Weekend Assignment (End of Week 5)

1   How would you make sure an app is securely handling user information?
       I would encrypt the user information to ensure its safety

2   What are our native options for persistance in iOS? Any third party options?
       User Default
       Core Data
       Key Chain

3   What is core data and what are its main components?
       Core data is a framework that is used to save information persistently

4   How do you make a network call? What objects would you use in swift?
       We get the data from the url using URLSession.shared.dataTask . We check if the data was received. We then   assign the variable or constant the data we received.

5   What is a closure? Explain escaping and non-escaping closures.
       A closure is a function that can be passed around. An escaping closure can be used outside the function it   was passed whereas a non-escaping closure can not be used outside the function it was passed.

6   What is a capture list?
       Capture list are placed before closure parameter to prevent memory leaks by making it weak, strong or   unowned

7   What is the difference between escaping and non escaping? Which is the default?
       Escaping means a closure can be used outside the function it was passed in whereas non escaping means it   can only be used within the function it was passed in. The default is non escaping

8   How is memory managed in iOS?
       Memory is managed in iOS by ensuring that there are no memory leaks in our when our program is running.   Retain cycles would be check to make sure everything initialized is de-initialized.

9   What is the difference between strong, weak and unowned?
       Strong is the default reference and it means an object has a strong reference to another. It is taken into   account in arc. Weak reference is an object that has a weak reference to another. It is not taken into account   in arc. Unowned

reference are like weak terence but unlike weak reference that can be nil they must have a   value.

10   What is a retain cycle and how do you fix it?
       Retain cycle is a situation where an object is not de-initialized, thereby causing memory leaks. This can be   fixed by making one of the references weak.

11   What is an extension?
       An extension is used in swift to add functionality to a class.

12   What is interface builder?
       Interface build is where the graphical interfaces are made. For example: table view, collection view, buttons,   etc.

13   What is auto-layout?
       Auto layout is where we setup the constraints of the objects in our view controller to display how we would   like

14   What are size classes?
       Size classes set size of objects in the vie controller depending on the size of the device being used. They are   either regular or compact

15   How do you like to build your views? Why?
       I would like to build my views in the storyboard because could clearly see the design I am trying to implement   before running my program.

16   Tell me about the design patterns you've worked with.
       Delegation - is a design pattern where information passed from one object to another
       Notification Center - is a design pattern where information is passed from one object to many objects
       MVVM (Model View ViewModel) - This is a structural design where code is written, with the model a struct or classes that provides information that are used in ViewModel(contains business logic), which provide values   that can   be displayed in the view.
       MVC (Model View Controller) - This is the default structural design where the model contains the data which   is access by the view controller setups up the data to be displayed by the view

17   What is the difference between MVVM and MVC? What advantages does one offer over the other?
       The difference between MVVM and MVC is that the view in MVC has access

to the model whereas in the view   in MVVM does not have access to the   model. MVC is useful for asynchronous request whereas MVVM is   preferred if unit testing is to be done for the business logic

18   What is delegation?
      Delegation is pattern used send information from one object to another

19   What is a protocol?
      A protocol is a list of requirements. The requirements could be functions needed for a certain task

20   What is TDD? What are the pros and cons of TDD?
      TDD(Test Driven Development) is a method of testing where the test are created before the functionality it `   would be testing

21   How do you do unit testing?
      We first make a unit test file. Then we import the project we will be testing. We write our setup up and tear   down override functions. Then we test all the functions in our models by making functions that start with test   infant of them. Within these function we must test to see if our expected value is equal to the value attained   from the function.

22   What are your thoughts on making network calls in unit tests?
      Network calls could be made to test to check what happens in a function before data is received and after   data has been received. It is although better to test functionality using mock sessions

23   How would you mock objects for testing?
      We setup our get data function in how view model to be able to get an alternate session other than the   URLSession. We then create a mock session to be used in place of URL session which gets data we create in   our unit test.

24   What is dependency injection and how do you do that in Swift?
      Dependency injection is a technique where one object provide the dependencies of another so that it denote   not that object to function. We setup up the initializer so that it can be passed the dependency we need   instead of passing the dependency within the class.

25   What kinds of notifications are there in iOS?
      There are one to one notification (delegation) and one to many notification(notification center)

26   What are reference and value types?
     Reference types are mutable and are assigned only one spot in memory(if an object is equal to an object of   type reference if the value of one changes the other changes too). Value types are immutable and are   assigned several spots in memory

27   What are the APIs in iOS for executing code on different threads? Pros and cons of each one?
     DispatchQueue
     Pros – Always gets the data after the program exits the scope
     Cons – The time duration cannot be set

     Grand Central Dispatch
     Pros – The time duration can be set
     Cons – Might not have gotten the data during species time duration

28   Tell me about the lifecycle of a view controller.
     The view controller first goes through the viewDidLoad, then viewDidAppear, then viewWillDisappear before   finally the viewDidDisappear.

