

# Project

## Ionic Country, Weather & News Reader

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## Introduction

Write an Ionic mobile application that reads news, weather, and country data from internet resources.

## Project Start

The project must be written using the Ionic framework V3 and created initially using the following command:

```
ionic start GXXXXXXXX blank --type=ionic-angular
```

where GXXXXXXXX is your student number.

## Submission of the Project

The zipped Ionic project (named GXXXXXXXX.zip where GXXXXXXXX is your student number) should be uploaded to the *Project* section of Moodle in the Mobile Applications Development module no later than **Wednesday, August 28<sup>th</sup> 2023 at 9:00am.**

## Plagiarism

Plagiarism will be dealt with in accordance with the university's [Student Code](#).

## Marking Scheme

85% of the marks will be awarded for implementing the functionality described in this document.

15% of the marks will be awarded for innovation, extra functionality, exceeding the requirements listed in this document.

**Please describe your innovation (if any) in a document entitled *innovation.pdf* which should be stored in the root folder of your submission.**

## Overview of Web App

The web app should consist of the following pages:

### *Home Page*

The *Home Page* is the first page of the application. It has a navigation bar which should have your student number and a link to the *Settings* page.

The first time the application is run no city has yet been entered so the *News* button and weather, and country data will be hidden.



*Figure 1 Home Page*

## Settings Page

The *Settings Page* allows the user of the app to enter a *City* for which weather data will be displayed and to change the *Units* in which the weather data is shown. The default units should be *Metric*.

Any changes made on this page should be stored persistently by the app, when the *Save* button is pressed. If the user leaves the page without pressing the *Save* button, changes are not saved.

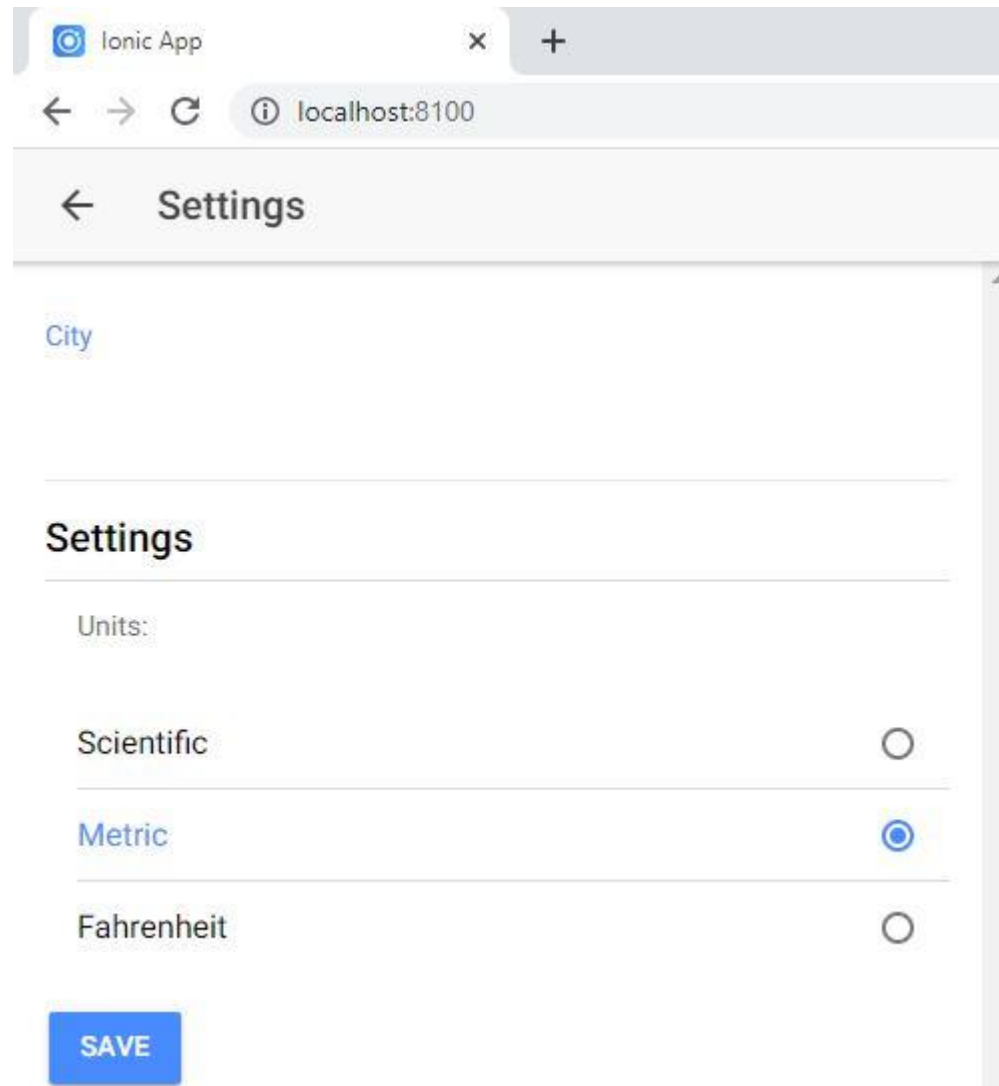


Figure 2 Settings Page

If the user presses *Save* but doesn't enter a *City* he/she should be presented with an error message as shown:

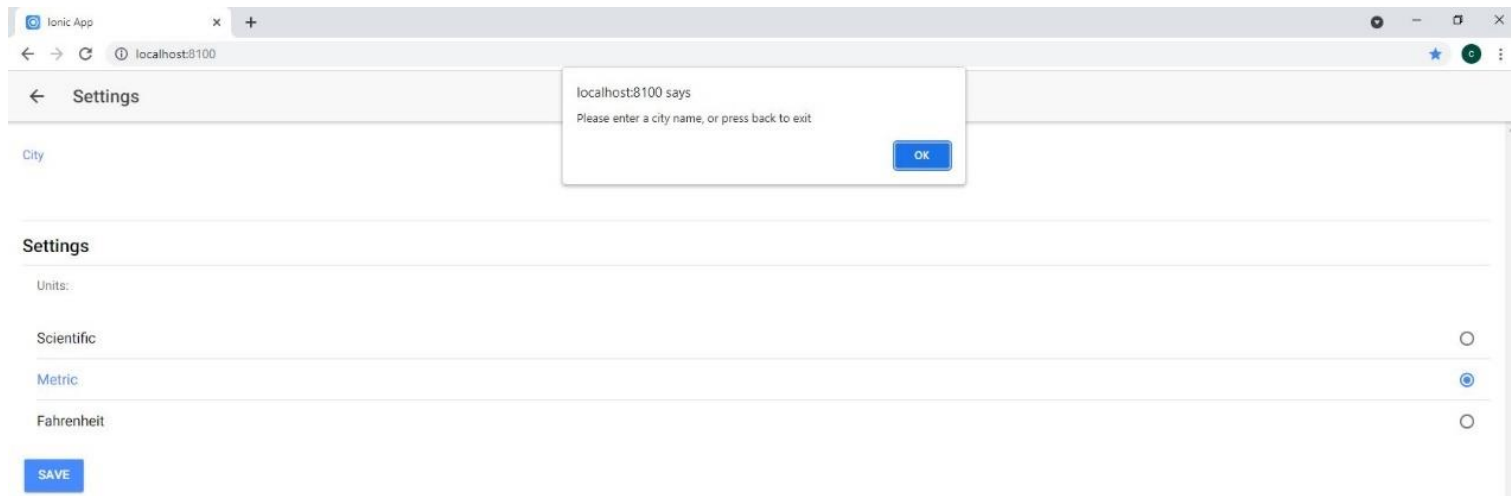


Figure 3 Settings page with Error Message

When a *City* and *Units* have been successfully entered, the next time the *Settings* page is opened these should be shown:

