

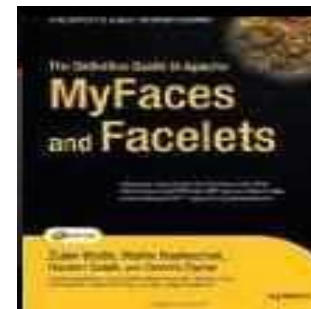
Developing Native JavaScript Mobile Apps Using Apache Cordova

Hazem Saleh

About Me



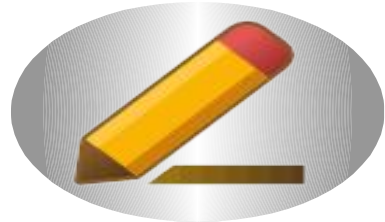
- Ten years of experience in Java enterprise, portal, mobile solutions.
- Apache Committer and an open source fan.
- Author of three books.



- DeveloperWorks Contributing author.
- Technical Speaker.
- Advisory Software Engineer in IBM.



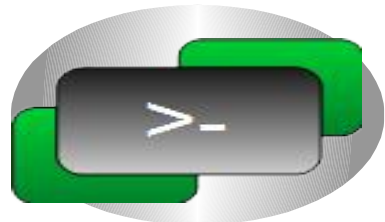
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Apache Cordova Introduction



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Cordova Command Line



Cordova APIs Overview

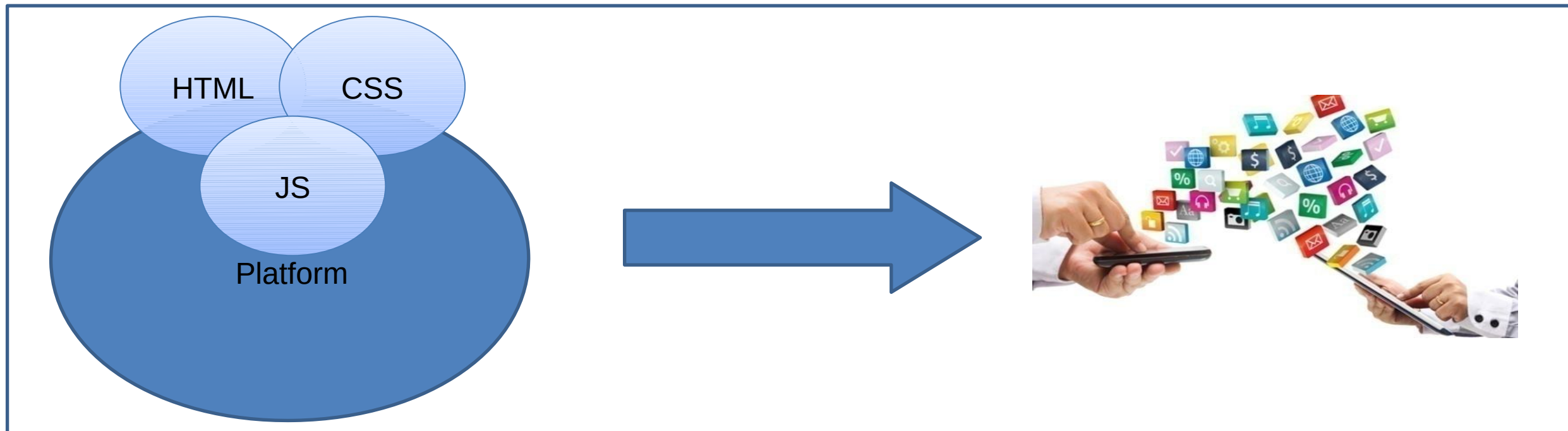
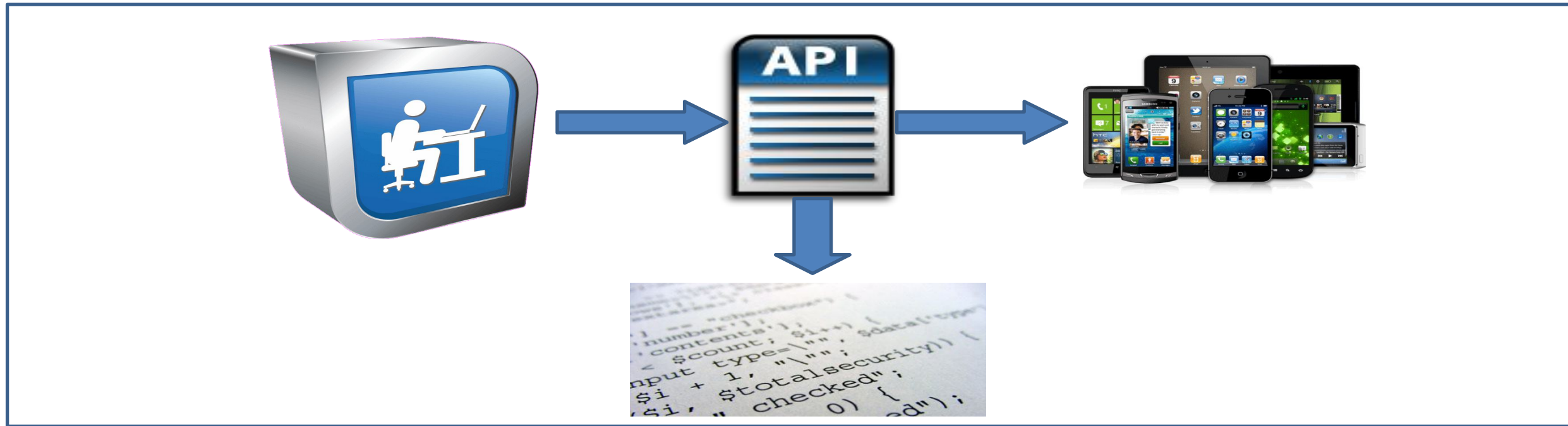


