Internationalization and Accessibility proof apps

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Overview & Agenda : Tizen Web SDK (HTML5)

- Globalization of Tizen app (g18n)

- TAU for g18n

- Accessibility Enablement for Tizen applications (ally)

Globalization: Think Global Act Global $, ¥, €, £

Home Currency

World Economies

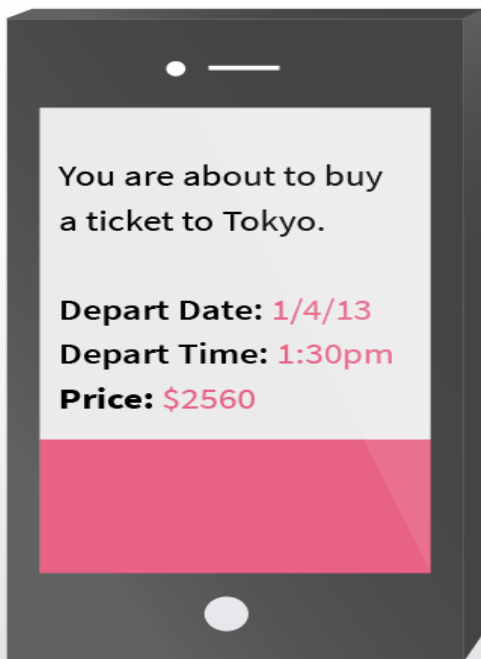*"Tizen App Store available In 182 countries worldwide"*
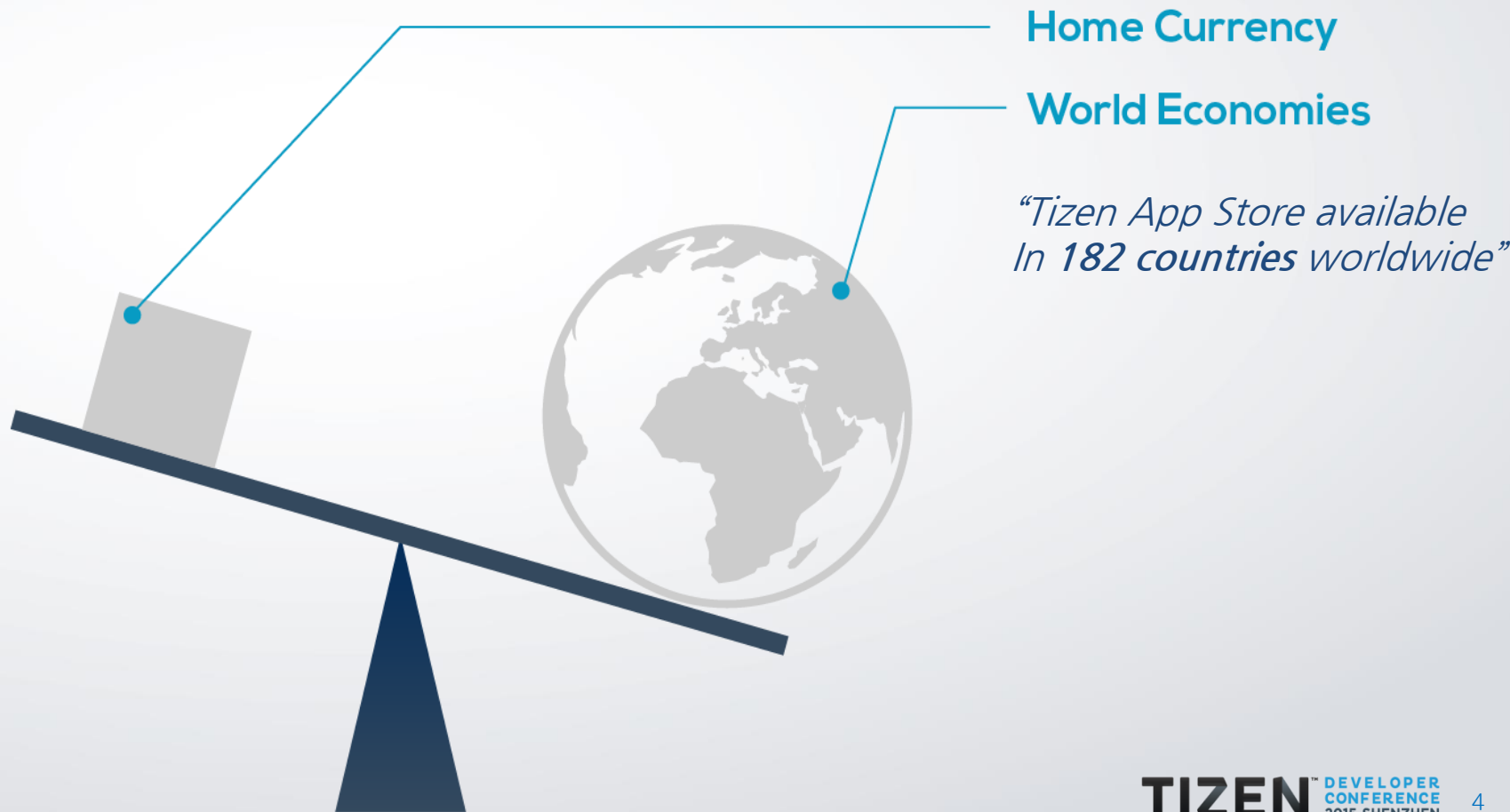
Globalization : Basic Terminology