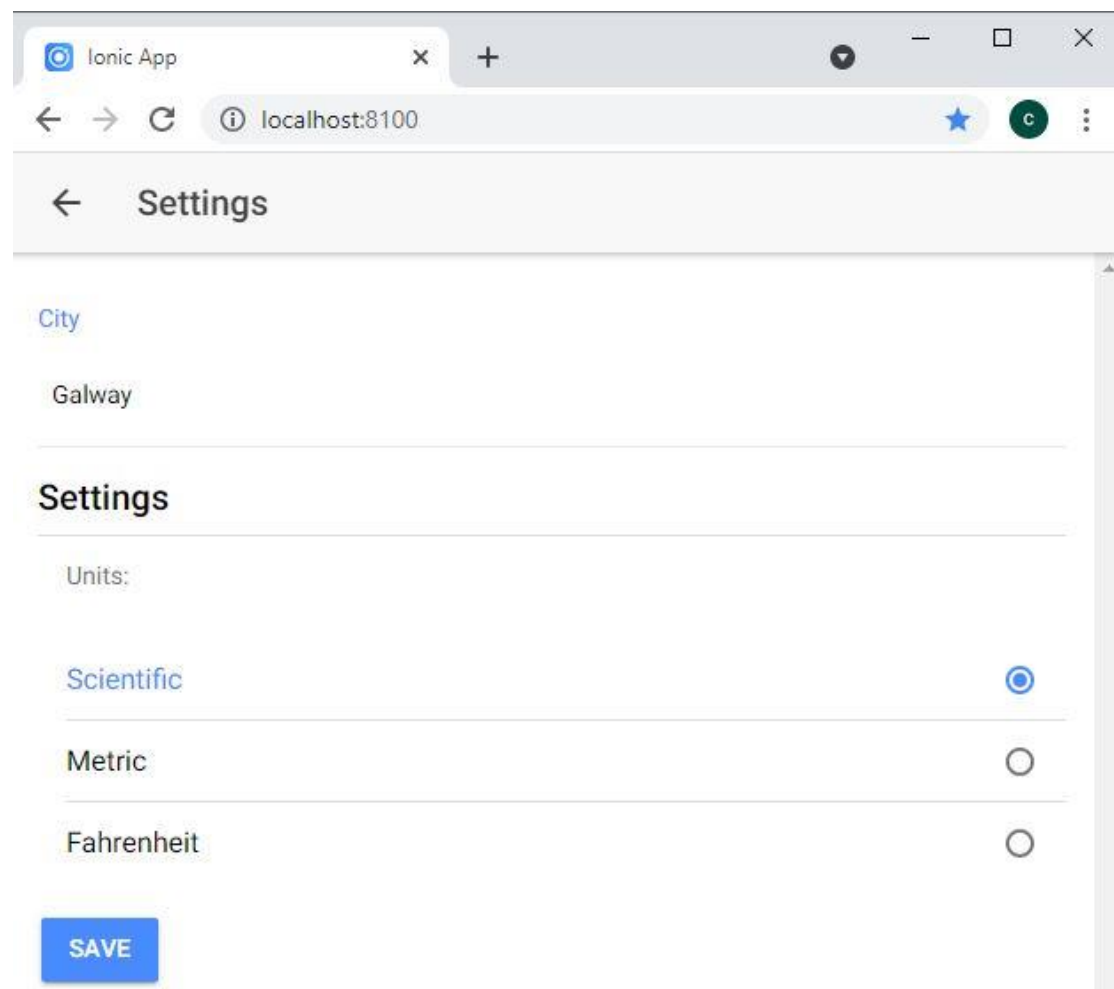


Figure 4 Settings page reading data from storage

### Home Page – City Not Found

Once a *City* has been saved persistently by the *Settings* page, weather and news for that city should be shown if possible.

City data should be read from <https://restcountries.com/#api-endpoints-v3>. If the city name that has been saved in storage is not found on restcountries.com, then the following error should be shown, and no news or weather data shown.

