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

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

-The Industry Leader for .NET Development

Image Source: https://www.progress.com/telerik
NPM Download Data

## Motivation – Why NativeScript?

<table>
<thead>
<tr>
<th>Designed to leverage web skills – JS, Typescript, Angular, Vue</th>
<th>Cross-platform APIs</th>
<th>Unmodified native UI components</th>
</tr>
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<tbody>
<tr>
<td>Can access native APIs using JavaScript</td>
<td>Can share code</td>
<td>Supports existing JavaScript libraries, as well as existing native Objective-C and Java libraries</td>
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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).
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)

```xml
login-page.xml

1. <Page>
2.  <Label text="hello world" />
3. </Page>
```
Code Snippet (Angular - simple example)

```html
<ActionBar title="Home"/>
<GridLayout>
    <ScrollView>
        <StackLayout class="home-panel">
            <!-- Add your page content here-->
            <Label textWrap="true" text="Play with NativeScript!" class="h2 description-label"></Label>
            <Label textWrap="true" text="Hello World" class="h2 description-label"></Label>
            <Button text="Click Here" (tap)="onButtonTap()"></Button>
        </StackLayout>
    </ScrollView>
</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