



**TEKREVOL**

# **How To Build A Mobile App From Scratch**



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## A Detailed Guide for Beginners

For food delivery and cab booking, workouts and mental health, hiring and accounting there are mobile apps for almost everything you can imagine.

Some are low-functionality small apps, while others are enterprise level, advanced apps with offline mode, social media integration, maps and calendars.

But there is still so much to do. The world, although, has become modernized but still there are several opportunities available in the market that you can capitalize on.

So, if you are here for evaluating or validating your ideas for a new app business, or still thinking if you'd be able to complete the mobile app development process and launch it on the store - this guide has everything you need from start to end.

### Let's Start.

However, before getting started on skimming through the app development process, it is imperative that you start with whether you actually need an app for your business or not. So, here's how you can determine whether you need an app for your business or not.

We listed a few of the most common cases where a mobile application is necessary. Also, relevance is probably the most important factor here.

Selecting one objective that perfectly aligns and meets your business's priority and objectives will be more powerful than focusing on a few generic targets.

#### External Audience (B2B/B2C)

- Encourage repeat purchases
- Reduce customer support costs
- Expand customer insights
- Foster engagement
- Add an eCommerce storefront
- Boost brand recognition

#### Internal Audience (B2E)

- Improve workflow efficiency
- Increase employee satisfaction
- Access real-time data
- Simplify reporting
- Encourage smarter collaboration
- Extend value of existing infrastructure

With the **'Why'** out of the way, let's start exploring all the ins and outs of the app development process. This guide will enable you to go through the entire development process and will ensure the creation of a fully functional app by the end of the journey.



# Mobile App Development Process: Strategy, Development and Launch



We have divided the overall mobile app development process in 3 parts. Each of these parts is further divided into 4 steps.

## 1. Pre-development

### Strategy

1. Goal setting
2. Market Research and plan
3. Development Platform
4. Technical tools for app development

## 2. Development

### Product Development

1. Wireframing
2. Prototyping
3. MVP and testing
4. Full product development

## 3. Post-development

### Launch and Market

1. Testing
2. Launching
3. Marketing
4. Maintenance and updates





## 4 Things to Do Before You Start to Develop The Mobile App

To make your app idea successful, it is always ideal to give your app, its features, and the overall objectives of the development process a forethought.

### 1. Set your goals

When you have an app idea, jot down the functions it will perform and the objectives it will fulfil. This is just like finding the primary pain points of the end-users and how you can provide a solution to capitalize the problem.

Before you start setting end-user goals, place yourself somewhere in this list to understand your purpose behind designing this mobile app. All-in-all, your end goal would be to monetize the app, but deciding your core purpose will help you choose the right monetization strategy or approach.

1. I want to create an app to boost an existing business and improve customer experience (e.g., an eCommerce app for a physical store)
2. I want to develop an app to sell a new product (e.g., a delivery app for a new food business)
3. I want to develop an app to sell a new service (e.g., an educational app for an online course)
4. I want to make a new app to serve a particular audience (e.g., a meditation app for better mental health)
5. I want to acquire more users through a hybrid or native app (e.g., developing the existing app now for iOS or Android smartphones)

Remember that this is your planning stage. For your app to be a value addition and profitable (after launching), your goals should be specific, to-the-point and gainful, other than also being SMART. Plus, setting clear goals will, later on help you with specifying particular feature with every goal.

\*You can also choose to set separate short-term and long-term goals, but I suggest users do this after they have researched the market.

**Example:** Let's say you want to develop a fitness app for professionals on 9-hour shifts. You'll have to think like your end-user, a 9-5 employee, to be able to set goals the right way.

Now, think of everything a user would want in your app. If I download a fitness app today, I would look for healthy meal plans, water reminders, workout videos, meditation exercises, and diet tips.

Add another column and list your personal and financial goals you would like to achieve with this app. How do you want this app to work for you? Do you want to make money with this app?



End-User Goals	Personal and Business Goals
1. Achieving fitness goals	1. Helping corporate employees achieve physical fitness
2. Eating healthy	2. Building a community of corporate fitness geeks
3. Losing weight	3. Earning money from the app
4. Drinking more water	4. getting 2,000 app downloads from the Apple Store
5. Sleeping well	
6. Releasing stress	

Once you have set your goals, find out if people in your target location actually need an app like this.

This way, you'll either figure out the demand of your app, or find similar models already working in the market. Both ways, you will have your key takeaways that will help you further your mobile app development process. Answer these questions in your market research phase.