- **Internationalization (i18n)**: It is a process of designing a software application so that it can *potentially* be adapted to various languages and regions without engineering changes

- **Localization (l18n)**: Main task is to enable translation for text and images for contextual and cultural fit

- **Globalization (g18n)**: Internationalization + Localization constitutes globalization

- **Locale & Regional Formatting**: Setting appropriate date, time and numbers for different regions and languages.
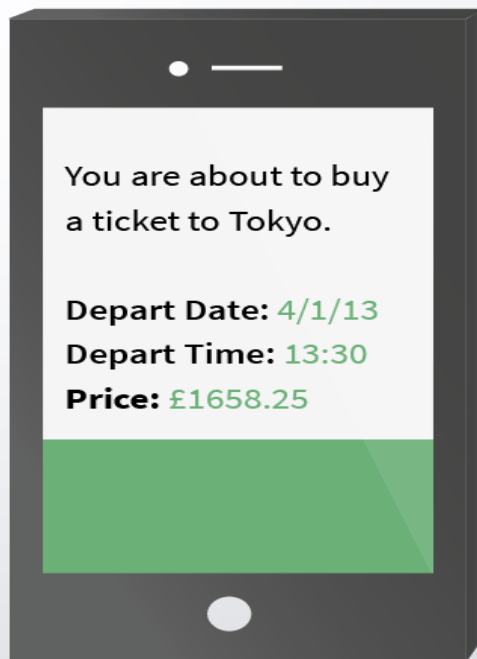
Internationalization: Simple Example

A US app viewed from a device with UK English as default language

Not Internationalized

You are about to buy a ticket to Tokyo.

Depart Date: 1/4/13
Depart Time: 1:30pm
Price: $2560

Internationalized

You are about to buy a ticket to Tokyo.

Depart Date: 4/1/13
Depart Time: 13:30
Price: £1658.25

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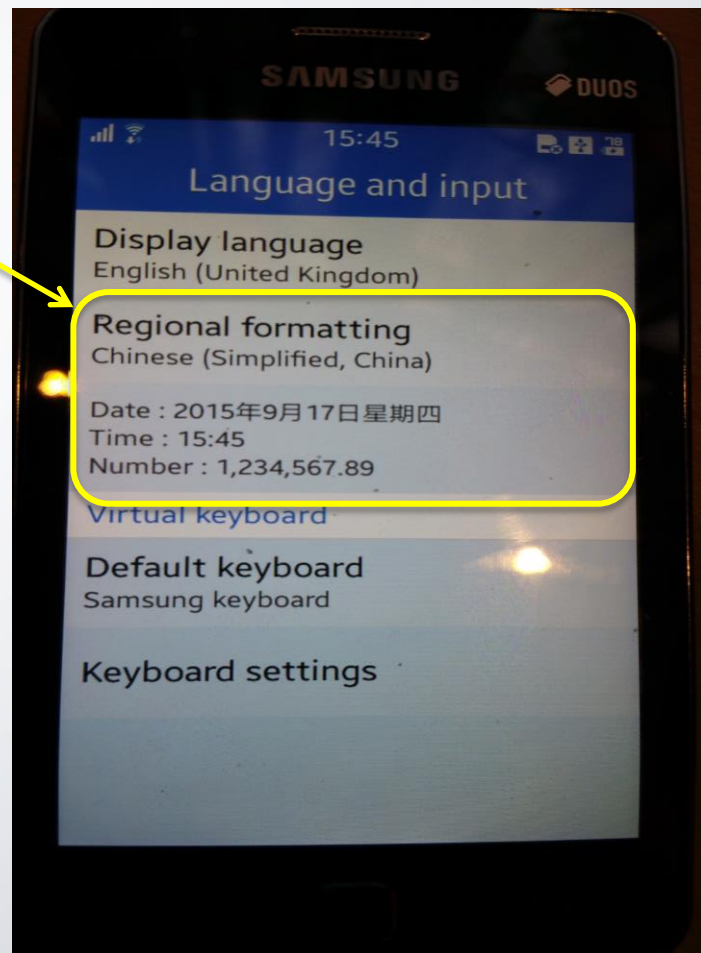
Localization on Tizen phone (Samsung Z1):
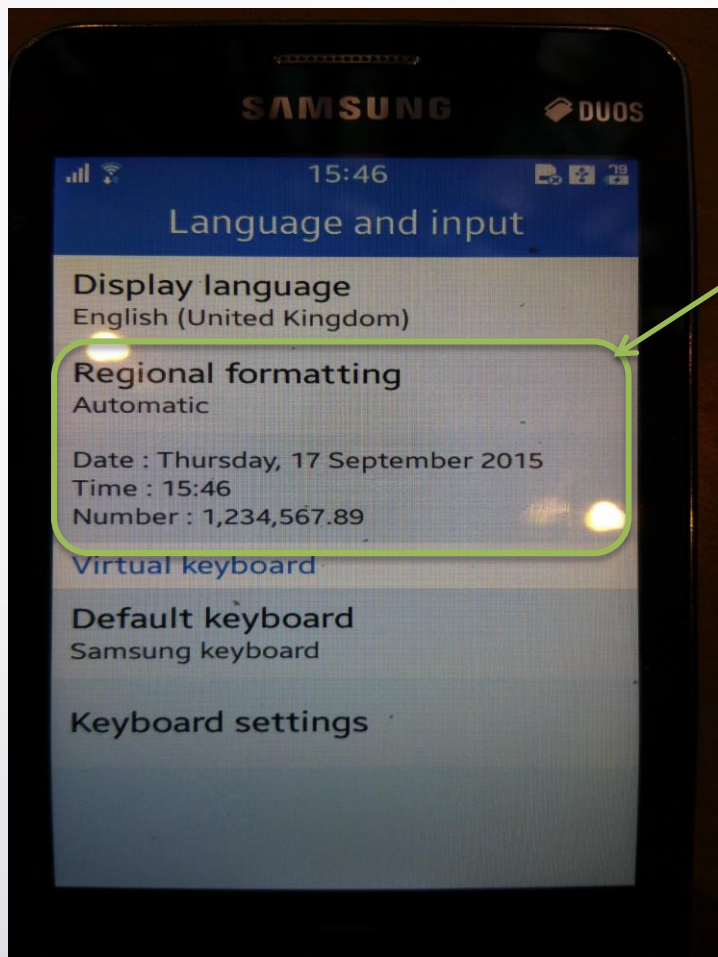
Developer Guide: "Hello World" of Localization or "i10n"

