# Exercise 1:

#include <iostream>

/\*

Design, code, and test a C++ application that accepts two corner points (x, y coordinate pairs)

of a rectangle from the user. The first point will be the lower-left corner and the second will

be the upper-right corner. Use structured decision logic to determine whether the rectangle is

a square, or is in "portrait" or "landscape" orientation. In this coordinate system you can assume

that the rectangle's coordinates are all positive.

Turn in input showing that your program correctly identified all three cases of rectangles.

\*/

using namespace std;

int main(){

//global containers

int firstX, firstY;

int secondX, secondY;

//ask the user for input

cout << "Please enter the first x value: ";

cin >> firstX;

cout << "Please enter the first y value: ";

cin >> firstY;

cout << "Please enter the second x value: ";

cin >> secondX;

cout << "Please enter the second y value: ";

cin >> secondY;

//determine if the shape is in landscape, portrait, or is a square

if(firstX == firstY && secondX == secondY){

cout << "The shape is a square.";

}else if (firstY > secondX)

{

cout << "The shape is in portrait.";

}else{

cout << "The shape is in landscape.";

}

}

Text

Description automatically generated

Text

Description automatically generated

Graphical user interface, text

Description automatically generated

# Exercise 2:

#include <iostream>

/\*

Design, code, and test a C++ application that allows a user to enter integers continuously

until the value 70 is entered. Once the application has finished getting numbers from the user,

output the number of numbers that were entered, the sum of those numbers, the average of those

numbers, the largest value entered, and the smallest number entered. Note that 70 is the

sentinel value and it is NOT part of the data. Submit output showing at least seven input values.

Note that you cannot use an integer for your average (averages must have a fractional component)

The sentinel value must be stored as a named constant, NOT as a magic number.

\*/

using namespace std;

int main(){

//global varables

int input;

int QUIT;

static int numbersEntered;

static int sumOfNumbers;

static double averageOfNumbers;

static int largetsNumber, smallestNumber;

//prompt the user to enter numbers until QUIT is entered

cout << "Please enter numbers followed by the ENTER key. To exit enter the number 70:";

cin >> input;

largetsNumber = input;

smallestNumber = input;

QUIT = input;

while(QUIT != 70){

if(largetsNumber < QUIT){

largetsNumber = QUIT;

}else if(smallestNumber > QUIT){

smallestNumber = QUIT;

}

numbersEntered++;

sumOfNumbers = sumOfNumbers + QUIT;

cout << "Enter another number or QUIT: ";

cin >> QUIT;

}

averageOfNumbers = (double)sumOfNumbers / (double)numbersEntered;

cout << "Total numbers entered: " << numbersEntered << endl;

cout << "Sum of numbers entered: " << sumOfNumbers << endl;

cout << "Average of numbers entered: " << averageOfNumbers << endl;

cout << "Largest of numbers entered: " << largetsNumber << endl;

cout << "Smallest of numbers entered: " << smallestNumber << endl;

}

Text

Description automatically generated