

### *Creating Mobile Apps*

# Development and Deployment

## *For Teachers*

### Introduction

This video is the second in the series on creating apps for mobile platforms. The video covers the methods used by developers to get a good understanding of the target users' needs, and the desired functionality of the app. Research, design, algorithm development, coding, testing and marketing processes are demonstrated with examples of real projects by experienced local developers. The importance of the latest social media components such as links to Facebook and Twitter is discussed. Good screen design, graphic screen elements and navigation are discussed in the context of the limitations of screen real estate and wireless bandwidth. The use of object-oriented development and database considerations are illustrated as part of the development process.

### Timeline

00:00:00	Design
00:06:03	Content Production
00:09:29	Coding
00:13:41	Deployment
00:18:03	Getting your app noticed
00:22:08	Credits
00:22:55	End program

### Related Titles

*Creating Apps 1 – Research and Planning*  
*ICT Project Management*  
*Getting into Games*  
*Multimedia Systems*

### Recommended Resources

- <http://www.noupe.com/design/35-excellent-wireframing-resources.html>
- <http://www.balsamiq.com/>
- [https://itunesconnect.apple.com/docs/iTunesConnect\\_DeveloperGuide.pdf](https://itunesconnect.apple.com/docs/iTunesConnect_DeveloperGuide.pdf)
- <http://mashable.com/2011/08/23/mobile-app-ranking-tips/>
- <https://developer.apple.com/support/appstore/>
- <http://webuse.org/p/a07/index.html>

## ***Student Worksheet***

### **Initiate Prior Learning**

1. In a small group discuss the Apps you have or have seen on a mobile device and make a list of the five most popular Apps used in your group. Visit an online store (Android, Apple, Ubuntu) and find a list of most popular Apps on the site. What common features of the apps make them most popular?
2. If you had to design a screen for an App what limitations of the platform would affect your design? Discuss this in your group and describe some features of one App that help it to overcome the limitations, e.g. use of pages and of finger-sized icons with swipe interface to change pages.
3. Is anyone in your class using a tablet in class? What impact will iPads and other tablet technology have on education / schools in the next five years? Discuss this in your group and then share your ideas with your class.
4. Apps developers rely on low price and large numbers of sales in order to make a profit. What other sources of profit are available for App developers. Discuss the problem of making a profit from Apps.
5. "The laptop is dead". Debate this issue in your class.

## Active Viewing Guide

1. Why is the Apple App Store described as a walled garden?

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2. Make a map of the navigation pathways through a simple App. Evaluate the navigation. What are the best features? What are the worst?

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3. Research the use of wireframes and storyboards (see URL links section). Present your findings for one of the tools you found, to the class. Why was it useful for the design stage of App development?

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4. Why is it essential to provide the user with a way to navigate back?

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## Creating Apps 2

### Development and Deployment

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5. "No one uses help files". Survey the class to find out how true this statement is. The developer feels he has failed if he needs to include help files. Is this realistic?

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6. What is the advantage to the developer of including social media components like Facebook "like" buttons and Twitter connections?

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7. Some Apps require the collection or production of large amounts of content. List some of the roles of people who create content and the types of content they produce.

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8. Describe ways in which the amount and nature of the content is determined by the bandwidth available.

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9. Research the use of APACHE and MYSQL. What do these programs do and what types of platforms do they get used on?

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10. How does OOP (object-oriented programming) assist development?

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11. What are the most important aspects of the testing process?

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12. What is the main difference between the Android deployment process and the Apple App Store?

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13.Support and upgrades. What is the advantage of good maintenance for the developer?

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14.Describe the marketing process.

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## Extension Activities

1. In teams write and perform a TED Talk (18 minute talk) with the title "How I made a million with my brilliant App idea".
2. Research the use of Apps for education in underdeveloped countries. Is this a useful technology?
3. Many Apps on the Android platform are pornographic or crude. Research the social implications of this new technology. How can these problems be prevented?
4. Survey your teachers about Apps they would find useful in a classroom and make a slide show demonstrating these.

## ***Suggested Student Responses***

### **Initiate Prior Learning**

1. In a small group discuss the Apps you have or have seen on a mobile device and make a list of the five most popular Apps used in your group. Visit an online store (Android, Apple, Ubuntu) and find a list of most popular Apps on the site. What common features of the apps make them most popular?  
**The list will vary but common features may be: utility, for example a calculator, entertainment value, or the ability to socialise with friends.**
2. If you had to design a screen for an App what limitations of the platform would affect your design? Discuss this in your group and describe some features of one App that help it to overcome the limitations, e.g. use of pages and of finger-sized icons with swipe interface to change pages.  
**Limitations should include bandwidth restrictions on 3G, screen size and resolution, operating systems and availability of Apps for that platform.**
3. Is anyone in your class using a tablet in class? What impact will iPads and other tablet technology have on education / schools in the next five years? Discuss this in your group and then share your ideas with your class.  
**Answers will vary but changes such as different teaching styles required for students who have all the answers in their hand. Much richer content of lessons including the use of instant video tutorials etc.**
4. Apps developers rely on low price and large numbers of sales in order to make a profit. What other sources of profit are available for App developers. Discuss the problem of making a profit from Apps.  
**Although low cost of Apps means less profit per App the size of the market may guarantee good results if millions of users purchase your product and its ongoing improvements or instalments.**
5. "The laptop is dead". Debate this issue in your class.  
**Various arguments will surface related to the advantages of either tablets, phone or laptops for performing useful tasks. Explosive sales of tablets to people who have never brought a computer before may indicate the decline of the laptop.**

