Course: W3102 DEVELOPMENT TECHNOLOGY

Section: Modern iOS Application Development

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Final Exam

**Instructions:** Type all your answers directly below each question. You may use your computer and the Internet to help you. DO NOT just copy paste, You must answer in your own words to get credit. You have 1 hour to complete the test. When you are finished, prepend your UNI to the file name e.g. “aah2147 Modern iOS Final Exam” Upload to courseworks assignment: Final Exam. Good Luck!

**Question 1: What is the difference between let and var? (2 pts)**

Let allows you to create a variable which is immutable. Var allows you to create a variable that is mutable.

**Question 2: What is an Enum? Provide an example from Swift (2pts)**

Enum stands for enumeration, is a data type for a group of values that are related to each other in some form. For example:

enum Months{

case January

case February

…

case December

}

**Question 3. What are optionals? (2 pts)**

Optionals are a data type that represents a value or absence of a value. It is equivalent to an enum with values titled “.none” which is nil and “.some” which holds a wrapped value.

**Question 4. What is optional chaining? Write an example (2 pts)**

Optional Chaining is the process of calling several methods that could hold a “nil” value using “?” instead of “!” to unwrap it so that if any value in the chain is nil, the whole chain fails gracefully as opposed to causing a runtime error. Example:

if let car\_speed = redcard.moving?.speed {

Print (“Speed is \(car\_speed).”)

else{

Print(“Car Not Moving”)

}

**Question 5. Explain Forced Unwrapping. Write an example (2 pts)**

Forced Unwrapping is when you try to unwrap a value that may or may not be nil with “!”.

Example:

let car\_speed = redcard.moving!.speed

Here, if redcard.moving is a nil value, this would cause a runtime error.

**Question 6. What are two different ways to transition between one UIViewController and another? (2 pts)**

**Question 7. What are viewDidLoad and viewWillAppear? What order are they called in? When are the called? (6 pts)**

viewDidLoad is a function in the viewcontroller that gets called when the controller’s view is loaded. viewWillAppear is another function that will notifies the controller that the following view will be added to the view. viewDidLoad gets called before viewWillAppear.

**Question 8. What is a Class? (2 pts)**

**Class is a construct that allows you to define properties and methods to an instance of an object of that class. Classes also have inheritance for if you have subclasses of other classes.**

**Question 9. What is a Struct? (2 pts)**

Struct works the same as a class except it does not have inheritance.

**Question 10. What is the difference between Synchronous & Asynchronous operation? Explain an example of each (4 pts)**

**Question 11. What is MVC? (6 pts)  
 M: Model – Handles the data of the app**

**V: View - Handles how your app appears to the User**

**C: Controller – Control handles what gets put in the view.**

**Question 12. What does it mean for something to be lazy? (2 pts)**

Something is considered “lazy” if it only operates if it absolutely has to and doesn’t operate otherwise.

**Question 13. What does it mean to pass a variable as a reference? Give an example (2 pts)**

Passing a variable as a reference means that you have a variable that points to an object as opposed to being the object itself.

**A=5**

**B=A //passing a variable as a reference, B is not itself 5 but it points to A which is 5, if you change A you change B as well**

**Question 14. What does it mean to pass a variable as value? Give an example (2 pts)**

Passing something as a value means that you can change one thing without changing the other.

**A=5**

**B=A**

**B+=2 // returns 7, but A stays 5 since here it is being passed by value and not by reference.**

**Question 15. How are structs and classes passed? (2 pts)**

Structs are passed by value and classes are passed by reference

**Question 16. What is a Swift closure? Write an example (2 pts)**

A swift are anonymous functions of a certain type which specify that the return value needs to be of this type.

func nums(name: some\_num) -> Int

return some\_num

**Question 17. What, if any, feedback do you have on the class? Topics we could have covered? Was the homework relevant? Any feedback on my lecture style? (2 pts, even if left blank)**

**Question 18: Would you be interested in an advanced iOS class that included writing backends and submitting apps to the App Store? (2 pts, even if left blank)**