Market Research Worksheet		
Question	Answer	Takeaway
1. What is my app idea? Refer back to your goal setting document and describe the functionalities of your ideal app.		Based on the answer, you'll have to figure out the complete complexity of the app features.
2. Is my app idea original? Search if there are existing solutions for the problems you want to solve.	Yes	In this case, your research may take extra time. You'll have to develop an app from scratch.
	No	If the idea isn't original, there must be a bunch of mobile apps that serve the same purpose. How many downloads do such apps have?
3. What do I want my MVP (the basic version of my app with only essential features) to do?		You can only keep the basic features in your MVP and later introduce more advanced features as updates during the maintenance stage.
4. Which features can I add later for an advanced version of my app?		
5. How many people want to use this app?		It has to be a close estimate to find out if you really should invest in your app idea.
6. Which age group and location should I develop the app for?		This will help you specify the target audience and the market you're about to penetrate.
7. Which 2/3/4 ways I can deploy to create innovation via my app?		If your app idea is functionally and already existing in the market, you'll have to fill distinguishing features to acquire users.
8. How will I monetize the app? Choose one money making method, based on the core idea of your app.		Freemium app In app purchases E commerce app Paid advertising
9. What is the actual estimate for app development in this sector?		This question is important as you'll have to decide a budget you are happy to spend for a figure of money you want to earn. Plus, you'll need to check the cost estimates online in different sectors because basic app development is cheaper than advanced and so on.

After researching the market, you can choose to document your strategy in form of a simple flowchart or a rich business plan.

1. If you are developing the app yourself, a simple document with workflows, app development milestones, deadlines, development hours, cost of resources and budgeted revenue would do well.
2. If you are hiring an app developer or team, you can choose to book a free consultancy and ask them to prepare the scoping document with other analytics that you may have missed.
3. If you want other investors, partners or firms to fund your idea in the beginning, you'll need a full flash mobile app business plan with projected users, cost of development and maintenance in the first five years, budgeted revenues etc.



### 3. Decide Your Development Platform

At this stage, with your app strategy or business plan ready, you'll have to choose a language and platform for your app development. This will determine your app development approach. By the end of this stage, you should know:

1. The platform your app will work on (smartphones)
2. Technical specifications for the back-end and front-end (codes for basic and advanced features)
3. The programming platforms you'll use (programming language)

To decide on these factors, you must be acquainted with two major types of apps based on their device orientation: Native Applications and Hybrid Applications

#### Native Apps

These are platform-oriented applications specifically designed for particular devices – or let's say, operating systems.

You can choose to develop native applications for Android devices only, iOS devices only, and web apps to work on desktop devices. Your choice at this stage will decide the usability features and your overall user interfaces and user experience will be based on your decision here.

Logically, the number of users and total downloads for native applications are limited and lesser as compared to the hybrid apps.

Your functionality and user journey will be different in Android-only apps and vice-versa.

Learn more about our [Android App Development](#) and [iOS App Development](#) processes.







#### Hybrid Apps

Hybrid applications are cross platform applications. They are not platform-oriented, rather purpose oriented and cater to a bigger audience as compared to native applications.

Luckily, we now have tools like Flutter that let us design cross platform apps with a single codebase. Also, if you already have a code for native app, and would want to acquire more users, you can use the same code to convert to a new hybrid app.



# Native Apps vs. Hybrid Apps

NATIVE APPS VS HYBRID APPS		
DIFFERENCE FACTORS	HYBRID APP DEVELOPMENT	NATIVE APP DEVELOPMENT
 PROGRAMMING LANGUAGE	JAVASCRIPT AND KOTLIN FOR ANDROID AND WEB OBJECTIVE C AND SWIFT FOR IOS	HTML, CSS, JAVASCRIPT
 CODING REQUIREMENTS	DIFFERENT CODE FOR EACH PLATFORM	SINGLE CODEBASE FOR ALL APPS
 COST	HIGH COST SEPARATE DEVELOPMENT COST FOR EACH DEVICE	LOW COST 2-3 APPS FOR PRICE OF ONE
 TIME	MORE THE PLATFORMS, MORE THE TIME REQUIRED	FASTER DEVELOPMENT, DELIVERY AND LAUNCHING
 FUNCTIONALITY	PLATFORM-CENTRIC PERFORMANCE	FEATURE-CENTRIC PERFORMANCE
 MAINTENANCE	EASY AND QUICK MAINTENANCE BASED ON FEATURES	TIME CONSUMING MAINTENANCE, PLUGINS REQUIRED

For non-technical users who have limited knowledge of coding and programming languages, I would suggest Rapid App development approaches where an app developer can use the existing code, mix, match and manipulate specific features and make them work for their specific app according to the plan.



