

Intro to Computer Science

Homework 5 - Due 4/7

Write up the answers to questions 1 and 2 in a text document. Submit a .swift file for question 3, and another for question 4

1) What is the difference between:

- a) a type and an instance
- b) a function definition and a function call
- c) a struct and a class
- d) a parameter and an argument
- e) a property and a method

2) Think of a real-world object and its properties. Make up some actions or behaviors that the object might be able to perform. Write them in plain English.

3) Using a struct, create a new type for the real-world object you thought of for 2) with the properties and methods you thought of. Remember to mark each property with a `let` or `var` depending on whether or not it will be allowed to change. If you are not sure how to implement the body of one of the methods, describe what the method should do in a comment.

Use the struct to make a new instance of your type.

Hint: If you made any properties with custom types, you can create placeholder types that have empty implementations. (See the `TrainingShoe` example)

```
// Placeholder type
struct Shoelaces {

}

struct TrainingShoe {
    let size: Int
    var isTied: Bool
    var laces: Shoelaces

    func squeak() {
        // Make a loud noise like rubber squealing on a gym
        floor
    }

    func warnAboutLaces() {
        // If laces are untied, print a reminder to tie them
    }
}

// Create an instance of the placeholder type
let newLaces = Shoelaces()

// Use the instance of the placeholder type to create an
instance of your new type
let newShoe = TrainingShoe(size: 39, isTied: true, laces:
newLaces)
```

4) Write your own Date type with the following properties / methods

Properties	Methods
month	asShortString() -> String
day	asLongString() -> String
year	dateAfter(days : Int) -> Date

It should have an initializer that takes month, day, and year as Integers.

Here is an example of how to use this class:

```
let dueDate = Date(month: 4, day: 7, year: 2020)
print(dueDate.asShortString()) // Should print "4/7/20"
print(dueDate.asLongString()) // Should print "April 7, 2020"
let oneWeekLate = dueDate.dateAfter(days: 7)
print(oneWeekLate.asLongString()) // Should print "April 14, 2020"
```