

## CS 442: Mobile Applications Development

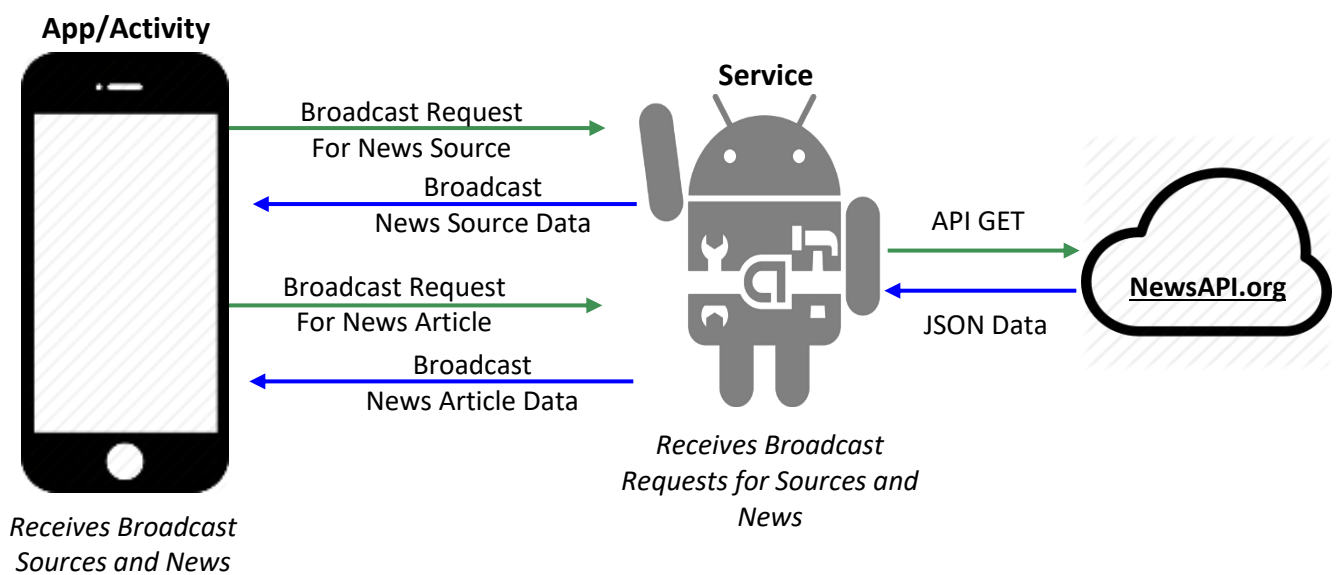
### Assignment 6 – News Gateway (350 pts)

Uses: Service, Broadcasts & Receivers, Drawer Layout, Fragments, ViewPager, Internet, APIs

#### App Highlights:

- This app displays current news articles from a wide variety of news sources covering a range of news categories.
- [NewsAPI.org](https://newsapi.org/) will be used to acquire the news sources and news articles.
- You *will not* need to develop separate landscape layouts but you will need to save and restore the app state when transitioning between portrait and landscape layouts to ensure a smooth user experience
- Selecting a news source will display news articles from the selected news source
- Selecting a news category will limit the news source choices to those offering that category of news.
- News articles can viewed by swiping right to read the next article, and left to go back to the previous article

#### Application Architecture:



**News Data:**

Acquiring news source and news article data will be done via the [NewsAPI.org](https://newsapi.org) news aggregation service. This service allows you to download news sources (all or by news type/category) and news articles (by news source)

*NOTE: You MUST sign up get an API key in order to access the NewsAPI.org services. Your API KEY must be supplied with NewsAPI.org queries. You can do this by registering at:*

<https://newsapi.org/register>

Register with an email and a new password and agree to the terms and click Submit to register and get your API key (the key is displayed to you right after you click the Submit button).

**The API:**

The NewsAPI.org service offers 2 API calls – one to get news *sources* (organizations offering news) and one to get news *articles* from a selected news source.

