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// Lab-2.cpp
//
// Working with conditionals and loops
// (IF/ELSE statements and WHILE loops)

#include <iostream>
#include <iomanip>
#include <string>
#include <random>
using namespace std;

int main()
{
    int x, y;
    int quotient;
    int remainder;

    cout << "(INTEGER DIVISION)" << endl;
    cout << "Enter an integer dividend (number to divide): ";
    cin >> x;
    cout << "Enter an integer divisor (divide by this number): ";
    cin >> y;

    // TASK 1: Fix the code below by putting spaces in the
    //           right places to make the output look nice.

    // Check to see if y is zero
    if (y == 0) {
        cout << "Cannot divide by zero." << endl;
    }
    else {
        quotient = x / y;
        remainder = x % y;
        cout << x << " divided by " << y << " is ";
        cout << quotient << " with a remainder of ";
        cout << remainder << "." << endl;

        cout << "Which is " << static_cast<double>(x) / y << endl;
        cout << endl << endl; // Two blank lines;
    }

    // ----- Printing square roots
    double d1;
    double d2;

    cout << "(SQUARE ROOT)" << endl;
    cout << "Enter a positive number: ";
    cin >> d1;

    // TASK 2: Run and try some negative numbers.
    // Change the program by adding an IF statement
    // here so that d2 is only calculated and
    // printed if d1 is larger than zero (d1>0)
    // The IF statement should surround the next 3 lines:

    if (d1 < 0) {
        cout << "You entered a negative number" << endl;
    }
}

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    else
    { d2 = sqrt(d1);
cout << "The square root of " << d1;
cout << " is " << d2 << endl;

    }

cout << endl << endl; // Two blank lines;

double d3;

// Printing cubes of numbers
// Keep going while d3 is not zero
cout << "(CALCULATE CUBES UNTIL ZERO)" << endl;
cout << "Enter a number or zero to quit: ";
cin >> d3;
while (d3 != 0) {
    cout << d3 << " cubed is " << pow(d3, 3) << endl;
    cout << "Enter a number or zero to quit: ";
    cin >> d3;
}

cout << endl << endl; // Two blank lines;

// TASK 3: Change the code below to allow repeats
//          until a zero is entered, similar to the
//          code above for printing cubes.
//          "Enter an integer or zero to quit: "
// Use a WHILE loop, being careful to include
// the entire IF/ELSE statement inside the loop.

// Determine if a number is odd or even
cout << "(ODD OR EVEN)" << endl;
cout << "Enter an integer or zero to quit: ";
cin >> x;

while (x != 0)
{
    if (x % 2 == 1) {
        cout << x << " is an ODD number." << endl;
    }
    else {
        cout << x << " is an EVEN number." << endl;
    }
    cout << "Enter an integer or zero to quit: ";
    cin >> x;
}
cout << endl << endl; // Two blank lines;
}

// Run program: Ctrl + F5

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