## Active Viewing Guide

1. Why is the Apple App Store described as a walled garden?  
**Apple provides a structured and standard set of tools and utilities for development and distribution of Apple mobile Apps. Other platforms suffer from too many different specifications, operating systems, and screen size or resolution limitations.**
2. Make a map of the navigation pathways through a simple App. Evaluate the navigation. What are the best features? What are the worst?  
**Answers will vary with the choice of App but students should: be able to recognise typical navigation elements such as buttons and page turning symbols, draw a simple map and say if the navigation is easy to use and understand (intuitive).**
3. Research the use of wireframes and storyboards (see URL links section). Present your findings for one of the tools you found, to the class. Why was it useful for the design stage of App development?  
**Students should be able to find many examples of storyboarding or wire-framing tools that allow the developer to rapidly prototype an App interface and document the navigation pathways through the user interface so that coders can build in the correct functionality.**
4. Why is it essential to provide the user with a way to navigate back?  
**Users can get lost in an App and be unsure of where to go next. By providing a universal way to go back (back button or back swipe gesture) users will feel a lot more comfortable exploring your App.**
5. "No one uses help files". Survey the class to find out how true this statement is. The developer feels he has failed if he needs to include help files. Is this realistic?  
**A "hands up" survey may produce some interesting discussion in the class. Typically most people don't like to have to read a help file mainly because they often don't answer the questions you have.**
6. What is the advantage to the developer of including social media components like Facebook "like" buttons and Twitter connections?  
**These provide easy ways for the user to promote your product by "word of mouth" connection to their friends. This is free advertising or viral advertising which is very profitable for the developer.**
7. Some Apps require the collection or production of large amounts of content. List some of the roles of people who create content and the types of content they produce.  
**Some roles that may be identified: researchers who find content and copyright holders; writers who produce original content such as stories or descriptions; graphic artists who produce or modify original artworks; musicians who write scores and produce sound files; specialist consultants who review content at each level of production; and video directors, producers, actors, camera operators, video editors.**
8. Describe ways in which the amount and nature of the content is determined by the bandwidth available.  
**3G and 4G wireless phone surfaces have limited download capacity and files bigger than 20 to 30 MB are not favoured by the users because of slow download speeds and the cost of download. Wi-Fi allows for faster download. The memory capacity of the phone itself may determine how much content is stored locally and how much needs to be downloaded on the go.**

9. Research the use of APACHE and MYSQL. What do these programs do and what types of platforms do they get used on?

**These are open systems server side applications for serving data up to the web or implementing remote databases to deliver to the user. They run on all platforms but are usually implemented on LINUX operating systems running on PC servers.**

10. How does OOP (object-oriented programming) assist development?

**OOP allows the programs to be written in manageable modules using tested ready-made code objects that can be linked together in drag and drop IDEs (Integrated Development Environments) such as Apple's XCODE program. Unit testing is easier in an OOP environment because each component can be tested separately.**

11. What are the most important aspects of the testing process?

**Testing must happen at every step of the development process not just at the end. The original concept must be tested to see if users will buy the App. The design, the interface, the algorithms and the code need to be thoroughly tested by developers. Unit testing and load testing reduce the number of bugs and tests that the App can be downloaded from your servers when demand is at its highest. Various naive users must test the final product before release or publishing.**

12. What is the main difference between the Android deployment process and the Apple App Store?

**Apple has a board of review process and Apps which don't come up to their quality standard will not be accepted. This makes the quality of the Apps on the Apps Store significantly higher than a lot of the Apps on the Android market.**

13. Support and upgrades. What is the advantage of good maintenance for the developer?

**Good updating and maintenance make sure that the product continues to work when changes are made to the operating systems or new appliances are produced. Updates give the user contact with the developers and can be an opportunity for further sales.**

14. Describe the marketing process.

**Identify your users, visit conventions and forums, create and maintain blogs and other dedicated websites. Make sure App search sites notice your App. Twitter can be used to seed users or potential users. Use a name that is simple and yet quickly identifies what your App does. Use Google Analytics to analyse the sales activity and visits to your promotional sites.**

### Extension Activities

1. In teams write and perform a TED Talk (18 minute talk) with the title "How I made a million with my brilliant App idea".  
**Responses will vary.**
2. Research the use of Apps for education in underdeveloped countries. Is this a useful technology?  
**Limitations such as the cost of the device, lack of Internet access, cost of support such as maintenance costs, lack of electricity for charging the device and lack of Apps in native languages could all be discussed.**
3. Many Apps on the Android platform are pornographic or crude. Research the social implications of this new technology. How can these problems be prevented?  
**Problems of pornography, copyright infringement and fraud / criminal activity could be discussed.**
4. Survey your teachers about Apps they would find useful in a classroom and make a slide show demonstrating these.  
**Answers will vary.**