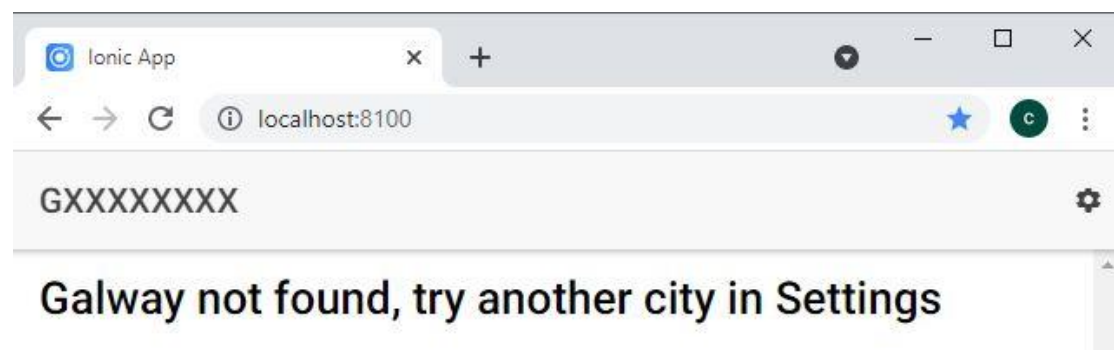


Figure 5 City not found

### Home Page – City Found – Display Country Info

If the city name that has been saved in storage is found on restcountries.com, the following information should be shown:

- City Name (e.g. London – from Storage)
- Country Common name (e.g. United Kingdom – from *common* attribute of data returned from restcountries.com)
- Flag (From *png* attribute of data returned from restcountries.com)

