1) Xcode & Swift: Introduction

1) Variables and Constants
1) Is it possible to modify a mutable array that is an element of an immutable array?
2) Is it possible to modify a custom class that is an element of an immutable array?
3) The following code snippet shows the definition of a class and a structure. Variables declared inside classes and structures are called properties, which can also be declared variable or constant. In the assignments in the code-snippet, which properties can be modified after initializing and assigning the respective objects?

```swift
class Person {
    var age: Int
    let name: String
}

struct Car {
    var installedTires: String
    let engineSize: Int
}

let mouseImmutable = Person(age: 17, name: "Mouse")
var mouseMutable = Person(age: 17, name: "Mouse")

let fantasyCar1 = Car(installedTires: "Winter", engineSize: 8700)
var fantasyCar2 = Car(installedTires: "Winter", engineSize: 8700)
```

2) Swift Types
1) List all possibilities to declare an empty dictionary. What are the difference between them?
2) What ways exist to add a key-value pair to a given mutable dictionary?
3) A set contains several values is given. Print all elements of the set with their respective index number of retrieval.
4) Find a value in an array without using for or while loops.

3) Functions, Methods and Closures
1) Declare a sort functions that takes an array of integers as input, a closure to specify the comparison algorithm and that returns an ordered array.
2) Implement a modification of the previous function that directly operates on the input array and has no return value.

4) Classes, Structures and Enumerations
1) Implement the oppositeDirection function of the enumeration example on lecture slide 7.
2) Add a depth property to the ExampleStructure on lecture slide 22 and add a new method that returns the volume.
3) Add immutable properties to the ExampleStructure that represent the structures origin in a 3D coordinate system.

Aids: