

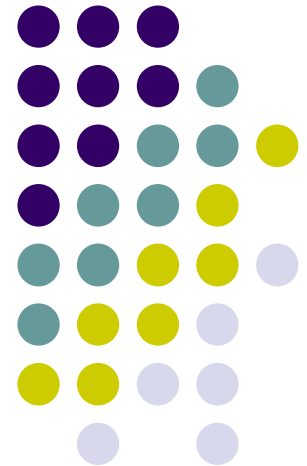
Ubiquitous and Mobile Computing

CS 528: *NativeScript*

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Problem

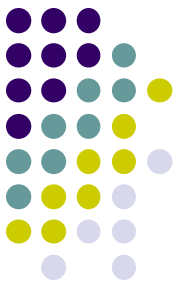
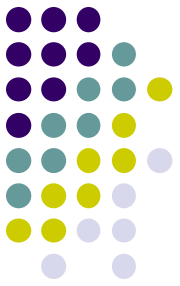


Image source: <https://www.duplextech.com/ratlam-mobile-apps-development>

Background

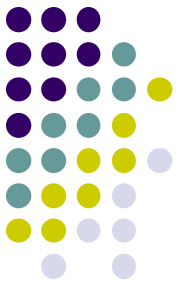
What is NativeScript?



- An **open source** framework for building **truly native** mobile apps with **JavaScript**. Use web skills, like **TypeScript**, **Angular**, **Vue**, and CSS, and **get native UI and performance** on iOS and Android.



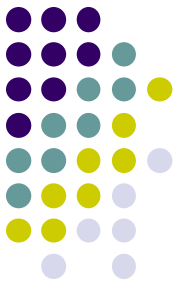
Similar Technologies



Ionic 2 vs ReactNative vs NativeScript



Similar Technologies



React Native

Benefits

- Native interface
- Over 80% common codebase
- Better performance than Ionic 2

Drawbacks

- Poor native experience
- Android components not as reliable as iOS
- Additional overhead of creating native shell for each platform

NativeScript

Benefits

- 100% native API access for seamless performance
- Single codebase for all platforms
- Truly reusable components for both mobile and web apps

Drawbacks

- App size is larger than native and even other hybrid counterparts
- Not using HTML means that more proficiency is the need for creating UI for different platforms.

Ionic 2

Benefits

- Single code base
- Simplified and fast development cycle
- AngularJS components can be reused

Drawbacks

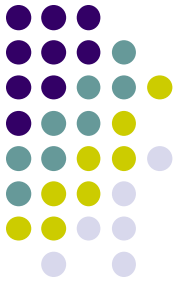
- Performance lags
- Lack of native UI component for each platform
- Not suitable for graphics-intensive applications

History



-The Industry Leader for .NET Development

Image Source: <https://www.progress.com/telerik>



Built by Progress

Released: March, 2015

- Received 3000 Github Stars and over 1500 followers on Twitter
- Progress was named a "visionary" in *Gartner Magic Quadrant for Mobile App Dev Platforms (MADP)*

Version 1.0.0: May, 2015

Version 2.0.0: May, 2016

- Angular integration

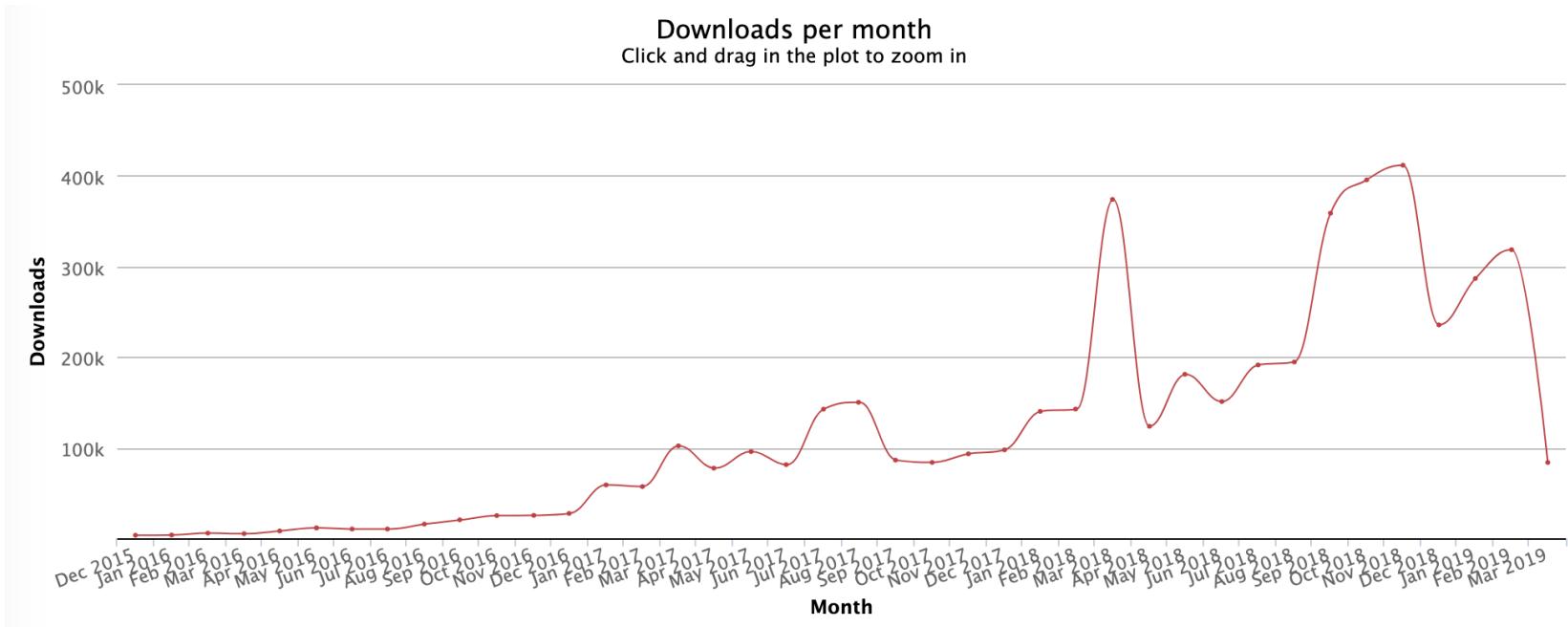
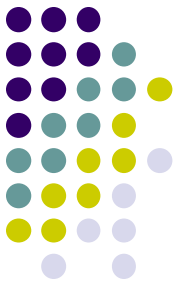
Version 3.0.0: May, 2017

Version 4.0.0: April, 2018

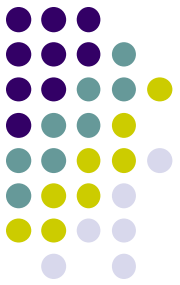
Version 5.0.0: November, 2018

Version 6.0.0: July, 2019

NPM Download Data



<https://npm-stat.com/charts.html?package=nativescript&from=2015-12-01&to=2019-03-11>



Motivation – Why NativeScript?

Designed to leverage web skills – JS, Typescript, Angular, Vue

Cross-platform APIs

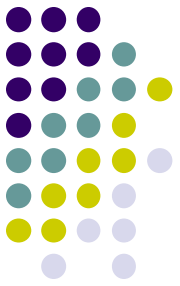
Unmodified native UI components

Can access native APIs using JavaScript

Can share code

Supports existing JavaScript libraries, as well as existing native Objective-C and Java libraries

Specific Problems



Fast Cross Platform development

Hybrid Mobile Applications are Slow and Inconsistent Across Devices

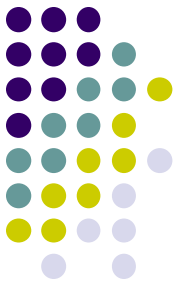
Web UI Components Appear Similar to Native Components at Best

Interacting Directly with Native Features is Complicated in a Hybrid Application

The Latest Features are not Immediately Available

Many SDKs only have a Pure Native Offering

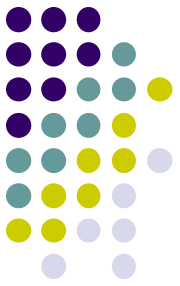
When is it used?



Used in enterprises
for faster
development

For quick and
efficient native, cross-
platform applications

To save on costs of
development, testing,
& training phase for
support staff



Who uses NativeScript?

Of all the companies that are using NativeScript, 36% are small (<50 employees), 36% are medium-sized and 27% are large (>1000 employees).

Deloitte.
Digital

RANGLE.IO

MCKESSON
Empowering Healthcare

verizon✓

SAP

ADP

 **NEUDESIC**


Cigna.

KIZAN


MASSACHUSETTS

 **Raiffeisen**
BANK

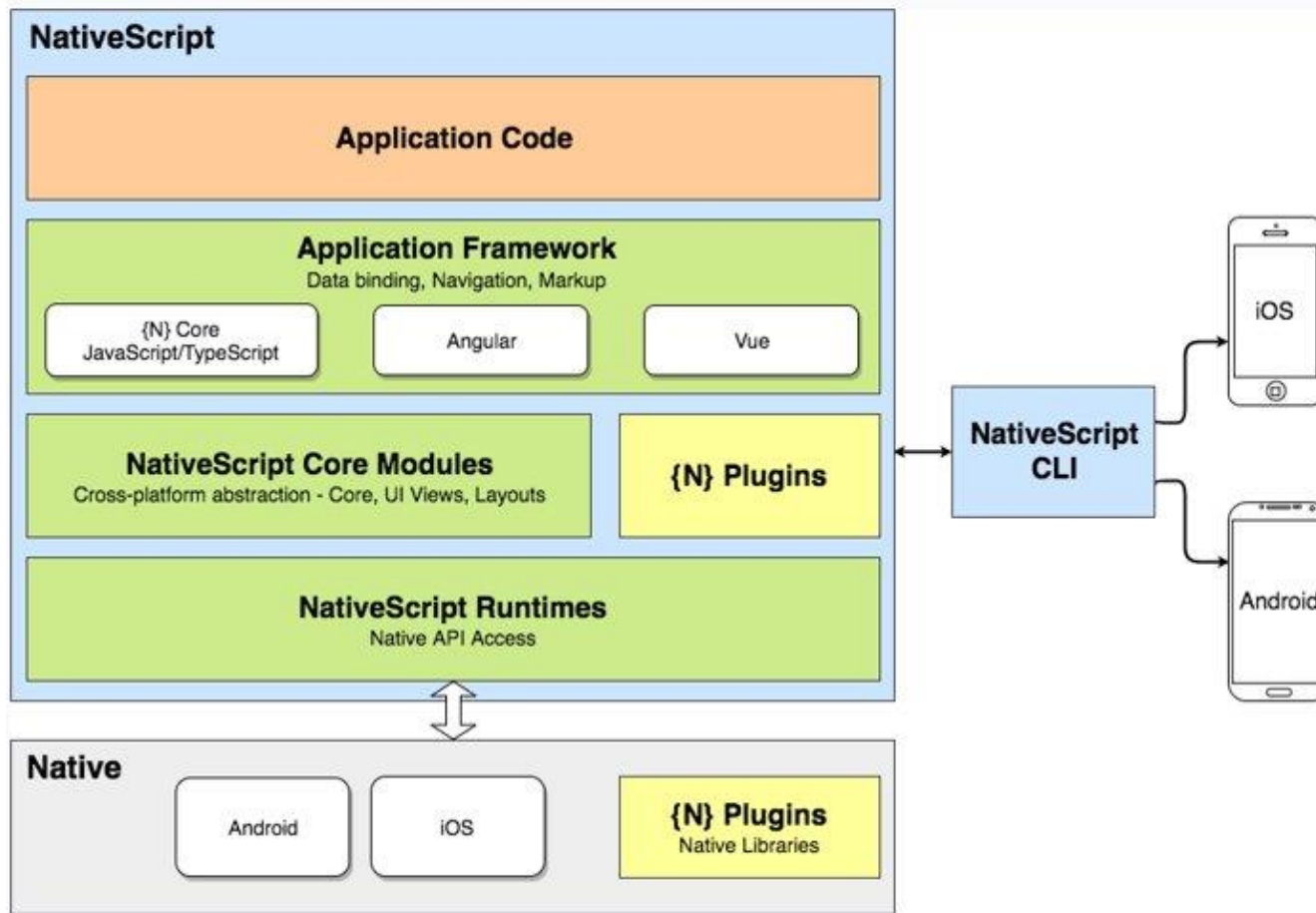
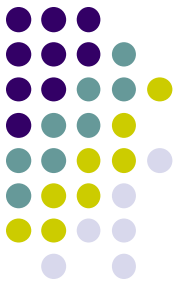
CapitalOne

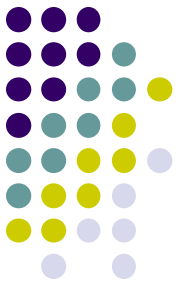
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How it works – Overview





Getting Started

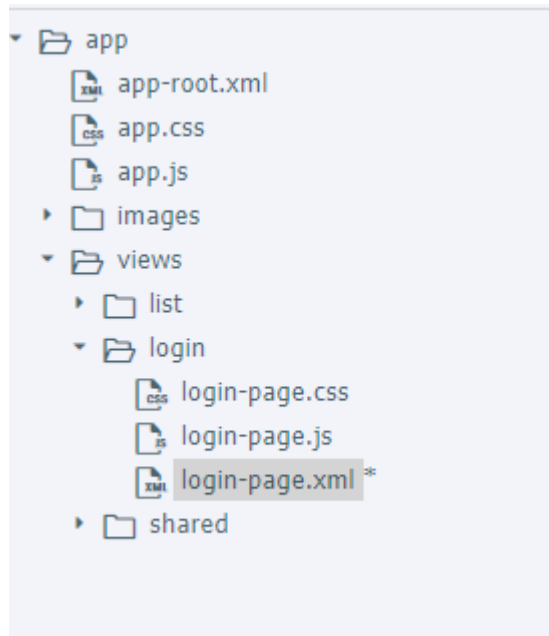
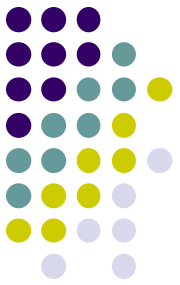
NativeScript Playground