#1: Create Folder Structure for supported languages (individual JS file within):

```
index.html
  └locales
      └en
  └language.js
      └ko
  └language.js
```

#2: Create JS Object such as "**LANG_JSON_DATA**" in **ko/language.js** file

```
LANG_JSON_DATA= {
                  "hello": "안녕"
                }
```

Developer Guide: Localization or "i10n" ?

#3: Include **JS files in your index.html** file and **log the string object**

```
<script src="language.js"></script>

<script type="text/javascript">
  log("hello="+LANG_JSON_DATA["hello"]); // based on language setting will print "hello"
</script>
```

#4: **Run** your app and **inspect the console**:

--------Console output---------

안녕

Language tags for content and code

locale ID / 2 letter language code	Meaning
hi-in	Hindi (India)
en-us	English (United States)
es-mx	*Spanish (Mexico)*
fr-ca	French (Canada)
zh-cn	Simplified Chinese (中文 简体))
zh-hk	Chinese Traditional (Hong Kong)
ko-KR	Korean (Rep. of Korea)

Internationalization: HTML lang attribute to set the content

#1: **Set the correct HTML lang attribute** for your primary content language

- Useful for **SEO** to index content in that particular language

- Useful **for Screen readers** (**ally**) to pronounce the words correctly

- **Useful for CSS styling** for that particular language

⟨html lang="en"⟩

…

…

```
html[lang=en] {
    /* CSS rules for English */
    }
html[lang=zh] {
    /* CSS rules for Chinese */
    }
```

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Internationalization: HTML dir attribute to set the directionality

<html dir="rtl" > or <html dir="ltr">

- "dir" attribute is set to **ltr** (left to right) for most languages including Chinese and English

- **RTL Language and regions** : Arabic (Gulf Countries), Hebrew (Israel), Urdu (India, Pakistan)
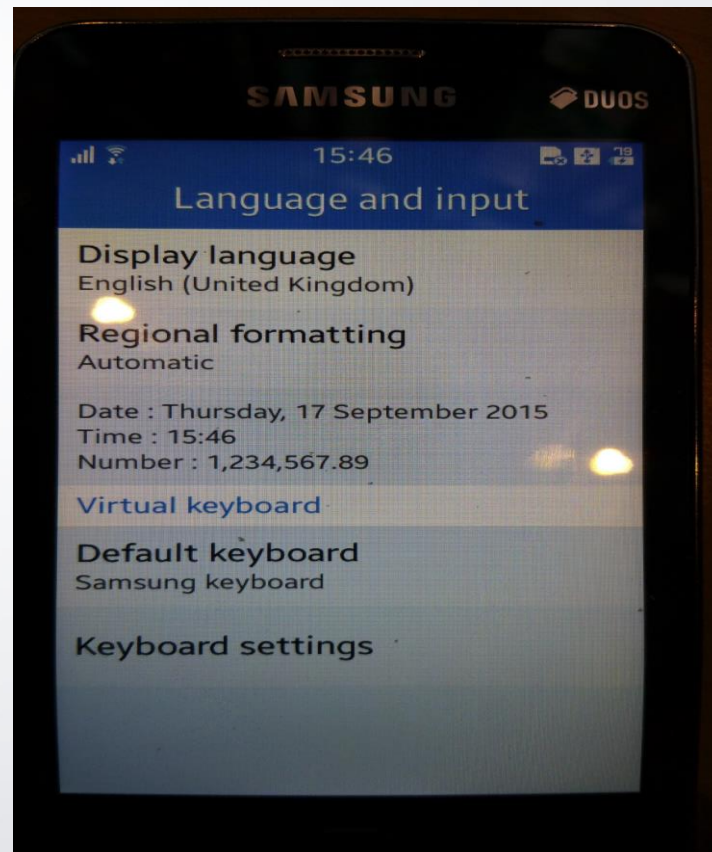
<html dir="rtl">