jQuery Mobile Integration



Memo Application Demo

Apache Cordova Introduction



Device native functions examples:



Hybrid vs Native Application

	Hybrid Application (Cordova)	Native Application
Can be uploaded to App Store	Yes	Yes
Technology	HTML + CSS + JavaScript	Native platform Programming Language
Cross-mobiles support	Yes	No
Development Speed	Faster	Slower
Uses Device Native Features	Yes	Yes

Apache Cordova Introduction

Cordova is supported on the following platforms:



Challenges of the current mobile development:

Many platforms and devices.

Different skills needed.

Different problem types.

Huge Development and Testing Effort to have a single application on these platforms.

For Android: Java skills needed.

For iOS: Objective C skills needed.

For Windows: .Net skills needed.

Who can use Cordova?

If you are a web developer and wants to develop a mobile application that can be deployed on the different app store portals.

If you are a mobile native developer and wants to develop a single application on the different mobile platforms without having to re-implement the application code on every platform.

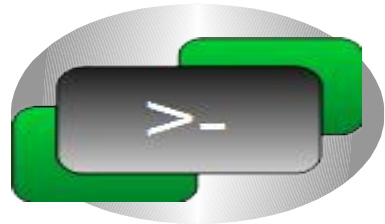
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Prerequisites:

Node JS.

Target SDK.

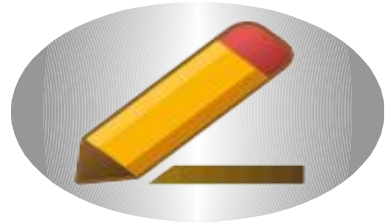
From command line:

```
> sudo npm install -g cordova
```

To know the installed version of Cordova:

```
> cordova -v
```

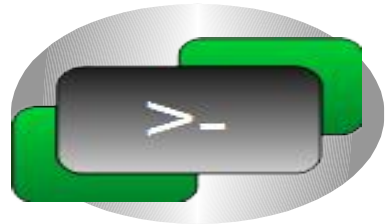
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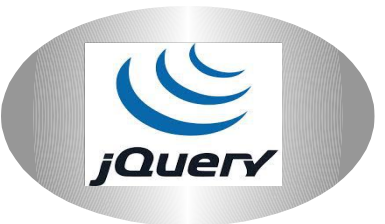
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To create an application:

```
> cordova create <<app_dir>> <<project_id>> <<app_title>>
```

To add a platform (from the app folder):

```
> cordova platform add <<platform_name>>
```

To build Cordova project:

```
> cordova build
```

To deploy the app on emulator:

```
> cordova emulate <<platform_name>>
```

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Hello World Demo

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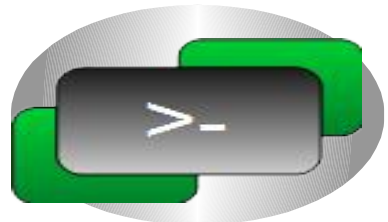
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Native device functions are represented as plugins that can be added and removed using the command line.

Adding camera plugin example:

```
> cordova plugin add https://git-wip-us.apache.org/repos/asf/cordova-plugin-camera.git
```

Removing Camera plugin example:

```
> cordova plugin rm org.apache.cordova.core.camera
```


Device

An object that holds information about the device hardware and software.

Device information is mainly about:

- Device name.
- Device Platform.
- Device Platform version.
- Device model.

“deviceready” event is an indicator that Cordova finishes loading and Cordova APIs are ready to be called.