## 4. Get Necessary Tools For App Development

Based on the type of app you are developing, here are the tools you'll need:

1. Design tool for wireframing and prototyping (Adobe Xd.)
2. App-hosting services (AWS, Google Firebase, Apple CloudKit)
3. App store licenses for launching the app

Depending on your overall development approach, you might have to spend some money to access design assets (icons) and app integrations (maps, payment gateways).

If you have been following this guide till now, you are prepared for the next stage development process. Use your app idea document, and ready your tools to start away!

## Development Stage

While planning is the primary step, development part is the heart of overall app building process.

No matter how workable and rightly planned your strategy is, you can only see expected results if you have executed your strategy to the dot – which is what the development phase is all about.

Here are the 4 steps in development stage:

### 1. Wireframing

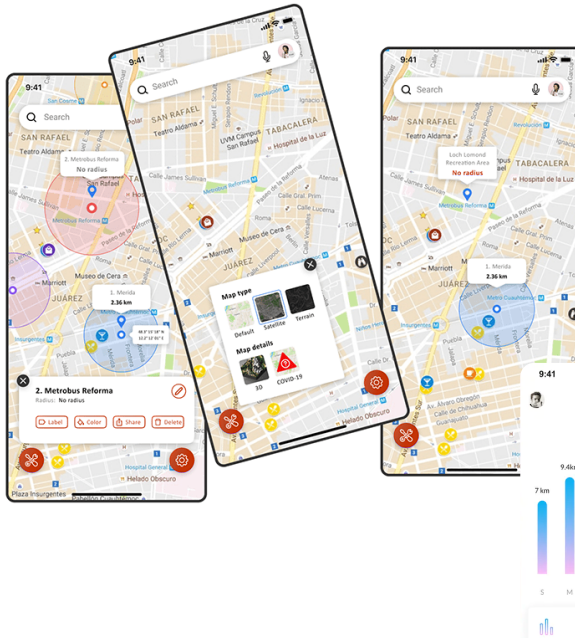
In the wireframing process, a user draws initial designs of the user interface. These are low-fidelity mockups: static and motionless, yet show the overall flow of data, and information within the app.

In simple words, wireframes are diagrams that show the basic skeleton of a mobile app. During the wireframing stage, you, again have to think like your user and map a user journey.

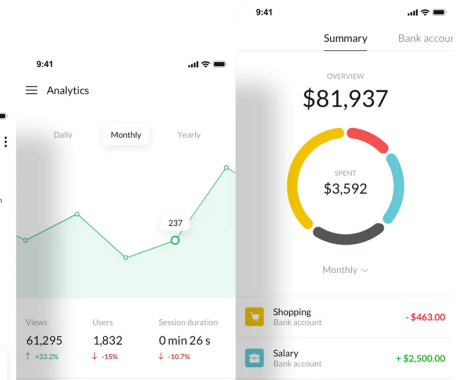
These initial designs can be as rough as pen and paper sketches, or as advanced as the ones shown in the image here.



## Location & Maps



## Charts



Wireframes are usually black, white and grey. That's because during this stage, designers and developers focus more on the features (and their placement) in the app rather than the branding.

## 5 Best Wireframing Tools

As mentioned earlier, wireframe diagrams are simple, and reflect the basic structure of the app. While these diagrams can be made roughly, expert app development teams and companies now prefer dedicated tools for wireframing.

Here is a list of 5 most popular wireframing tools used by professionals:

Wireframing Tool	Free Trial	Price
1. Adobe XD	✓	\$9.99
2. Axure	✓	\$25
3. MockPlus	✓	\$5.95
4. JustInMind	✓	\$19
5. Lucid Chart	✓	\$4.95

Read more about the best wireframing tools.

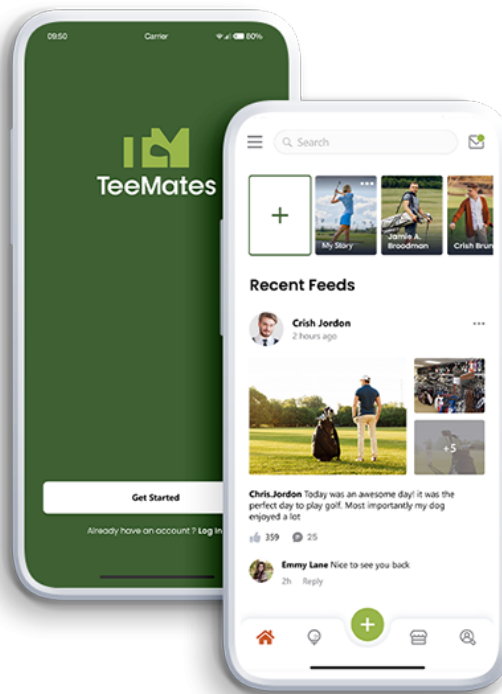




## 2. Prototyping

Prototype, in simple words, is a visual model of a product. It is an advanced version of wireframing process, a step ahead in which designers and developers produce high-fidelity diagrams, animate them in full working videos and show the overall functionality of a mobile app – which is not yet developed but now present in visual form.