…

…

```
html[dir=rtl] {
/* CSS rules for RTL layout*/
            }
html[dir=ltr] {
/* CSS rules for LTR layout*/
            }
```

RTL Layout in Tizen (Samsung Z1): Urdu

Tizen Advance UI Framework

- Globalization of Tizen app (g18n)

- **TAU g18n**

- Accessibility Enablement for Tizen applications (ally)

Tizen Advance UI Framework (TAU) version 2.4

Title	Description
Base	References of base APIs to organize and managing application.
Mobile UI Components	References of UI Components for Mobile profile.
Wearable UI Components	References of UI Components for Wearable profile.
Gesture Events	References of TAU-specific gesture event.
Globalization	References of Globalization utility library.
Animation	References of Animation APIs.
Accessibility	Support for screen reader since 2.1

Globalize.js: JS based library to support i18n & l18n

- Leverages **the Unicode CLDR data** and follows its **UTS#35 specification**.

- Keeps the code **modular**. Allows **you to load the i18n functionalities (date, time, number, currency etc.)** you need then.

- Runs on **Tizen***, web browsers & Node.js consistently across all of them.

- **Dependencies**
  1. jQuery : use globalize.js as a jQuery plugin
  2. cldr.js : translation information per Unicode standard

- *git clone https://github.com/jquery/globalize*

Tizen Advance UI Framework

- TAU is **ECMAScript5- and HTML5-compliant**

- TAU is a **standalone library**, but better leveraged with **jQuery**

- TAU is **optimized** for wearable, mobile, and TV devices.

```
<html lang="eng" dir="ltr">
    <meta name="viewport" content="width=device-width, initial-scale=1">
<title>Page Title</title>

<script type="text/javascript" src="../lib/tau/mobile/js/tau.js"> </script>

<link rel="stylesheet" href="../lib/tau/mobile/theme/default/tau.css">

<script type="text/javascript" src="myapp.js">
…
</script>

<link rel="stylesheet" href="my.css"/>
…
```
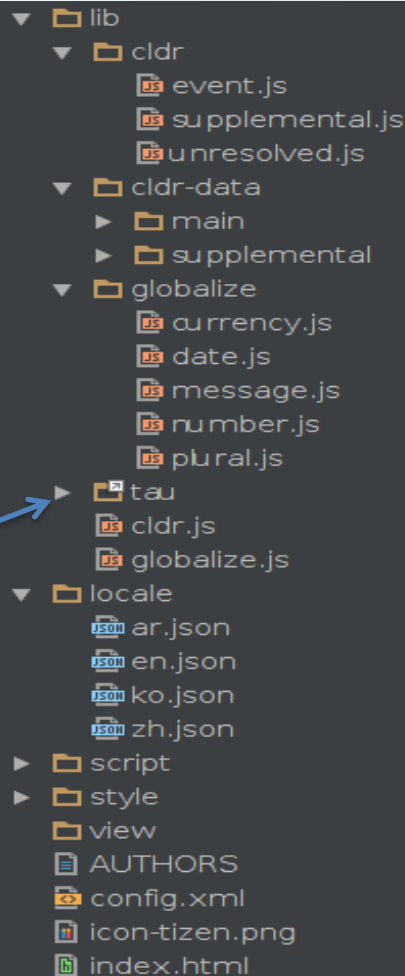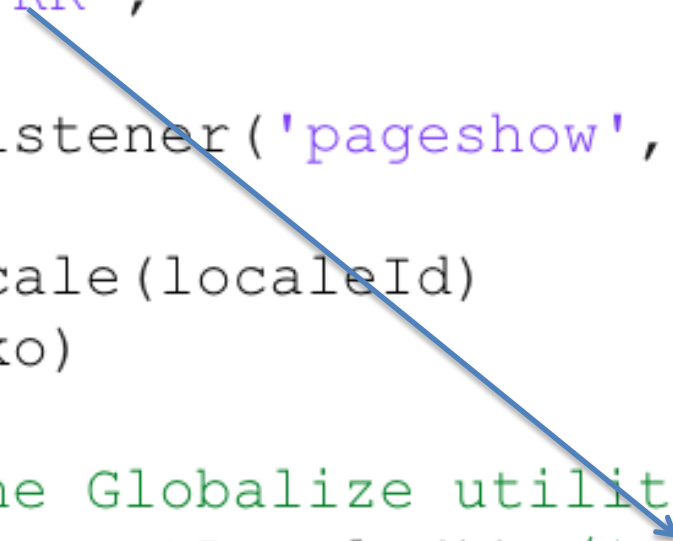
```
▼ 📁 lib
    ▼ 📁 cldr
        📄 event.js
        📄 supplemental.js
        📄 unresolved.js
    ▼ 📁 cldr-data
        ▶ 📁 main
        ▶ 📁 supplemental
    ▼ 📁 globalize
        📄 currency.js
        📄 date.js
        📄 message.js
        📄 number.js
        📄 plural.js
    ▶ 📁 tau
        📄 cldr.js
        📄 globalize.js
    ▼ 📁 locale
        📄 ar.json
        📄 en.json
        📄 ko.json
        📄 zh.json
    ▶ 📁 script
    ▶ 📁 style
    📁 view
    📄 AUTHORS
    📄 config.xml
    📄 icon-tizen.png
    📄 index.html
```