Install NativeScript Command-Line Interface

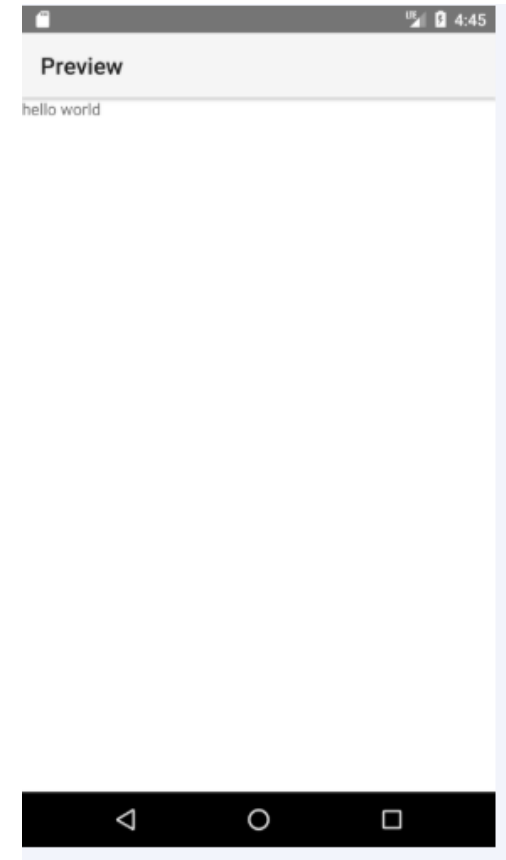
Learn NativeScript Command-Line

- `tns create name --template --which-template`
- `tns preview`
- Scan QR code on NativeScript Playground app

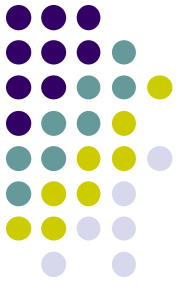
Code Snippet (simple example)



```
login-page.xml
1 <Page>
2   <Label text="hello world" />
3 </Page>
```



Code Snippet (Angular - simple example)

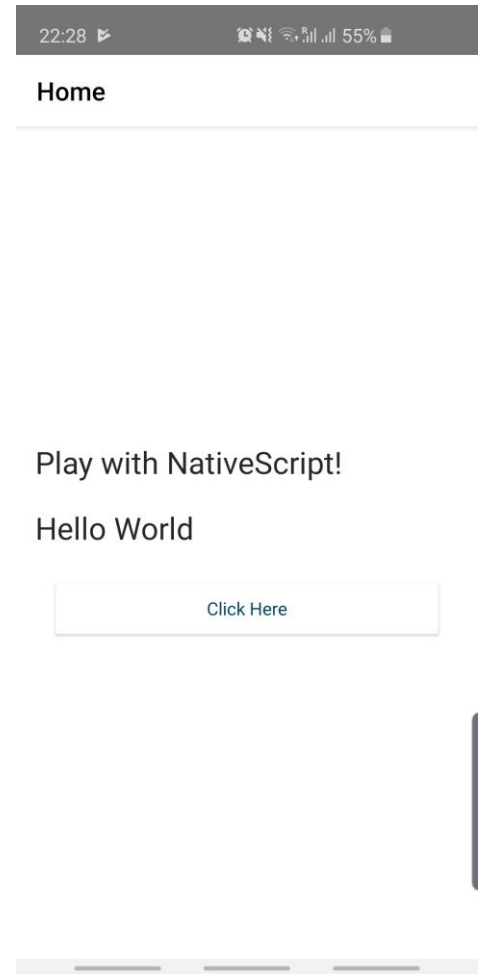


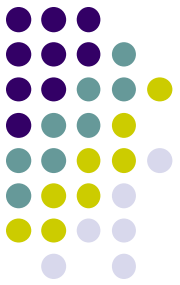
```
My Playground [edit] New [dropdown] QR code Save Fork Download

Explorer + home.component.html

app
├── app-routing.module.ts
├── app.component.html
├── app.component.ts
├── app.css
├── app.module.ts
├── home
│   ├── home-routing.module.ts
│   ├── home.component.css
│   ├── home.component.html
│   ├── home.component.ts
│   └── home.module.ts
└── main.ts

1 <ActionBar title="Home">
2 </ActionBar>
3
4 <GridLayout>
5   <ScrollView>
6     <StackLayout class="home-panel">
7       <!--Add your page content here-->
8       <Label textWrap="true" text="Play with NativeScript!"
9         class="h2 description-label"></Label>
10      <Label textWrap="true" text="Hello World"
11        class="h2 description-label"></Label>
12      <Button text="Click Here" (tap)="onButtonTap()"></Button>
13    </StackLayout>
14  </ScrollView>
15</GridLayout>
```





References

- <https://docs.nativescript.org/>
- <https://enlyft.com/tech/products/nativescript>
- <https://github.com/NativeScript/NativeScript/wiki/Why-NativeScript%3F>
- <https://www.nativescript.org>