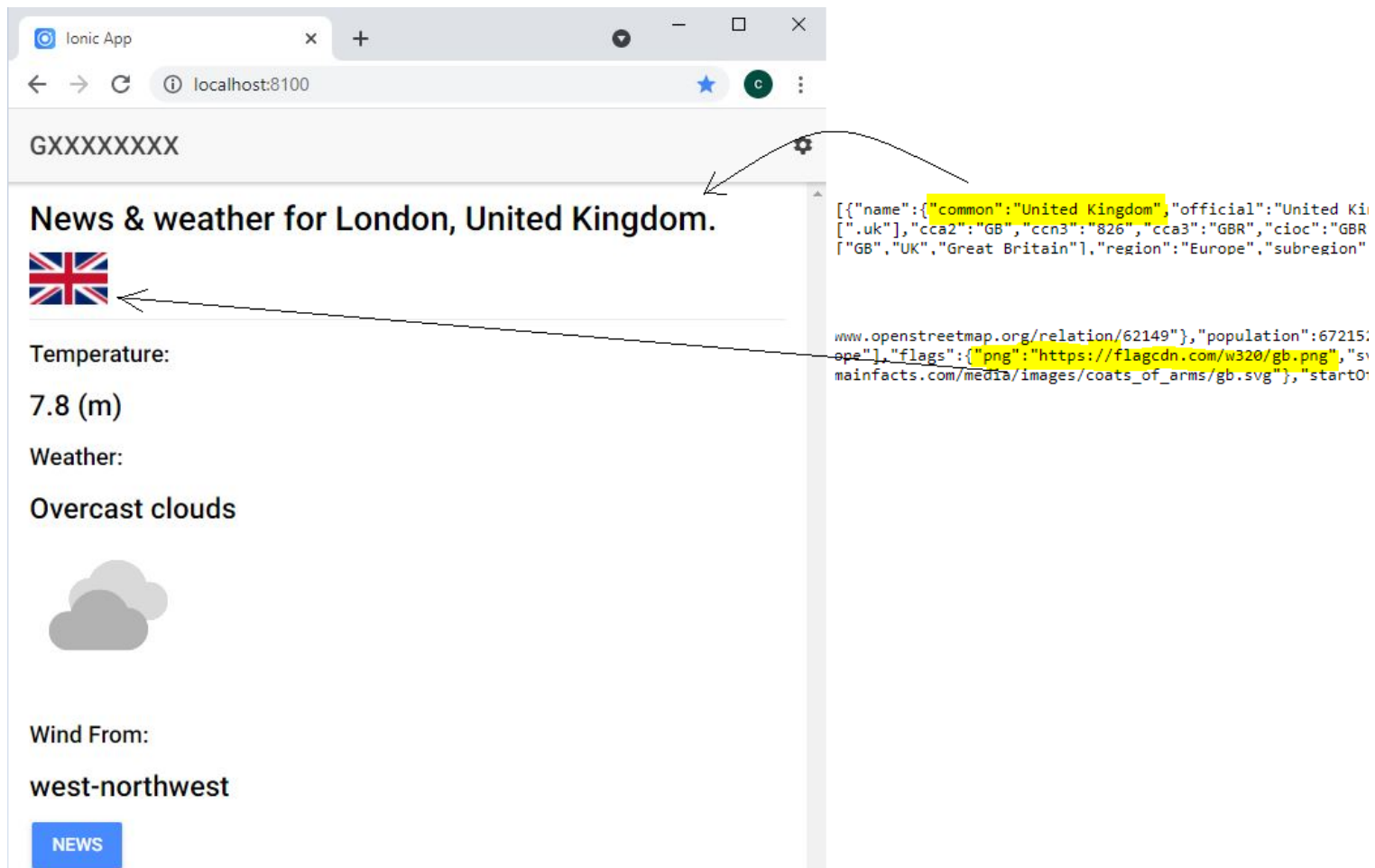


Figure 6 Home Page with Weather



The weather information for the country the city is in should be read from weatherbit.io.

To use this service:

- Create an account at <https://www.weatherbit.io/account/create> and select the Free (\$0/mo) plan.
- This will give you an API key which you will need to access the service.

To get weather data for the selected city you need 4 things:

- **lat**
- **lon**

Latitude & Longitude will be gotten from the data returned from restcountries.com (NOTE: Not capitalInfo.latlng.)

```
{ "official": "Arabrepublikken Egypten", "common": "Egypten", "urd": { "official": "مصرى عربى جمهوريه", "common": "مصر", "zho":  
{"official": "阿拉伯埃及共和国", "common": "埃及"}, "latlng": [27.0, 30.0], "landlocked": false, "borders":  
["ISR", "LBY", "PSE", "SDN"], "area": 1002450.0, "demonyms": { "eng": { "f": "Egyptian", "m": "Egyptian", "fra":  
{"f": "Égyptienne", "m": "Égyptien"}}, "flag": "\uD83C\uDDEA\uD83C\uDDEC", "maps":  
{"googleMaps": "https://goo.gl/maps/uoDRhXbsqjG6L7VG7", "openStreetMaps": "https://www.openstreetmap.org/relation/1473947"  
"population": 102334403, "gini": { "2017": 31.5 }, "fifa": "EGY", "car": { "signs": ["ET"], "side": "right", "timezones":  
["UTC+02:00"], "continents": ["Africa"], "flags":  
{"png": "https://flagcdn.com/w320/eg.png", "svg": "https://flagcdn.com/eg.svg"}, "coatOfArms":  
{"png": "https://mainfacts.com/media/images/coats_of_arms/eg.png", "svg": "https://mainfacts.com/media/images/coats_of_arm  
eg.svg"}, "startOfWeek": "sunday", "capitalInfo": { "latlng": [30.05, 31.25] }, "postalCode":  
{"format": "####", "regex": "^(\\d{5})$"} } }
```

- **units**  
will be gotten from Storage (whatever was selected on the Settings page).
- **Your API Key**  
will be given when you create an account.

After the weather data has been received from weatherbit.io, the following attributes should be displayed on the home page:

- temp (including units)
- description
- icon (See <https://www.weatherbit.io/api/codes>)
- wind\_cdir\_full

In addition, the *News* button should now be visible.