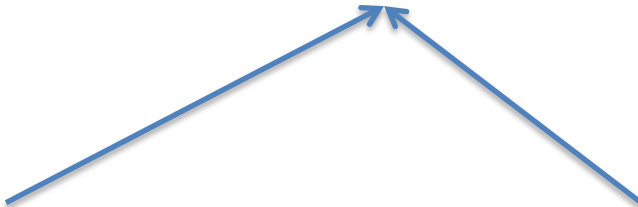# TAU globalize.js : setLocale() helper method

```
var globalize = tau.util.globalize,
    localeId  = "ko-KR";

document.addEventListener('pageshow', function()
{
    globalize.setLocale(localeId)
    .done(function(ko)
    {
        /* "ko" is the Globalize utility instance */
        console.log(ko.getLocale())  /* "ko" */
    })
})
```

TAU globalize.js: formatCurrency() helper method

```javascript
var globalize = tau.util.globalize,
    localeId  = "ko-KR",
    currency_unit = "KRW"; /* ISO 4217 */

document.addEventListener('pageshow', function()
{
    globalize.setLocale(localeId)
    .done(function(ko)
    {
        console.log(ko.formatCurrency(69000, currency_unit)); /* ₩69,900
    })
})
```

Format based on localeID

Accessibility

- Globalization of Tizen app (g18n)

- TAU for g18n

- **Accessibility Enablement for Tizen applications (ally)**

What is Accessibility or 'ally' & Why care about it?

15% of population = **1 Billion people** have some kind of disability

How to make sure Tizen apps are fully accessible?

1. **Semantic** Content and valid **HTML**

2. **Ease of use** in user experience

1. **Flexibility** of interaction (touch, vibrate, sound, visual etc.)

1. Make sure **screen readers and accessibility services work** under real world use

Accessibility Proof: Steps

#1 **Value HTML markup:**

- Use **semantic HTML** markup elements and not just 〈div〉

- Use "**tabindex**" Attribute : Set values only for accessibility purpose only

#2 **Add WAI-ARIA into your HTML code:**

- Better approach

- Read spec to understand roles and attributes2

Tizen Screen Reader reads in the following order:

1. Content The actual element content is read first.

2. Other attributes than role and aria-label

3. role attribute

1. aria-label attribute

```
<img src="icon.jpg" alt="icon">

<div tabindex="0">
  <div>on</div>
  <div aria-hidden="true">
    off
    <div>child</div>
  </div>
</div>
```

Tizen Screen Reader：Navigate using Screen Reader mode

Interaction	Screen reader ON
Tap	Select an object.
Double tap	Execute the object.
Double tap and hold	Execute a long tap function.
Tap and move	Select an object and move focus.
Swipe	Select a previous or next object.
2-finger swipe	Scroll the page or unlock.
2-finger tap and move	Pan.

