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# Fundamentals of Mobile App Development Technology



# Introduction



## Introduction

Mobile users have multiplied which resulted in the explosion of the popularity of Mobile Apps as well. The development of more mobile Apps resulted in the evolution of the technology of the mobile application development. The technology companies who dominated the market in the past became more competitive for the sake of sales. Others having limited technical skills had taken resort to simpler design modules for developing their ideas.

Mobile application development primarily refers to the act of developing application software for handheld devices like enterprise digital assistants, personal digital assistants or mobile phones. These application software can be delivered as web applications using client side or server side processing (For example: JavaScript) which provides an application like experience within the web browser. Alternatively, they can also be pre-installed on the mobile phones inculcated in the manufacturing platforms before they are marketed.

Before the application software is developed, hardware specifications, screen sizes, and configurations have to be considered for survival in the intense competition of the mobile phone software market. Mobile App development is a sector that has witnessed steady growth in terms of industry growth, jobs creation, and revenue.



## Introduction

Mobile User Interface (UI) design is considered a critical and essential factor in the development of mobile apps. In designing the Mobile UI, contexts, inputs, screen, and mobility features are considered as cardinal decisive factors. The user and the interaction of the app with the user are often the main focus in development. This also necessitates the hardware and the software interface to be supportive as well. The system should allow the users' inputs to be manipulated and the output of the device should show the results of the user's manipulation.

The factors for UI design include limited attention span and form factors like the device's screen size in proportion to user's hands. The context of the Mobile UI also includes signal cues arising out of the user's activities like location and scheduling which can be shown within a mobile application. The moot point of the design of UI is to present an understandable and user-friendly interface. The limited attention span, task completion with a minimal set of functions, and minimization of keystrokes, are some of the considerations for the design of the UI. These functionalities are supported by the integrated development environments (IDEs) and the mobile enterprise application platforms.

The user interface of the mobile app or the front-ends depend on the mobile back-ends to support access to the enterprise systems. The back-end of the mobile helps in data routing, authentication, security, authorization, working offline, and service orientation. The other components like the Mobile Backend as a service (MBaaS), SOA software, and Mobile app servers support these functionalities as well.



# Platform



## Platform

A platform deploys and manages the mobile apps which are made up of many components and its tools allow the mobile app developers to write, test, and run applications in the target platform environment.

## **Front-end development tools**

The front-end development tools are the tools that are focused on enhancing the user experience and user interface having the following capabilities.

- User Interface (UI) design tools
- SDKs to access the device features
- Cross Platform accommodations and support

## Back-end servers

The back-end development tools support where the front-end development tools leave off providing a set of reusable services that are managed and controlled centrally, providing the following capabilities.

### Integration with back-end systems

- User authentication/authorization
  - Data services
    - Reusable business logic





### Security add-on layers

As BYOD (Bring Your Own Device) is becoming more prevalent norm within most of the enterprises there is a need of a tactical solution working as a layer on top of the existing apps, platform components, and the phones which also serves as a stop-gap. The features of it include:

- App wrapping for security
- Data encryption
- Client actions
- Reporting and statistics







# Types of Mobile Applications

### **Native Mobile App**

A native mobile app is a smartphone software application coded in a specific programming language like Java for Android phones and Objective-C for iOS. The native mobile apps provide a high degree of reliability and faster performance apart from having access to other phone devices like camera, address book, etc. Additionally, such apps can be used by the users even without an internet connection as well.

Such apps are expensive to develop as it is normally tied to one operating system for which developing companies have to make duplicate versions of it, which would work on other platforms.

### Hybrid Mobile App

A hybrid application commonly termed as hybrid app combines the elements of both web applications and native apps. The native applications are generally developed for a specific mobile platform and installed on a computing device. The web applications, on the other hand, are generalized for multiple platforms and are not installed locally but can be accessed through the internet browser. Hybrid apps are the ones that are mentioned in the context of mobile phone technology.





## Web applications

Web apps are of three types namely traditional, adaptive, and responsive apps.

The traditional web apps refer to any websites or web applications.

A responsive web app adopts a different design when accessed through a mobile phone or a tablet. It alters its design according to the device it's viewed on.

In contrast, an adaptive web app retains its design but would adjust to fit in with the different screen sizes of the mobile devices.

The web apps are mostly built using the most popular programming languages but it has two principal disadvantages.

Other hardware devices of the phone like camera and address book cannot be accessed by it. It has reduced discoverability as it can't be found in any app stores.





# Getting to the root of Mobile App Development



## App developer kits

Developer kit provided by the likes of Android and Apple helps the easy development of native apps with lesser coding experience. Although Ruby, Java script or C++ can still be useful in developing complex applications, developer kits help in catering to the consumer demand easily.



### Apps and the web

One of the advantages of the apps developed in such manner is, few functions are standalone but they also draw resources from the web enhancing the functionality. With this new technology in place, the line between apps and websites are becoming even thinner. With more web app type websites providing a more practical user interface, the pressure on mobile apps is surmounting.







## Getting to the root of Mobile App Development

### **Interconnected apps**

Many of us have hundreds of apps and their number on the mobile phones are on the rise. An alternative to accessing apps on the small screen may be to search resources and use them when needed instead of downloading. Such thought processes are making developers and researchers find out ways to get the apps talk to each other. Without any compromises on security, app extensions may enable them to communicate with each other. Use of widgets can help in sharing resources so that apps can be used for multiple purposes. This means that an app providing maps could help you buy guidebooks as well with the support of another app with minimum clicking.





**How does the  
future look like?**



## How does the future look like?

There are clear indications that apps are not going to stay around forever. The reason why mobile apps are popular right now is because they can display content in a small screen which is user-friendly. If the mobile apps do stick around for longer time they can take the form of bookmarks where people may have few favorites on their home screen and there can be other ways to access other mobile device contents.



## **ABOUT ORCHESTRATE DIGITAL**

Orchestrate Digital is a digital consultation agency with Headquarters in Dallas, Texas. We are an integrated arm of Orchestrate TechSolutions, LLC that offers services to diverse outsourcing requirements of clients in an extensive range of businesses.

Orchestrate Digital is the ideal strategic digital transformation partner you need when seeking authentic, creative, and peerless solutions for a range of business needs. Cutting-edge responsive web designing, result-driven digital marketing, and game changing mobile apps are some of the expert services provided as part of an exhaustive list. Having mastered the art of making the audience to perform the intended action and leave them excited, our advanced Content Management and Digital Marketing services specialize in maximizing the engagement from global online community.



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