The screenshot shows a mobile application interface for "News & weather for London, United Kingdom." The page displays the following information:

- Temperature: 7.2 (m)
- Weather: Overcast clouds
- Wind From: west-southwest
- A blue button labeled "NEWS" is visible at the bottom.

A JSON data object is overlaid on the right side of the screen, with arrows pointing from specific fields to the corresponding UI elements:

- The `temp` field (7.2) points to the temperature display.
- The `description` field (Overcast clouds) points to the weather display.
- The `icon` field (c04d) points to the cloud icon.
- The `wind_cdir_full` field (west-southwest) points to the wind direction display.

```
{
  "data": [
    {
      "rh": 89,
      "pod": "d",
      "lon": -2,
      "pres": 1008.6,
      "timezone": "Europe/London",
      "ob_time": "2021-11-23 13:28",
      "country_code": "GB",
      "clouds": 100,
      "ts": 1637674080,
      "solar_rad": 36.7,
      "state_code": "ENG",
      "city_name": "Embsay",
      "wind_spd": 1.79,
      "wind_cdir_full": "west-southwest",
      "wind_cdir": "WSW",
      "slp": 1031.4,
      "vis": 5,
      "h_angle": 45,
      "sun_set": "15:58",
      "dhi": 592.64,
      "dewpt": 5.5,
      "snow": 0,
      "uv": 2.74269,
      "precip": 0,
      "wind_dir": 254,
      "sunrise": "07:50",
      "ghi": 203.96,
      "dhi": 66.18,
      "aqi": 25,
      "lat": 54,
      "weather": {
        "icon": "c04d",
        "code": 804,
        "description": "Overcast clouds"
      },
      "datetime": "2021-11-23:13",
      "temp": 7.2,
      "station": "E8328",
      "elev_angle": 14.22,
      "app_temp": 6.2,
      "count": 1
    }
  ]
}
```

Figure 7 Home page with weather

See here for full API description: <https://www.weatherbit.io/api/weather-current>.

The first 5 news stories for the country the city is in should be read from newsapi.org.  
To use this service:

- Create an account at <https://newsapi.org/register> and select the Developer (free) plan.
- This will give you an API key which you will need to access the service.

To get news stories for the selected country you need 3 things:

- **country**  
The cca2 code for the country will be the cca2 attribute from restcountries.com.

```
[{"name":{"common":"United Kingdom","official":"United Kingdom of  
[ ".uk"], "cca2":"GB", "ccn3":"826", "cca3":"GBR", "cioc":"GBR", "indep  
["GB", "UK", "Great Britain"], "region":"Europe", "subregion":"Northe  
Irska", "common":"Spojené království"}, "cym":{"official":"United K
```

- **pageSize**  
will always be 5.
- **Your API Key**  
will be given when you create an account.

After the news data has been received from newsapi.org, the following attributes should be displayed on the News page for each of the 5 news stories:

- urlToImage (Sometimes this will be *null*. In this case there is no image to display).
- title
- description (Sometimes this will be *null*. In this case there is no image to display).
- url (If either the urlToImage, title or description are clicked a new browser window should open to the url).

The screenshot shows a web browser interface for an Ionic App running on localhost:8100. The page is titled 'News' and displays 'News from GB'. Three news items are listed:

- Item 1:** Features an image of Lewis Hamilton. The title is 'F1 news LIVE: Lewis Hamilton favourite for title as Max Verstappen bemoans stewards - The Independent'. The description is 'F1 news, standings and more'.
- Item 2:** Features an image of a car crash. The title is 'A63 crash: Three dead in East Yorkshire collision and fire - BBC News'. The description is 'A woman and two men have died following the car crash on the A63 in East Yorkshire, police say.'
- Item 3:** Features an image of a person. The title is 'AO World warns of product shortages this Christmas - BBC News'. The description is 'Electricals retailer AO World says games consoles and iPhones are among products in short supply.'