WAI–ARIA : Set state of UI components using ARIA
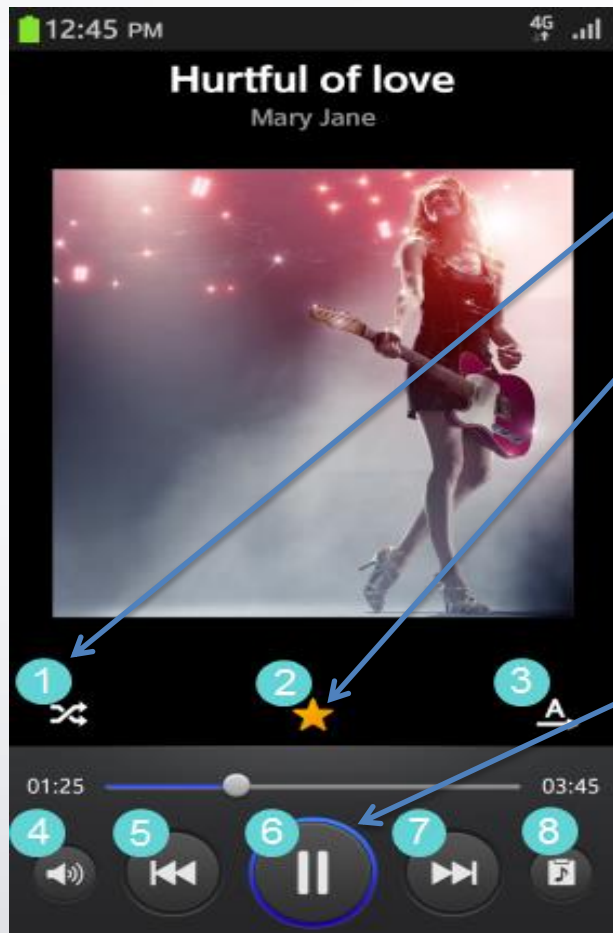
- Shuffle on/off

- Favorite on/off

- Repeat on/off/one

- Volume

- Previous track: double-tap and hold to rewind

- Play/pause

- Next track: double-tap and hold to forward

- Current playlist

UX Tip: Use High Contrast for Images and Text

Display 4	Black 54%
Display 3	Black 54%
Display 2	Black 54%
Display 1	Black 54%
Headline	Black 87%
Title	**Black 87%**
Subhead	Black 87%
Body 2	**Black 87%**
Body 1	Black 87%
Caption	Black 54%
Menu	**Black 87%**
Button	**BLACK 87%**

UX Tip: Use High Contrast for Images and Text (4.5 : 1)

