

CSC 581: Mobile App Development

Sample Midterm Exam Questions

1. True or False?

_____ *Native apps* tend to provide higher performance but can take longer to develop than apps built with hybrid development tools.

_____ In Swift, arrays and dictionaries are *structs*, so assigning an array or dictionary to a variable makes a copy of that data structure.

2. Short Answer

A. The iOS and Android platforms dominate the mobile device space. While Android has a much bigger global market share, iOS still tends to be the most profitable platform for developers. Describe the major tradeoffs for developers when choosing between platforms. If you had a great idea for a new game, which platform would you develop for? Explain your answers.

B. Briefly describe the steps involved in adding an Outlet or an Action to a `ViewController`. Be sure to include how you specify which type of connection you are making.

3. Swift/Xcode

Consider the following Swift struct that keeps a running total of numbers that have been entered.

```
struct Accumulator {
    private(set) var total = 0.0
    private(set) var numEntered = 0
    private(set) var largest: Double? = nil

    mutating func update(with num: Double) {
        self.total += num
        self.numEntered += 1
        if self.largest == nil || num > self.largest! {
            self.largest = num
        }
    }
}
```

A. What is the purpose of the designation “mutating” on the `update` method? Would this struct compile if the “mutating” designation were removed? If so, would structs of this type behave differently?

B. What values would be printed by the following code sequence:

```
var acc = Accumulator()

if let large = acc.largest {
    print(large)
}

acc.update(with: 88.9)
acc.update(with: 50)

print(acc.total)
print(acc.numEntered)

if let large = acc.largest {
    print(large)
}
```