Utilizing Swift as Future Language in Mobile Application

Priyanka Kawle¹, Prof. Mona Mulchandani²

¹ PG, Dept. of CSE, Jhulelal Institute of Technology, NAGPUR
Email: priyanka911.kawle@gmail.com

² Asst. Prof., Dept. of CSE, Jhulelal Institute of Technology, NAGPUR
Email: mona_mulchandani@yahoo.co.in

Abstract-The purpose of this paper is to elaborate on the language used to develop IOS mobile app. In present scenarios developers are confused over the language to choose for IOS app development. Earlier Apple watch, Mac, iPhone and iPad developement was done in Objective-C. Now with the introduction of Swift language by apple, both languages are facing tough competition. It is said that Swift will replace Objective-C in future. So we are trying to focus on they key features of the languages we have used in our project.

1. Introduction
Swift language was introduced by Apple in 2014. After few months in 2015 this language was made open source. After that swift language has evolved tremendously and its most preferable language for tvOS, macOS, watchOS and IOS. By introducing this language Apple had tried to make the development easier and more approachable than any other development tool.

Let us, look into the features because of which we have selected swift language for the developemnt of our project.

1.1 Open Source
Swift was made open source in 2015 after an year of launching. Several companies showed interest and work with Apple to enhance this language. IBM cloud is one of the technology which has been integrated with swift.

Work is going on swift, to set the language in such a way that it should work on most of the operating system which will be a huge achievement from Apple point of view.

Apple is also targeting on Android platform, they are planning Android app development through swift. Now Apple are providing OS updates for supporting swift for their existing frameworks. The open sourcing decision had made a huge impact on business which saved more than $50 million per year for the companies.

1.2 Less Coding Effort & Easy Maintenance
Swift language provide flexible environment to code. Passing a ‘ function’ as parameter is one of the key feature which help you to write less line of code. This generic way of code style reduces the development time and it helps in achieving the reusability concept.

Code repetition, run-time crash are easily avoided in swift which makes the application safe. One of the famous company had taken a risk to rewrite the code in Swift which reduces code to 1/3 of its size compare to lines of code.

It's very important to develope a secure app and it will becomes an icing on cake if its easy to maintain. The swift compiler forces the developer to fix the bug at the same moment when code is written. It saves the bug fixing time which results in faster development.

1.3 Faster & Less Error Prone
At the initial stage of swift the performance was an issue compare to other languages. But Apple work day by day to increase the speed which they achieve when Swift 2.0 was in market.

The error handling provided by swift is very easy to implement and debug. It also provide a null pointer handling techniques which avoid crash of code or app.

1.4 Interactiveness
The Swift OS has provided a new tool which is called as playground. With the help of this tool you can write quick logic to test. Playground compile and provide the result on the spot.

This feature of Swift allows you to compile small chunks of code instead of writing the whole app. The best part is that it provides output on every line in the playground console which again provides the developer an upper hand.

1.5 Memory Management
When it comes to mobile application memory management is the biggest issue. But Automatic Reference Counting (ARC) had solved the issue of memory management.

In swift the memory management is done at compile time. For any language it is the most important factor and Apple had solved this problem for the developers.

2. Swift Growth Trends

2.1 Popularity
The current trends shows that developer are focusing towards swift language because of it easiness and rich features. Most of the community are receiving lot of technical issues and solutions. In one of the most popular site the Swift language has left behind the Objective C. Fig.1 shows the graph of the site.

![Top Tech on Stack Overflow](image1)

**Fig.1: Popularity Graph**

2.2 Growth
From the day Swift language is launched its growing at rapid pace and since its open source, so most of the companies are preferring it. The below fig 2 shows the growth of Swift language.

![Swift compilation layout](image2)

**Fig. 2: Growth Graph**

3. Language of Future
It was in 2015 when swift was recognized. Companies started redeveloping their apps in swift language. They done an deep analysis on the features and how its going to benefit in re-development of their app. Famous companies like Yahoo Weather, Lyft, LinkedIn and many others.

The research shows that the application performance have increased compare to the earlier languageas. The size of the app had reduced by 50% which is an achievement. The code is easy to maintain because of dynamic nature. Even Google is doing research for its android development through swift fig 3 shows how swift compiler will interact with android. Google with Facebook and Uber are giving role to swift in their coming developments.

Thers is lot to say about swift benchmark but future will make sure how releiable the language is going to be.
4. Additional Features
The other more additional and important features of Swift are –

- Several multiple return parameters/value
- Generics
- Use of Tuples which can be passed as parameters and can returned as a single unit for multiple values.
- Collection and range can be fast iterated and would be concise to use.
- Support extensions, methods and protocol over Structs.
- Functional programming patterns.
- Advanced control flow
- Powerful error handling

Fig 4. Swift Features

The features in Swift have been implemented and designed in a way so that the developers can work together to create applications with this powerful language which is fun to use.

5. Conclusion
Apple has launched a well-designed, structured and very well organized programming language. But we dont want developers to consider Objective C for which Swift is not good at. Below are limitations where swift needs to improve.

- Swift code cannot be used by Objective C but can be reversed
- Swift code can be compiled into dynamic frameworks but not into static libraries. Objective C can done in both.
- Swift syntax are in improvement stage but Objective C are stable
- Objective C supports refactoring but swift does not.

See how you can easily add Swift into your existing iOS app of Objective-C codebase and app development workflow. Learn how to use Swift's powerful language features to develop robust applications that are faster to write and easier to maintain.

Many companies have complaint about the language that it is damp and the xcode is a very problematic tool – But the Application Solutions can declare - Swift had gone through tough test and have passed the exam!

With the help of robust community support, Swift is turning to be a smart programming language which manifests a better connection between the app developer and the target user.

References