Test yourself: http://leaverou.github.io/contrast-ratio/
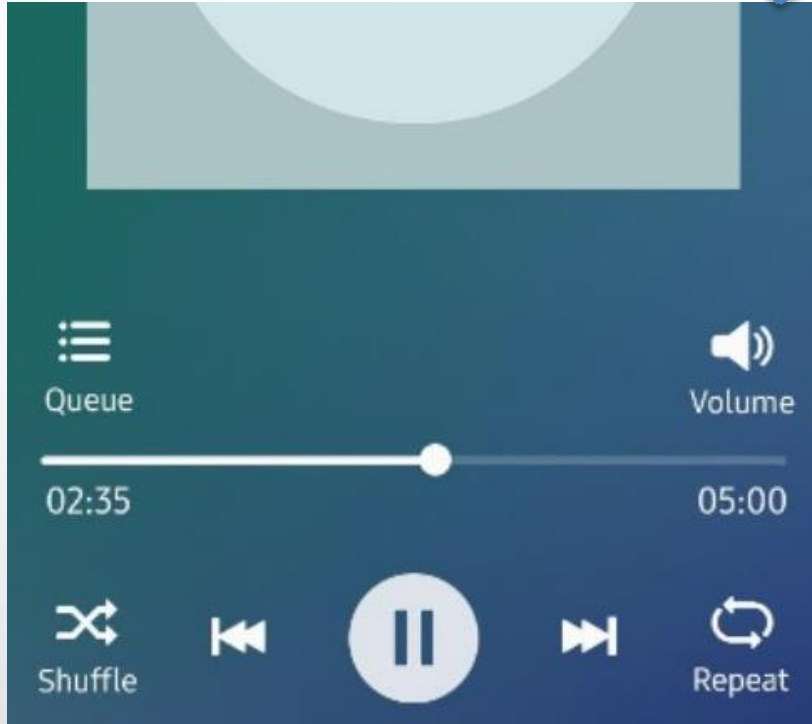
UX Tip: Avoid very small text, support zoom in and out

Unreadable font size
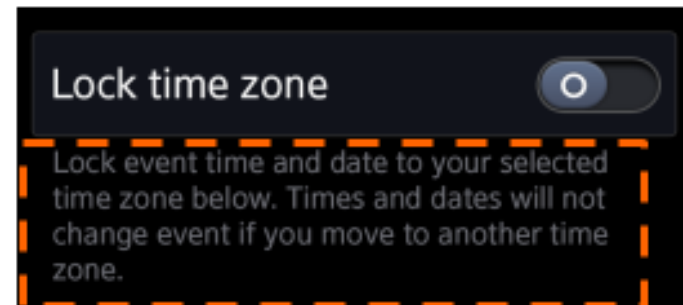
UX Tip: Settings > Accessibility > Font size

List

List item 1
List item 2
List item 3

Dialogue Group

Homepage
Sunday

⦿ Sunday
◯ Monday

Show week number

Description

Lock time zone

Lock event time and date to your selected time zone below. Times and dates will not change event if you move to another time zone.
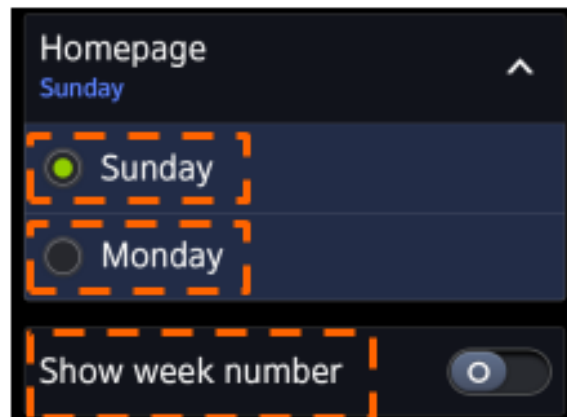
Points to remember ⋯

1. Start local but **think global**!

2. More people need your help in terms of **making technology accessible**

3. **Accessibility and UX** go hand in hand

4. **Leverage framework** resources (**TAU**) that come bundled for free

5. **Going the extra mile now is easier** than later and more than worth it.

Useful Resources & references: *suyash@suyashjoshi.com*

1. WAI ARIA : http://www.w3.org/WAI/intro/aria

2. TIZEN Accessibility UX Guide: https://developer.tizen.org/development/ux-guide/basic-interactions/accessibility

3. TIZEN Accessibility Dev Guide: https://developer.tizen.org/development/ux-guide/basic-interactions/accessibility

4. Tizen Dev Guide for TAU: https://developer.tizen.org/development/guides/web-application/tizen-features/web-uifw

5. Tizen Dev Guide for Localization: https://developer.tizen.org/development/guides/web-application/tizen-features/localization

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