1) News Sources Query Format (to be used in our assignment):

To get all sources:

[https://newsapi.org/v1/sources?language=en&country=us&apiKey=\\_\\_\\_\\_\\_](https://newsapi.org/v1/sources?language=en&country=us&apiKey=_____)

To get sources by category:

[https://newsapi.org/v1/sources?language=en&country=us&category=\\_\\_\\_\\_\\_&apiKey=\\_\\_\\_\\_\\_](https://newsapi.org/v1/sources?language=en&country=us&category=_____&apiKey=_____)

For example, if your API Key was “ABC123xyz” and you wanted “business” news, the URL would be:

<https://newsapi.org/v1/sources?language=en&country=us&category=business&apiKey=ABC123xyz>

2) News Article Query Format (to be used in our assignment):

[https://newsapi.org/v1/articles?source=\\_\\_\\_\\_\\_&apiKey=\\_\\_\\_\\_\\_](https://newsapi.org/v1/articles?source=_____&apiKey=_____)

For example, if your API Key was “ABC123xyz” and you wanted “cnn” news, the URL would be:

<https://newsapi.org/v1/articles?source=cnn&apiKey=ABC123xyz>

**NewsAPI.org Sources Query Results Example:**

<https://newsapi.org/v1/sources?language=en&country=us&category=business&apiKey=ABC123xyz>

The results come in the form of a JSON Array of source entries as shown below. Each entry represents an individual news source. Example:

```
{
  "status": "ok",
  "sources": [{
    "id": "al-jazeera-english",
    "name": "Al Jazeera English",
    "description": "News, analysis from the Middle East ... broadcast schedule.",
    "url": "http://www.aljazeera.com",
    "category": "general",
    "language": "en",
    "country": "us",
    "urlsToLogos": {
      "small": "",
      "medium": "",
      "large": ""
    },
    "sortByAvailable": ["top", "latest"]
  }, {
    ...
  }, {
    "id": "usa-today",
    "name": "USA Today",
    "description": "Get the latest national, international ... at USATODAY.com.",
    "url": "http://www.usatoday.com/news",
    "category": "general",
    "language": "en",
    "country": "us",
    "urlsToLogos": {
      "small": "",
      "medium": "",
      "large": ""
    },
    "sortByAvailable": ["top", "latest"]
  }
}]
}
```

**NewsAPI.org Articles Query Results Example:**

<https://newsapi.org/v1/articles?source=cnn&apiKey=ABC123xyz>

The results come in the form of a JSON Array of article entries as shown below. Each entry represents an individual news article. Example:

```
{
  "status": "ok",
  "source": "cnn",
  "sortBy": "top",
  "articles": [{
    "author": "Alanna Petroff",
    "title": "United Airlines shows how to make a PR crisis a total disaster",
    "description": "CEO Oscar Munoz is being raked ... United Airlines flight.",
    "url": "http://money.cnn.com/2017/04/11/news.../index.html",
    "urlToImage": "http://i2.cdn.turner.com/...united-airlines-780x439.jpg",
    "publishedAt": "2017-04-11T08:44:43Z"
  }, {
    ...
  }, {
    "author": "AJ Willingham, CNN",
    "title": "Five key questions about the United controversy answered",
    "description": "The viral incident has sparked ...you need to know.",
    "url": "http://www.cnn.com/2017/04/11/travel/questions-united-trnd/index.html",
    "urlToImage": "http://i2.cdn.cnn.com/...with-united-00002607-super-tease.jpg",
    "publishedAt": "2017-04-11T15:30:01Z"
  }, {
    ...
  }, {
    "author": "Ivana Kottasova",
    "title": "United Airlines shares drop after man dragged off flight",
    "description": "Shares in United Airlines dropped ... overbooked flight.",
    "url": "http://money.cnn.com/.../ passenger-flight-video/index.html",
    "urlToImage": "http://i2.cdn.turner.com/...united-747-780x439.jpg",
    "publishedAt": "2017-04-11T05:44:28Z"
  }
  ]
}
```