In conventional app development processes, a project manager gets designers and developers to prepare a prototype based on the complete app brief provided by the client. The actual coding and programming processes do not start until the prototype isn't approved by the client.



Note: Wireframes show the user interface while prototypes show the user experience

## 3. Develop the MVP

The main coding and programming part starts in this step.

Minimum Viable Product (MVP) is the very basic version of a planned product, meaning it has only the essential features of the app without which the app wouldn't fulfil the core purpose.

After creating MVPs, app development teams and clients collect data and feedback about the performance of the app and refine it into one closest to the planned product, more useful and demanded.



## 4. Advantages of MVP

Developers around the globe now create MVP apps and software programs before developing the main product. Here's why:

### ADVANTAGES OF MVP



DEVELOPERS CAN TEST THE VIABLE VERSION OF FULL APP BEFORE RELEASING THE MAIN PRODUCT.



MVPS SAVES TIME, ENERGY AND COSTS OF DEVELOPMENT AND MAINTENANCE.



APP OWNERS CAN MARKET THEIR PRODUCT BEFORE LAUNCH WITH AN MVP.



IT IS EASIER TO FIX BUGS FROM LIMITED FEATURES OF MVPS, WHICH MAKES IT LESS RISKY.

All in all, you should build an MVP of your app to lower the cost, time and risks associated with app development.

Now when you know why I have suggested building an MVP before the main app, refer back to the app development approach part in your pre-development planning stage. There, you must have chosen either a native application or a hybrid (cross platform) app.

## 4. Main App Development

By this step, you must have already coded the based back-end and front-end of your application. Now is the time to add mid-level features and get the app ready for a wider use than MVP.

Note that only few users had access to your MVP for testing and improving purposes. When your MVP has cleared the initial testing phase, you can add the features that make it a more detailed, feature-packed product.

For example,

- if the MVP of a fitness app allowed 5 users to create and accept fitness challenges, your main product will allow more users to perform the same function simultaneously in higher speed and with more features like multiple calendars and locations.
- Similarly, if the MVP configuration allowed access to 3 workout videos a week, your main product can allow 5 or 8 or unlimited – for a price!



## Post-development Stage – launching to scaling the mobile app

Now when your app has an intuitive interface, branded theme, major functionality, feature-rich and zero bugs, it is ready for our post-development steps

### 1. User Acceptance Testing and Quality Assurance

This is the step where the app is tested rigorously on different mobile platforms in terms of

- Loading speed
- Security
- Online and offline functionality
- App bugs and crashes

Other than these factors, you can choose to go for penetration testing and usability testing.

In the former, you'll ask a certified practitioner to audit the app, and induce methods to break in, hack or obtain personal data from the app.

In usability testing, you can ask your family, friends, coworkers, a specific test group containing the potential target users to check the overall performance of the app.

For hybrid apps, you also need to ensure if the app is working uniformly (and not crashing) on all different platforms it has been designed for.

### 2. Market Your App

After clearing quality assurance standards, you need to get your app narrative across. While this is a continuous process and should gradually start during the development procedure, this is the time when you need to double your efforts to market your app – which is ultimately your app idea.

1. You can choose organic advertising methods like community building, free trials, blogging, SEO and ASO.
  - Join groups on Facebook, spaces on Quora and connect with people who you think would be interested in getting a free app.
  - Make a landing page for your application and offer it for free for a limited time. Write blogs for user awareness and try using digital marketing techniques like SEO (Search Engine Optimization) to acquire users through search engines.
  - Pinterest and reddit also work for specific niches like clothing, food etc.



2. You can go for paid advertising like featured ads, affiliate programs, loyalty points etc.

- Depending on your budget, you can ask existing app users to invite their social network and earn referral money.
- App stores also play featured ads to promote certain categories of apps.

### **3. Launch on App Stores**

With your app ready with you, you can deploy it on app stores.