Camera

An object that provides an access to the default camera application.

```
navigator.camera.getPicture(onSuccess, onFail, { quality: 50,  
  destinationType: Camera.DestinationType.DATA_URL  
});  
  
function onSuccess(imageData) {  
  var image = document.getElementById('myImage');  
  image.src = "data:image/jpeg;base64," + imageData;  
}  
  
function onFail(message) {  
  alert('Failed because: ' + message);  
}
```

Capture

An object that provides an access to audio, image, and video capture capabilities.

```
var captureSuccess = function(mediaFiles) {  
  // Do something with the captured Audio media files  
};  
  
var captureError = function(error) {  
  navigator.notification.alert('Error code: ' + error.code, null, 'Capture Error');  
};  
  
navigator.device.capture.captureAudio(captureSuccess, captureError, {limit:2});
```

Media

An object that allows playing back audio files on the device.

```
var my_media = new Media("someFile.mp3", onSuccess, onError);

my_media.play();
function onSuccess() {
    console.log("playAudio():Audio Success");
}

function onError(error) {
    alert('code: ' + error.code + '\n' + 'message: ' + error.message + '\n');
}
```


Notification

An object that displays visual, audible, and tactile notification.

```
// Show a native looking alert
navigator.notification.alert(
  'Cordova is great!', // message
  'Cordova',          // title
  'Ok'                // buttonName
);

// Beep four times
navigator.notification.beep(4);

// Vibrate for 3 seconds
navigator.notification.vibrate(3000);
```

Storage

Provides an access to the W3C Web Storage interface:

- Local Storage (`window.localStorage`).
- Session Storage (`window.sessionStorage`).

```
window.localStorage.setItem("key", "value");
```

```
var value = window.localStorage.getItem("key");
```

```
window.localStorage.removeItem("key");
```

```
window.localStorage.clear();
```

Storage

Provides an access to the device Web SQL Database (Full featured database).

```
function populateDB(tx) {  
  tx.executeSql('DROP TABLE IF EXISTS DEMO');  
  tx.executeSql('CREATE TABLE IF NOT EXISTS DEMO (id unique, data)');  
  tx.executeSql('INSERT INTO DEMO (id, data) VALUES (1, "First row")');  
  tx.executeSql('INSERT INTO DEMO (id, data) VALUES (2, "Second row")');  
}  
function errorCallback(err) {  
  alert("Error processing SQL: " + err.code);  
}  
function successCB() {  
  alert("success!");  
}  
var db = window.openDatabase("Demos", "1.0", "Cordova Demo", 200000);  
db.transaction(populateDB, errorCallback, successCB);
```

Geolocation

Provides an access to location data (based on GPS sensor or inferred from Network signal).

```
var onSuccess = function(position) {  
    alert('Latitude: ' + position.coords.latitude + '\n' +  
        'Longitude: ' + position.coords.longitude + '\n');  
};  
  
function onError(error) {  
    alert('code: ' + error.code + '\n' +  
        'message: ' + error.message + '\n');  
}  
  
navigator.geolocation.getCurrentPosition(onSuccess, onError);
```

More Objects:

Accelerometer (Capture device motion)

Compass (Get the device direction)

Connection (Get the device connection)

Contacts (Access to device contacts database).

File (Access to device File system based on W3C File API)

Globalization (Access to user locale information)

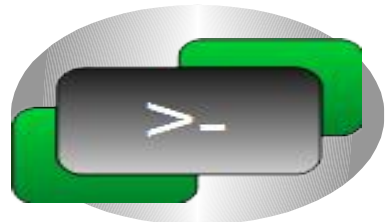
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jQuery Mobile is one of the most popular User Interface framework for building Mobile Web applications.

jQuery Mobile uses HTML5 + CSS3 for layout pages with minimal scripting.

It is compatible with most of the mobile and tablet browsers.

jQuery Mobile Integration

Cordova does not restrict using any specific JavaScript library but using a JavaScript library will save you a lot of time creating your own widgets from scratch.

jQuery Mobile is used in the demo application with Cordova to create the Memo application.

jQuery Mobile Integration

In order to boost the performance of jQuery mobile with Cordova, it is recommended to disable transition effects as follows (jQuery mobile 1.4):

```
$.mobile.defaultPageTransition = 'none';
```

```
$.mobile.defaultDialogTransition = 'none';
```

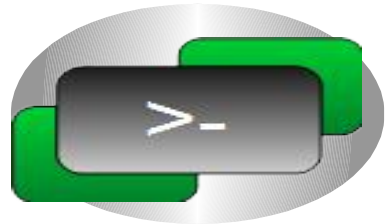
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Memo Application Demo

Memo Application

GitHub project:
<http://github.com/hazems/memo>

Running Android project:
http://apps.opera.com/en_eg/memos_free_version.html

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Questions ???

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