To the right of the screenshot, a JSON object represents the data for the first news item:

```
{
  "status": "ok",
  "totalResults": 88,
  "articles": [
    {
      "source": {
        "id": "independent",
        "name": "Independent"
      },
      "author": "Lawence Ostlere",
      "title": "F1 news LIVE: Lewis Hamilton favourite for title as Max Verstappen bemoans stewards - The Independent",
      "description": "F1 news, standings and more",
      "url": "https://www.independent.co.uk/sport/motor-racing/formula1/f1-latest-news-rumours-hamilton-verstappen-2021-b1962615.html",
      "urlToImage": "https://static.independent.co.uk/2021/11/21/16/5creenshot%202021-11-21%20at%2016.34.38.png?width=1200&auto=webp&quality=75",
      "publishedAt": "2021-11-23T12:34:23Z",
      "content": "Red Bulls Horner has no regrets over behaviour at Qatar Grand Prix\nChristian Horner has no regret over his actions at the Qatar Grand Prix as the Red Bull team boss saw Lewis Hamilton close the gap ... [+1984 chars]"
    },
    {
      "source": {
        "id": "bbc-news",
        "name": "BBC News"
      },
      "author": "https://www.facebook.com/bbcnews",
      "title": "A63 crash: Three dead in East Yorkshire collision and fire - BBC News",
      "description": "A woman and two men have died following the car crash on the A63 in East Yorkshire, police say.",
      "url": "https://www.bbc.co.uk/news/uk-england-humber-59388865",
      "urlToImage": "https://ichef.bbci.co.uk/news/1024/branded_news/75D6/production/_121766103_crash1.jpg",
      "publishedAt": "2021-11-23T12:39:54Z",
      "content": "Image caption: The A63 near Malton was closed in"
    }
  ]
}
```

Arrows indicate the mapping from the JSON fields to the UI elements: 'urlToImage' maps to the news item's image, 'title' maps to the headline, and 'description' maps to the sub-headline.