You can distribute your iOS app on Apple Store, Android apps on Google Play Store, hybrid apps on both and launch your app via websites in .APK format.

Google's Developer account costs \$25 while an individual developer account on Apple Store is \$99.

When launching the app, make sure to:

1. Choose right app category on the store
2. Write detailed descriptions for potential users to make their buying decision easier
3. Stay honest in your app descriptions otherwise bad reviews can hurt the long-term success of the app.
4. Use ASO techniques. App Store Optimization means you use certain keywords and phrases in your app descriptions that people are actually searching for. When your app will rank higher on app store, there are higher chances of more people downloading your app.
5. Provide catchy screenshots, videos of the user interface, and images that show the right features for user experience.

### **4. Maintain and Send Updates**

This is the step where you need to check back your initial strategy document and compare results.

Use the app and check analytics, then ask yourself these questions and take the necessary actions.

**1. Is my app performing all the functions I initially wanted it to?**

Yes. ✓

Action: Now try adding a light feature or two to further boost the user experience.

No. ✗

Action: fix the errors, check for updates, upgrade content and send an update.

**2. Is my app performing well on the App Store – no. of downloads and reviews**

Yes. ✓

Action: check the no. of downloads and reviews. Then compare if you had added a figure in your ideation process. Make measures to further improve the metrics.

No. ✗

Action: Respond to users' queries. Check the reasons behind negative reviews. See what can be fixed and reply to users about fixed bugs.

**3. Is my app making enough money?**

Yes. ✓

Action: well, done! Now project your sales and revenues for five years from now and research on your competitors.

No. ✗

Action: find out why you are not getting sponsored ads, or why users are not buying the premium features of the app.

If you have developed the app yourself, it is ideal to hire a third-party maintenance service.

Maintenance usually costs 28% of the overall app development cost in the first year and then goes to as low as 10-15% of the initial cost.

If you had hired a mobile app development company for the project, it is ideal to hire their testers and support specialists only. They charge monthly, regularly or according to development hours needed – but considering the significant improvements, the cost is worth it.



## Conclusion

As you can see, mobile app development does not have to be a towering challenge. Just like any other business process, it can be broken down into manageable components arranged in a logical sequence.

In this instance, it all begins with reaffirming why you want to build a mobile app. From there, it becomes clear which features the app should include.

Prioritizing those requirements then informs what development tools and tactics should be applied. Finally, an assessment of how to best access those technical resources ultimately reveals which people should participate in the project.

With this blueprint in your pocket, there is no reason to treat mobile app development as a potentially exhausting process. You now have the knowledge you need to create something great!

WANT TO TALK TO US ABOUT SOMETHING ELSE?

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**(800) 362-9239**



## Glossary

**API (Application Programming Interface)** — Code that governs how two distinct software programs can communicate and request services from each other; helps AN app tap into powerful pre-existing resources (i.e., Database spreadsheets, Google Maps).

**B2B (Business-to-Business)** — Product strategy in which a company develops an app for use among another company's employees.

**B2C (Business-to-Consumer)** — Product strategy in which a company develops an app for use among mass market consumers.

**B2E (Business-to-Employee)** — Product strategy in which a company develops an app for use among its own employees.

**Backlog** — Master list of technical tasks and app features to be completed by a development team.

**Cross-platform development** — Building one hybrid app, or multiple native versions, for use across multiple platforms.

**Hybrid development** — Building an app that combines web and native mobile capabilities that can be used across multiple platforms.

**MVP (Minimum viable product)** — Earliest version of an app; contains only the core features required for functional use.

**Native development** — Building an app for exclusive use on a single platform.

**Offshoring** — Basing production resources overseas, primarily to leverage economic advantages.

**Operating system (OS)** — The software that supports a mobile device's basic functions (i.e., iOS 7, Android Lollipop).

**Outsourcing** — Purchasing the development services of an outside contractor to help build an app; contractor can be based locally or abroad.





**Pareto Principle** — Theory suggesting that 80% of a system's output is determined by 20% of its inputs; commonly applied to prioritization of app features.

**Platform** — Combined hardware/software environment that an app operates within; often used interchangeably with "OS version."

**Sprint** — Development micro-cycle during which a specific portion of app features must be completed and presented for review.

**Story mapping** — Exercise designed to define and prioritize the actions and features required to satisfy app users' goals.

**User experience (UX)** — The combination of practical and emotional perceptions surrounding an app's appearance and functionality.

**User interface (UI)** — The space in which inputs and feedback are exchanged between the user and the computing device.

**User persona** — A semi-fictional representation of the demographics, attitudes, and goals expressed by a segment of app users.



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