

# **Qatar Airways - May 2024 - Questions**

## **Introduction and Architecture**

1. Introduce yourself and what architecture pattern do you use?
2. What are the advantages of using MVVM?
3. In MVVM, suppose we have a screen to display user details such as first name, last name, etc. At the beginning of that screen, it will tell you which fields you need to display. Some are mandatory, some are optional, and each field has its own validation.
  - **Where will you write these validations and where will you write API calls?**
  - **If you are writing those validations inside the ViewModel, how will you write unit tests?**
  - **When storing data from API calls into Core Data, where would you write the code to interact with Core Data?**
  - **How will you handle the data layer in terms of the single responsibility principle?**
4. How are the SOLID principles applied in application development, particularly in handling data layers?
5. How do you update the View from the ViewModel in MVVM architecture?

## **Combine Framework**

6. What are the differences between PassthroughSubject and @Published in Combine?
7. Tell me about the Combine framework. Scenario where we use Combine framework.
8. Have you worked with Combine?
9. Can you explain the @Published property wrapper in Swift?
10. How would you replicate the feature of the @Published property wrapper without using it?
11. How do you connect your ViewModel to the view if you are not using Combine?

## **Navigation and Deep Linking**

12. How do you open an application from an external link?

13. What is the difference between a deep link and an external link?

### **Concurrency and API Handling**

14. What is the difference between escaping and non-escaping closures in Swift?

15. How would you execute three API calls sequentially, one after the other?

### **WKWebView and JSON Handling**

16. How would you debug distorted UI issues in WKWebView?

17. In WKWebView, suppose you load some view and navigate to another view. You have a navigation controller at the top. On clicking the navigation bar button, you need to go back to the previous WKWebView page instead of going back to the native application back view. How will you achieve it?

18. Suppose you have a JSON response with a start date and end date, both in different formats. How will you convert both to date objects?

### **Application Security**

19. What tools can be used to ensure the quality and security of an application?

20. Does SonarQube help in catching security leaks?

21. What best practices can be implemented to make an application more secure?

### **Swift Language and Design**

22. What is abstraction in the context of protocols, protocol extensions, and access control modifiers?

23. Could you explain polymorphism?

24. What will be the output of the following code?

```
```swift
```

```
class A {
```

```
func sampleFunction() {  
    print("Parent Function called")  
}  
}
```

```
class B: A {  
    override func sampleFunction() {  
        print("Child Function called")  
    }  
}  
  
var a: A = B()  
a.sampleFunction()  
...
```

## Design Patterns

25. What design patterns (not architecture) do you use in your day-to-day code?
26. What is your view on the Singleton pattern, given that it is also considered an anti-pattern?
27. How would you test a ViewModel if it is using a Singleton as a dependency?
28. Which design pattern is used in UITableView?
29. Which design pattern is used in UITableViewCell for the reuse identifier?
30. Please explain other design patterns you have worked with, such as:

- **Builder, Prototype, Registry**

- **Factory, Adapter, Facade**

- **Decorator, Strategy, Behavioral**

## Architectures

31. Can you list some architecture design patterns?

32. For MVVM:

- How do you navigate from one view controller to another in MVVM?
- If using a coordinator, who creates the instance of the second view controller: the ViewModel, the
- What if the second ViewModel has more dependencies? Where will these dependencies be created?
- Have you used any libraries to solve dependency injection problems?
- Have you used Swinject or property wrapper approaches to handle dependency injection?

## **Memory Management and Data Handling**

33. How does iOS memory management work?

34. What is the underlying type of a Swift array?

35. What happens when you reassign a struct or value type? Why isn't this slow, even if the array is very large?

## **Persistence Storage**

36. How would you store a color scheme?

37. Where would you store a secret token?

38. If you delete the app and reinstall it, but the Keychain value is not deleted, how would you ensure the old token is removed?

39. If you are making an application like Instagram, how would you store data and images?

40. What approach would you use to make an app like a library, storing books, authors, relations, etc.?

41. Do you have experience with Core Data?

42. Could you tell me the main components of Core Data?

43. What does the persistent coordinator do?

44. What are its features?

## **Multithreading**

- 45. What library do you use to handle multithreading?
- 46. Have you worked with Swift actors?
- 47. What is the main queue in iOS? Is it a serial or concurrent queue, and why is it serial?

### **Static Code Analysis**

- 48. Have you ever used a static code analyzer?
- 49. What is the goal of SwiftLint?
- 50. What are four simple SwiftLint rules?

### **Complexity and Metrics**

- 51. What is cyclomatic complexity?
- 52. What metrics can Sonar provide?

### **Mocking and Testing**

- 53. What is a mock?
- 54. What is the difference between a stub and a mock?

### **Git and Version Control**

- 55. What is the difference between Git merge and rebase?

### **Scrum and Agile Practices**

- 56. Have you worked with Scrum before? What kind of meetings do you have in Scrum?