user of the file name, and then say how many values were passed on

Close files

End program