Hybrid Mobile App Development

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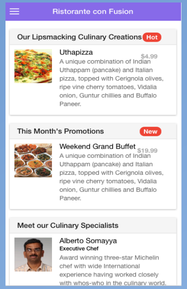
Web Applications

Web Content

HTML, CSS, JS



Ristorante con Fusion

Our Lipsmacking Culinary Creations Hot

Uthapizza $4.99

A unique combination of Indian Uthappam (pancake) and Italian pizza, topped with Cerignola olives, ripe vine cherry tomatoes, Vidalia onion, Guntur chillies and Buffalo Paneer.

This Month's Promotions New

Weekend Grand Buffet $19.99

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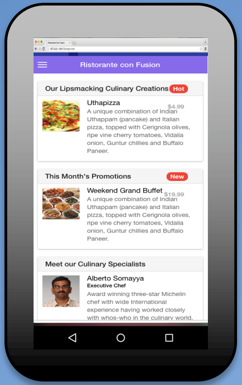
Meet our Culinary Specialists

Alberto Somayya

Executive Chef

Award winning three-star Michelin chef with wide International experience having worked closely with whos-who in the culinary world.



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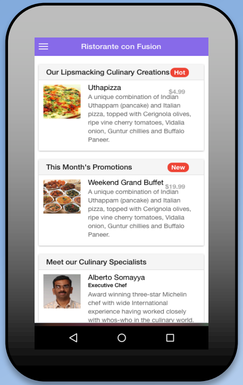
Browser



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App with WebView

Web Applications

- Web Applications for mobile can be developed in two ways:
  - Fully client-side application installed on the device
  - Mobile web application developed using web standards and accessed through a web browser

App Implementation Approaches

- Native Apps
  - Platform-specific skills
  - Highest performance
  - Full access to device capabilities
- Mobile Web Application
  - Fully hosted in the mobile browser
  - Slowest
  - No access to device capabilities
- Hybrid
  - Embedded web view based with partial implementation in native code
  - Slow, but comparable to native apps based on functionality
  - Some access to device capabilities

Comparison of Implementation Approaches

	Native	**HTML5**	**Hybrid**
App Features			
Graphics	Native APIs	HTML, Canvas, SVG	HTML, Canvas, SVG
Performance	Fast	Slow	Slow
Native look and feel	Native	Emulated	Emulated
Distribution	Appstore	Web	Appstore
Device Access			
Camera	Yes	No	Yes
Notifications	Yes	No	Yes
Contacts, calendar	Yes	No	Yes
Offline storage	Secure file storage	Shared SQL	Secure file system, shared SQL
Geolocation	Yes	Yes	Yes
Gestures			
Swipe	Yes	Yes	Yes
Pinch, spread	Yes	No	Yes
Connectivity	Online and offline	Mostly online	Online and offline
Development skills	ObjectiveC, Java	HTML5, CSS, Javascript	HTML5, CSS, Javascript

Source: http://wiki.developerforce.com/page/Native,_HTML5,_or_Hybrid:_Understanding_Your_Mobile_Application_Development_Options

Hybrid App Development Approaches

- WebView app
  - The HTML, CSS and JavaScript code base runs in an internal browser (called WebView) that is wrapped in a native app. Some native APIs are exposed to JavaScript through this wrapper
  - Examples: Cordova/Phonegap, Trigger.io
- Compiled hybrid app
  - The code is written in one language (such as C# or JavaScript) and gets compiled to native code for each supported platform. The result is a native app for each platform, but less freedom during development
  - Examples: Appcelerator Titanium, Xamarin, Embarcadero FireMonkey

Hybrid Mobile App Development Frameworks

- Different types of frameworks aimed to build hybrid apps :
  - Frameworks targetting HTML5 content like Cordova or intel XDK (both via JS byte code), Intel XDK is based on Cordova
  - Frameworks like Appcelerator Titanium that render the UI using the platform's native controls but still working via JS
  - Free (or partially free) Frameworks aiming to produce real native code like Unity (C# orJS based, Games oriented), Kivy (Python Based) or libgdx (Java based, Game Oriented)
  - Commercial Frameworks aiming to produce real native code like Xamarin (using C#) or Embarcadero

Hybrid Mobile App Development Frameworks

- Cordova and Intel XDK are not too difficult to begin with but will show their limits shortly because they produce HTML5, not native code.
- Titanium is a good choice if you want to code only in HTML/JS and have access to mobile platforms native controls. It has now an MVC Framework called Alloy.
- Unity is the best if you want to build something like a multi-platform Game
- Xamarin is good for C# developers
- Kivy if you want to develop with Python/Pygames tools and libgdx if you are a Java addict.

Advantages of Hybrid Approach

- Developer can use existing web skills
- One code base for multiple platforms
- Reduced development time and cost
- Easily design for various form factors (including tablets) using responsive web design
- Access to some device and operating system features
- Advanced offline capabilities
- Increased visibility because the app can be distributed natively (via app stores) and to mobile browsers (via search engines)

Drawbacks of Hybrid Approach

- Performance issues for certain types of apps (ones relying on complex native functionality or heavy transitions, such as 3D games)
- Increased time and effort required to mimic a native UI and feel
- Not all device and native features (fully) supported
- Risk of being rejected by Apple if app does not feel native enough (for example, a simple website)

Where Hybrid Apps Work Best

- Hybrid approach does not suit all kinds of apps
- Need to carefully evaluate your target users, their platforms of choice and the app’s requirements.
- Mainly suitable for content-driven apps
  - Business and Productivity
  - Enterprise
  - Media