## Application Behavior Diagrams:

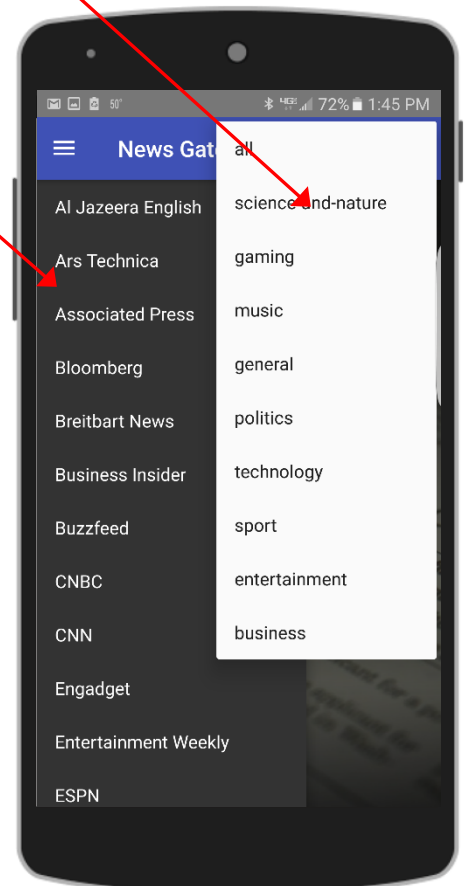
### 1) Overview



A News category can be selected using the options menu

A News Source can be selected by opening the "drawer" and selecting a source

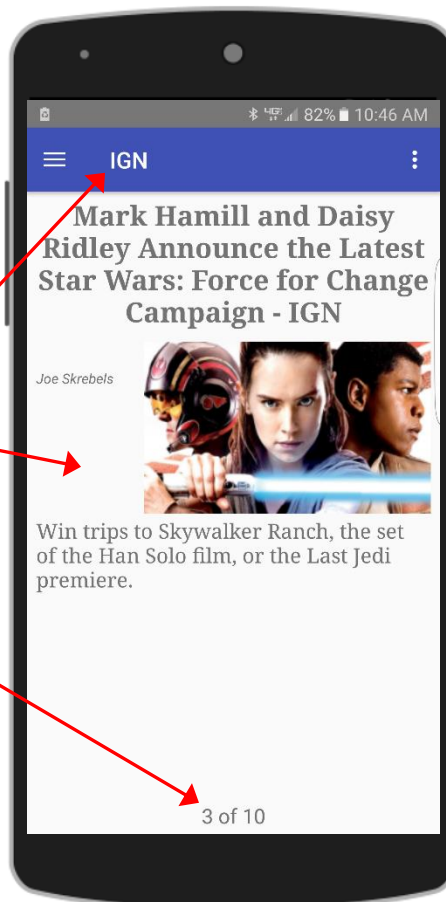
A news-related background is shown before any articles are loaded