29   Tell me about the different states of an app.
     The viewDidLoad is called once when the content view is first created.
     The viewWillDisppear is called right before the content view is added to the apps view hierarchy.
     The viewDidAppear is called just after the content view is added the app view hierarchy.
     The viewWillDisappear is called right before the content view is removed from the apps view hierarchy.
     The viewDidDisappear is called just after the content view is removed from the apps view hierarchy.

30   What are atomic and non atomic?
     Atomic is a property that means the it is thread safe therefore it would wait to read the whole thread whereas   non atomic means that it is not thread   safe therefore it would not wait to read the whole thread but works   faster

31   What is the difference between a category and extension in Objc?
     Categories are used to add features to an existing class just like extensions in swift while extension in objc   are a special case of category where methods defined must be declared in the main implementation block.

32   How can we manage third party dependencies in iOS?
     We close the project we want to add the dependency. We initialize a pod file

in the project will would like to   have the the dependency. Then we change
      how pod fie to include the dependency. We then type pod install   in our
terminal.

33   What are some third party libraries you are familiar with?
      Alamofire
      Realm

34   What is lazy?
      A lazy is a property that makes its initial value not calculated until the first
time it is used

35   What is a tuple?
      A tuple is a group of values of different type represented as one

36   Compare and contrast delegation and broadcaster/observer patterns.
      Delegation and broadcaster/observer patterns both send information from
one object to another. Delegation send information from one object to only one
other object whereas broadcaster/ observer sends information   from one object
to many objects

37   What is method swizzling?
      Method swizzling is the changing of the functionality of function at runtime

38   Tell me all about optionals. What they are, how to handle them, different
types, etc.
      Optionals are values that could be nil. We hand them by either force
unwrapping, nil-coelescing, conditional   binding, using guard or implicitly
unwrapped optionals

39   What is a higher order function? What are some examples in Swift?
      Higher order functions are functions that take and operate on other
functions or return a function. Eg sorted,   filter

40   What is the difference between Any and AnyObject?
      Any is for reference and value types while AnyObjects is for only reference
types

41   Tell me about Scrum. What are the usual Scrum meetings?
      Scrum is a way to implement the agile method. At he beginning of the project
the scrum master describes the   features he would like each developer to
develop within the next two weeks. Regular group would check how   much

progress have been made in implementing the feature. The emphasis being on the blockers being   complete some days before the end of the sprint. The next steps would also be discussed at the meeting and   the velocity of the group is analyzed in jira

42   What are continuous integration and continuous deployment? What is a tool to achieve them?
     Continuous integration is a manner of testing your code to make sure it did not brake anything if other   people are also working on the code.
     Jenkins is the tool used to achieve them

43   What is a singleton? Give me some examples from the iOS SDK.
     A singleton is a single instance of a class

44   How can you share data between apps?
     You have to enable the app roots in the signin and capabilities tab of the general setting of your Xcode   project

45   What is the nil-coelescing operator and what does it do?
     It unwraps an optional value. it assigns a value if optional variable or constant is nil

46   What is the turnary operator and what does it do?
     It is a special is a special conditional operator with three parts. It work like a if with a single else.

47   How would you distribute apps for testing?
     Test flight could be used for beta testing

48   What is instruments? Which have you used and what did you use each one for?
     An instrument is used in Xcode to check for memory leaks. Time Profiler, Allocations and leaks.

49   What is the difference between a storyboard and xib?
     All the elements that would be displayed in the view can be made in the storyboard. Xib is used to make a   custom element that would be displayed in the view

50   What is OAuth and how does it work?
     OAuth provides authorization flows for both web and mobile applications. It allows third party apps access to   web resources, without sharing the user password through security objects know as access tokens

51   Differences between Swift & Objective-C
      To use information from a different class the header file of that class must be imported. In Objective C   variables are declared in the header file the   defined an initialized in the objective c file. Swift code is much   easier to read than objective c

52   What makes Protocols so amazing in Swift
      Protocols are amazing in swift because the ensure that our class, structure or enum is not missing a   functionality we wanted to implement

53   Composition vs Inheritance, or why OOP has failed us
      Composition is the case where smaller functions are use together to form bigger functions whereas   inheritance is a case where we

54   Protocol-Oriented Programming (pseudo-duplicate of above)
      Protocol-Oriented Programming is a new approach of programming where requirements are added to enums,   classes or structures.

55   Delegate vs Closure/Block
      Delegates pass properties whereas closure pass functionality.

56   How can you interop Swift & Objective-C in a hybrid codebase
      We first make a swift file. We then make our objective-C file with its header file.

57   What is a Generic?
      Generic enables you to create type, functions and protocol that are not specific to any type

58   How do you go about handling JSON responses
      We use the response to set up our decodable or Codable structure. Our attribute need to have the same keys   as the responses and the right type (dictionary, array, string, int, bool) .