/\*

// main.swift

// Ch2Demo

//

// Created by JOE FOY (000037286) on 8/23/15.

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// Revisions:

// 0: 8/23/15 Initial release

// 1: 8/23/15 Updated for school year 2016 - 2017

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import Foundation

import Swift

//

// You should copy the following three functions into your

// future console based programs

//

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

// Function strinput returns a String which it reads from the Console

//

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

func strinput() -> String {

let keyboard = NSFileHandle.fileHandleWithStandardInput()

let inputData = keyboard.availableData

let strData = NSString(data: inputData, encoding: NSUTF8StringEncoding)!

return strData.stringByTrimmingCharactersInSet(NSCharacterSet.newlineCharacterSet())

} // end of function strinput

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

//

// Function intinput returns an integer which it reads from the Console

//

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

func intinput() -> Int32 {

let keyboard = NSFileHandle.fileHandleWithStandardInput()

let inputData = keyboard.availableData

let strData = NSString(data: inputData, encoding: NSUTF8StringEncoding)!

strData.stringByTrimmingCharactersInSet(NSCharacterSet.newlineCharacterSet())

return strData.intValue

} // end of function intinput

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

//

// Function doubleinput returns an integer which it reads from the Console

//

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

func doubleinput() -> Double {

let keyboard = NSFileHandle.fileHandleWithStandardInput()

let inputData = keyboard.availableData

let strData = NSString(data: inputData, encoding: NSUTF8StringEncoding)!

strData.stringByTrimmingCharactersInSet(NSCharacterSet.newlineCharacterSet())

var dvalue: Double = 0

dvalue = strData.doubleValue

return dvalue

} // end of function intinput

// \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

// Exploration 11

// Returns angle in radians, not degrees

//

func Pythagorean(a:Double, b:Double) ->(mag:Double, ang:Double)

{

// let PI = 3.14159

let magnitude = sqrt(a\*a+b\*b)

let angle = atan(b/a)

return(magnitude, angle)

} // end of function Pythagorean

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

//

// Exploration 0: Change the name and date in the file header to your name

// and today's date, also delete Revision 1 line

// Exploration 1: Change the // at the front of this line to /\*, and see

// what happens. Change it back when you are done.

// Exploration 2: Run the program a few times, providing different answers to

// the prompts. This is just to get you used to how it works now

// Exploration 3: print command with and without the terminator statement

// Comment out the Enter Course prompt print line, and retype

// it without the word "terminator" in it. How is the IO

// different?

// Exploration 4: Integer math in programming languages is different than in

// math classes. Run the program with grade inputs such as

// 90, 90, 92. Is the average what you expect it to be?

// Exploration 5: if\else choice statement. Run the code again, but this time

// enter the same grades for grade1 and grade 2. Does the

// comparison of them work correctly?

// Exploration 6: for the if... else.. print statements, what happens if you insert

// the two characters \n between the words "is" and "larger" inside

// the print statement?

// Exploration 7: (writing code). Add lines that prompt for 2 more courses and

// sets of grades. Look for the place in the code that says

// Exploration 7 code goes here. Notice that the nine lines of code

// after the Exploration 3 prompts are a great example

// You should use new variable names (course2, g4, g5....

// Exploration 8: Print off all three courses and their grades.

// Exploration 9: In the course printing statements, add another \t (or two) to one

// of the lines. What happens?

// Exploration 10: The program always uses sides of 3.0 and 4.0 for the pythagorean

// calculation. Add lines of code that prompt for a value of side 1

// and of side 2 for the calculations

// (ADVANCED) Exploration 11: Pythagorean function is written above all of these

// Exploration comments. It returns an angle in radians, not degrees

// Remembering how to convert radians to degrees, modify that function

// so it returns an angle in degrees. You can verify this with your

// TI84

// (ADVANCED) Exploration 12: Pythagorean function returns numbers with many decimal

// places. Search for a way to return only 3 decimal places, modify the

// code so it does that

print("Grade Calculator")

//

// Exploration 3 change in following line

// This is also an example for the Exploration 7 code

//

print("Enter Course Name: ", terminator: "")

var course1: String

course1 = strinput()

print("Enter first grade:\t", terminator: "")

var g1: Int32 = intinput()

print("\n Enter second grade:\t", terminator: "")

var g2: Int32 = intinput()

print("\n Enter last grade:\t", terminator: "")

var g3: Int32 = intinput()

print("Course is \(course1)")

var avg: Int32

//

// Exploration 4, integer division. Here is where Swift

// calcualtes the average grade

//

avg = (g1 + g2 + g3)/3;

print(" Average is:\t \(avg)")

//

// Exploration 5, if.. else... choice statement. You also

// do Exploration 6 with the print statements

//

if (g1 > g2)

{print("Grade 1 \(g1) is larger than Grade 2 \(g2)")}

else

{print("Grade 2 \(g2) is larger than Grade 1 \(g1)")}

//

// Exploration 7 code goes here

//

//

// Exploration 8 code follows these three lines

// Exploration 9 asks you to add another \t inside the print parenthesis

//

print("List of courses and grades")

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*")

print("\(course1) \t \(g1) \t \(g2) \t \(g3)")

var side1: Double = 3.0

var side2: Double = 4.0

//

// Exploration 10: add lines of code that prompt for values of the two

// sides. "Enter first grade" line and the one after it are a good

// model

//

var hypotenuse: Double

var angle: Double

let vector = Pythagorean(side1, b:side2)

// ADVANCED Exploration 12 change could be here or in the function

print("Hypotenuse is \(vector.mag), Angle is \(vector.ang)")