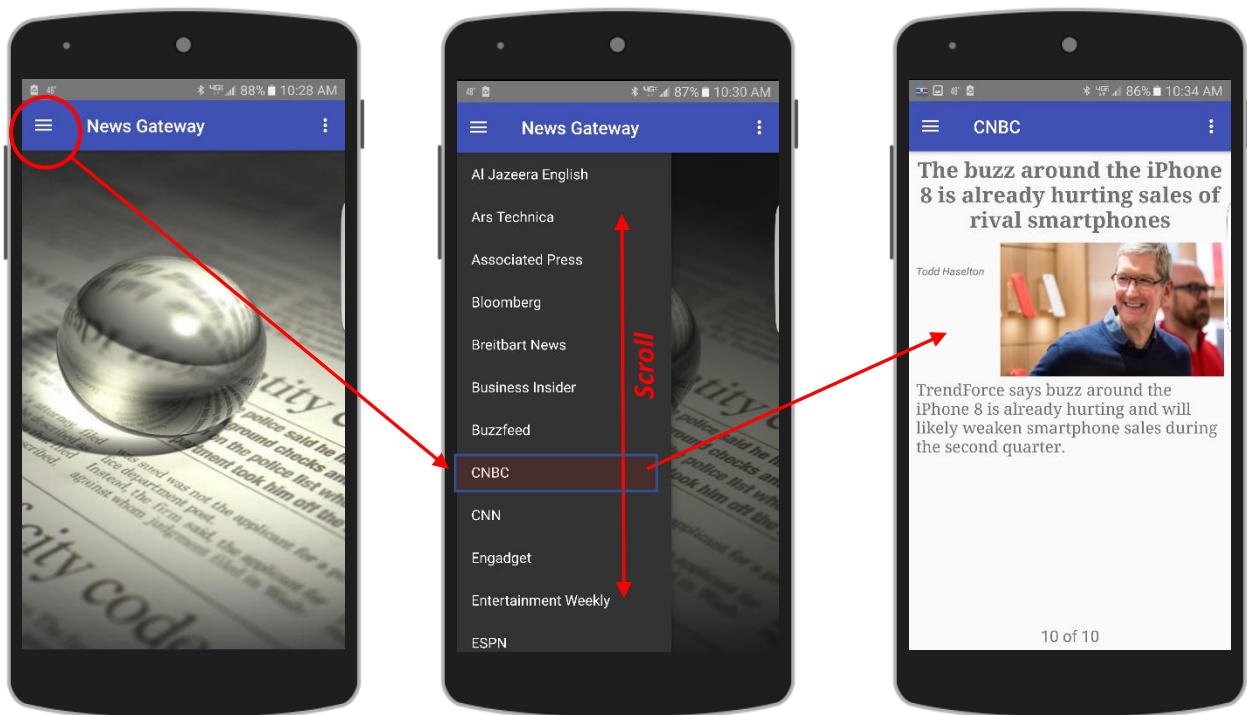
The selected news source is displayed in the Navigation Bar

News articles from the selected source are displayed in a "view pager" allowing left & right-swipe navigation between articles.

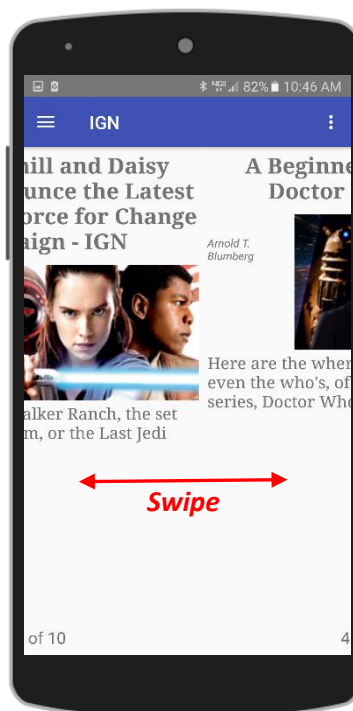
Article count is maintained at the bottom of the screen



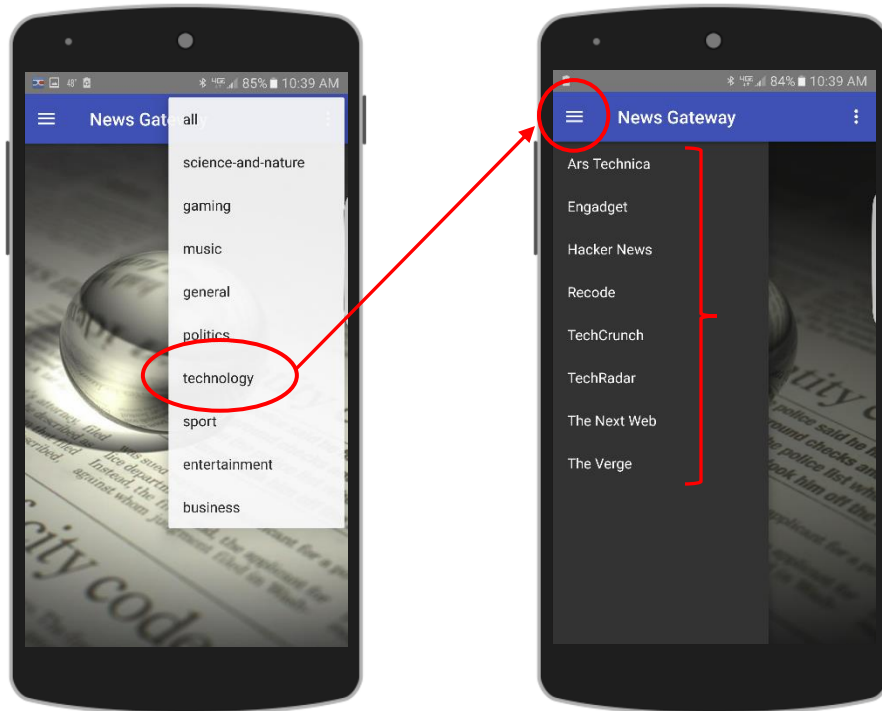
2) Selecting a news source:



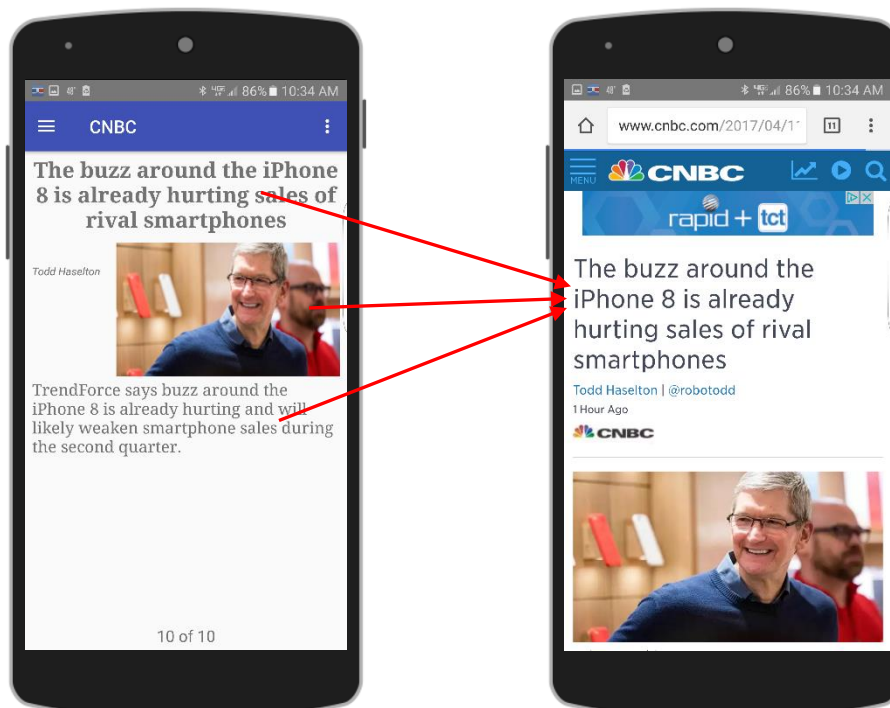
3) Swipe Right (or Left) to scroll through articles from the selected new source:



- 4) Select a news category from the options menu to limit the news source choices to only those offering that category of news.

