Project 2

Bridgette Stranko

Jacob Tubman

Algorithm

Include IO Stream

Include CMath

Using namespace std;

Declare a user defined void function named calculate\_scores to get the four scores and calculates average and standard deviation which returns all 6 parameters (integer: S1, S2, S3, S4 and double: Avg and Std\_Dev)

Declare a user defined void function named get\_input to get the user’s input for the four scores and returns all 4 parameters (integer: S1, S2, S3, S4)

Declare a user defined void function named get\_min\_max that displays the highest and lowest score, the average, and the standard deviation. Display only. Nothing is returned (integer: Min, Max and double: Avg and Std\_Dev)

Declare a user defined void function to find minimum and maximum using four scores from the function that called it. Returns only the minimum and maximum (integers S1, S2, S3, S4, and returns integer Min and Max);

Declare a user defined void function to order the scores from the function that called it. Display only. Nothing is returned (integer: S1, S2, S3, S4)

Declare a user defined void function to swap values. The new values are returned (get integer value1 and value2 and return new values for integer value1 and value2)

Declare main as an integer

Open main

Declare variables:

char ans;

int score1, score2, score3, score4, min, max;

double average, std\_deviation;

do

(open do while loop)

Sets the precision to hundreths

Call the function calculate scores (score1, score2, score3, score4, average, std\_deviation);

Call the function get\_min\_max (score1, score2, score3, score4, min, max);

Display the scores as they were entered

Call the function order\_scores(score1, score2, score3, score4);

Call the function show\_results(min, max, average, std\_deviation);

Print to the screen: Would you like to run the program again?

Print to the screen on a new line (Type Y for yes):

Get user input for ans

Continue to run the do while loop while ans = Y or y

Any other input will end the do while loop

Return 0 to main and end main

Define Calculate\_scores:

Call UDF get input and return 4 scores

Calculates the average

Avg = (S1 + S2 + S3 + S4)/4.0

Calculates the standard deviation

Std\_Deviation = sqrt((pow((S1-Avg), 2)+ pow((S2-Avg), 2)+ pow((S3-Avg), 2) +

pow((S4-Avg), 2))/4)

Define get\_input

Request input from user:

Enter four scores. Please round to the nearest whole number.

Don't forget to put a space between the scores:

Get input from user for Score1, Score2, Score3, and Score4

All four scores are returned

Define show\_results

Display the results from get\_min\_max

"Your lowest score was “Min” and your highest score was "Max”

"The average is "Avg" and the standard deviation is "Std\_Dev”

Define get\_min\_max

If S1 <= S2 and S1 <= S3 and S1 <= S4 then Min = S1

Else if S2 <= S1 and S2 <= S3 and S2 <= S4 then Min = S2

Else if S3 <= S1 and S3 <= S2 and S3 <= S4 then Min = S3

Else Min = S4

If S1 >= S2 and S1 >= S3 and S1 >= S4 then Max = S1

Else if S2 >= S1 and S2 >= S3 and S2 >= S4 then Max = S2

Else if S3 >= S1 and S3 >= S2 and S3 >= S4 then Max = S3

Else Max = S4

Define order\_scores

if(S1 > S2) call swap\_values and swap S1, S2

if(S1 > S3) call swap\_values and swap S1, S3

if(S1 > S4) call swap\_values and swap S1, S4

if(S2 > S3) call swap\_values and swap S2, S3

if(S2 > S4) call swap\_values and swap S2, S4

if(S3 > S4) call swap\_values and swap S3, S4

Display the scores in order:

The Scores in order are "S1”, “S2”, “S3”, “S4”

Define swap\_values

Declare a temporary place holder (temp) as an integer

temp = value1

value1 = value2

value2 = temp