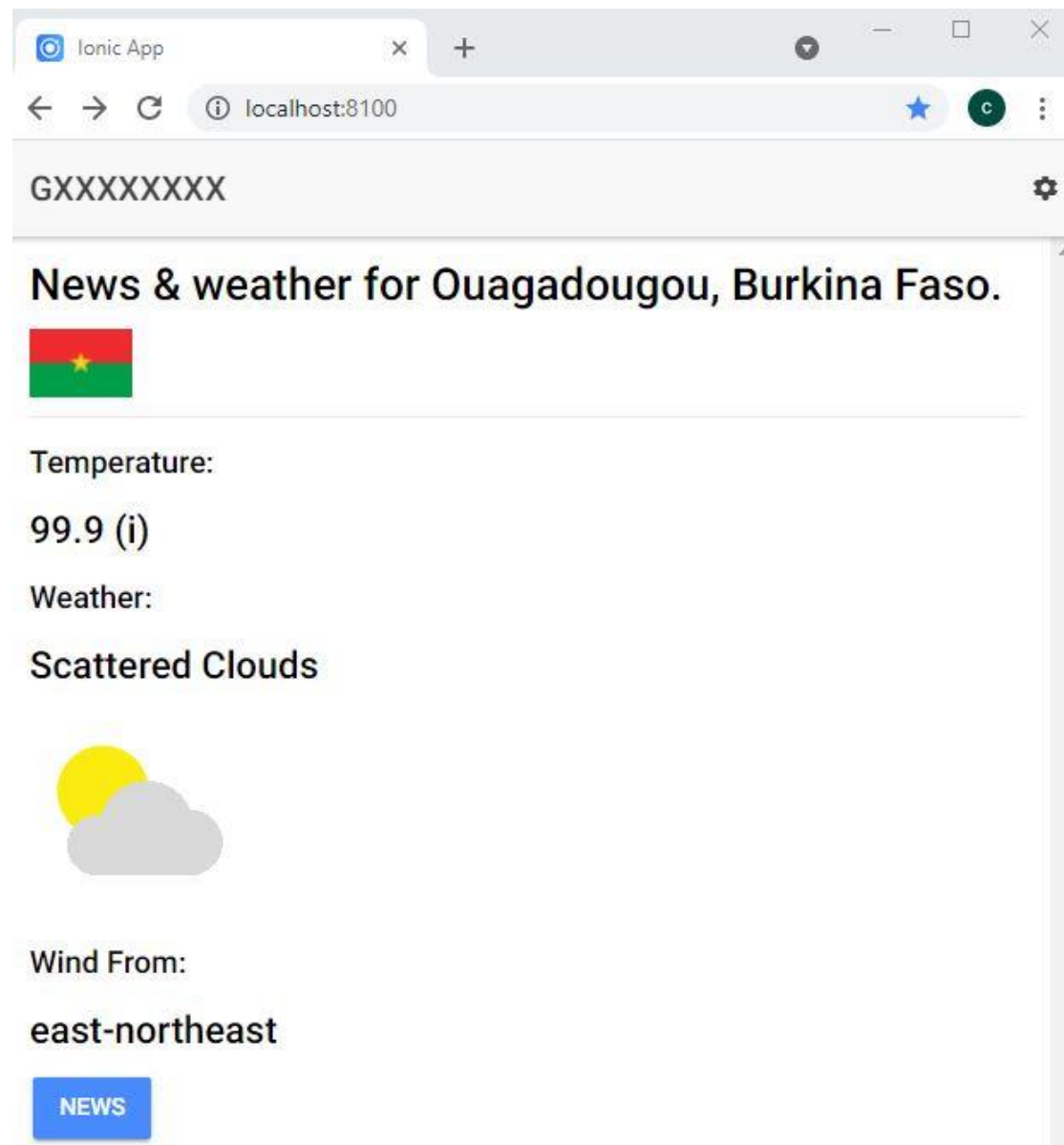
Figure 8 News Page

**NOTE:** When a link is selected and the news story opens, if the back button is pressed the Ionic app will restart – this behaviour can be ignored.

See here for full API description: <https://newsapi.org/docs/endpoints/top-headlines>.

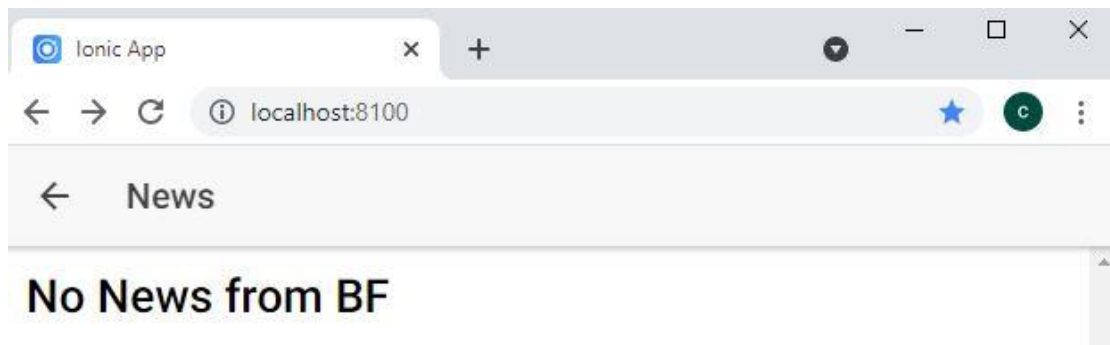
### *News Page – City Found but no News Returned for Country*

If a city is entered that is found on restcountries.com and weatherbit.io the weather is displayed as normal:



*Figure 9 Weather found for country / city*

However, if no news stories from the country are found on newsapi.org, the following message should be displayed on the *News* page indicating the Country Code (cca2) of the country that has no news stories.



*Figure 10 No news from BF*