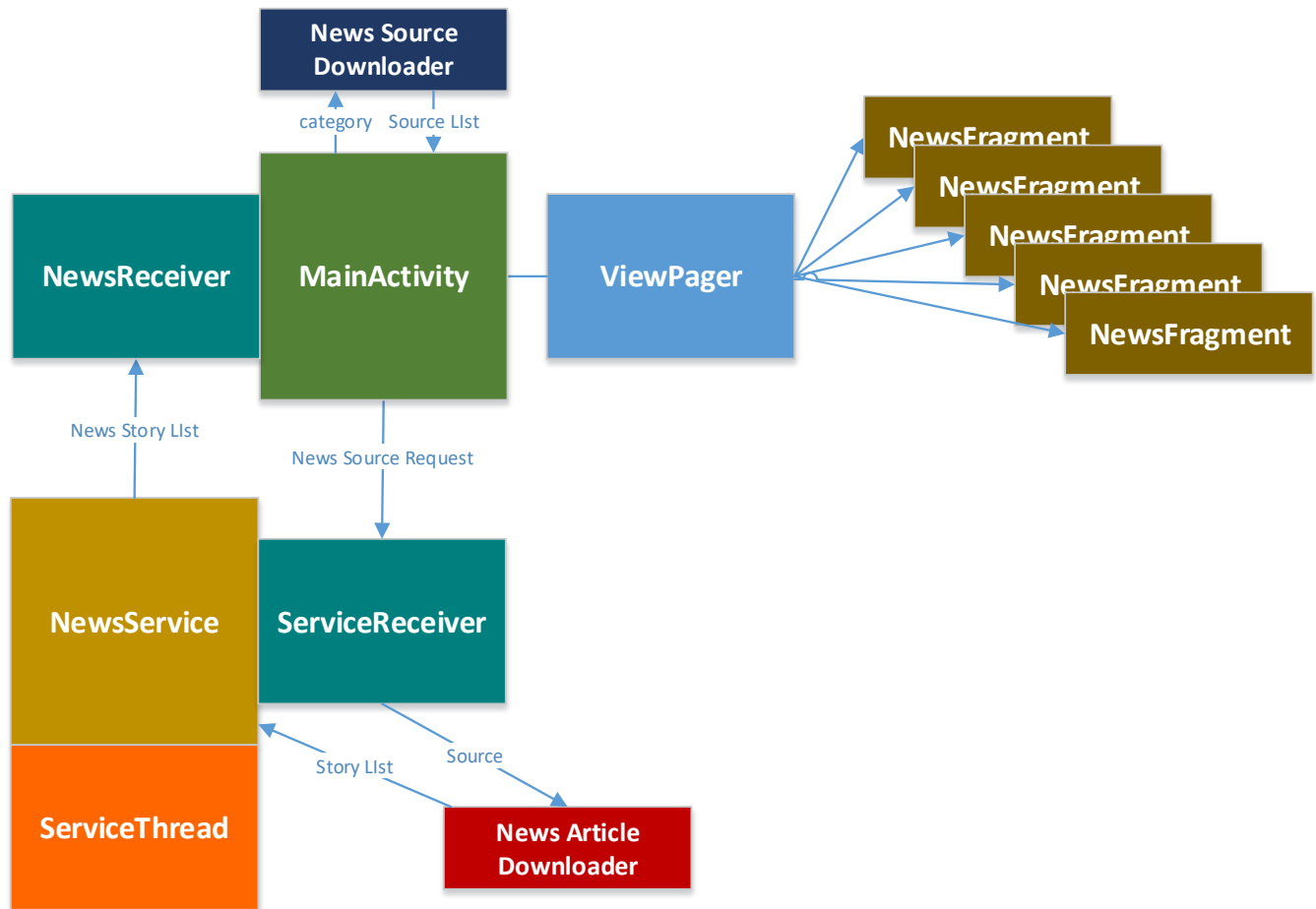


- 5) Click on article content to go to extended article on the news source web site





**Application Content:**



**Assignment Assistance**

The TAs for our course is available to assist you with your assignment if needed. Questions on assignment requirements and course concepts can be sent to the instructor.

**Submissions & Grading**

- 1) Submissions must consist of your zipped project folder (*please execute Build =>Clean Project before generating the zip file*).
- 2) Submissions should reflect the concepts and practices we cover in class, and the requirements specified in this document.
- 3) Late submissions will be penalized by 10% per week late. (i.e., from one second late to 1 week late: 10% penalty, from one week plus one second late to 2 weeks late: 20% penalty, etc.).
- 4) Grading will be based upon the presence and proper functionality of all features and behaviors described in this document.





### Extra Credit

Up to 25 points of extra credit will be awarded if you implement a feature that allows the user to go to the complete extended article on the news source's website by clicking on the article headline, text or image.

*Note: The article URL is available with every news article in the JSON data.*

Up to 10 points of extra credit will be awarded if add a professional looking launcher icon to your app.

### NOTE

This assignment is worth 350 points. This means (for example) that if you get 89% on this assignment, your recorded score will be:

**(88% \* 350 points = 308 points)**

***Note that this also means that the 10% late submission penalty will be 10% \* 350 points = 35 points.***

*If you do not understand anything in this handout, please ask.*

*Otherwise the assumption is that you understand the content.*

***Unsure? Ask!***