

## CS 442: Mobile Applications Development

### Assignment 5 – News Gateway (450 pts)

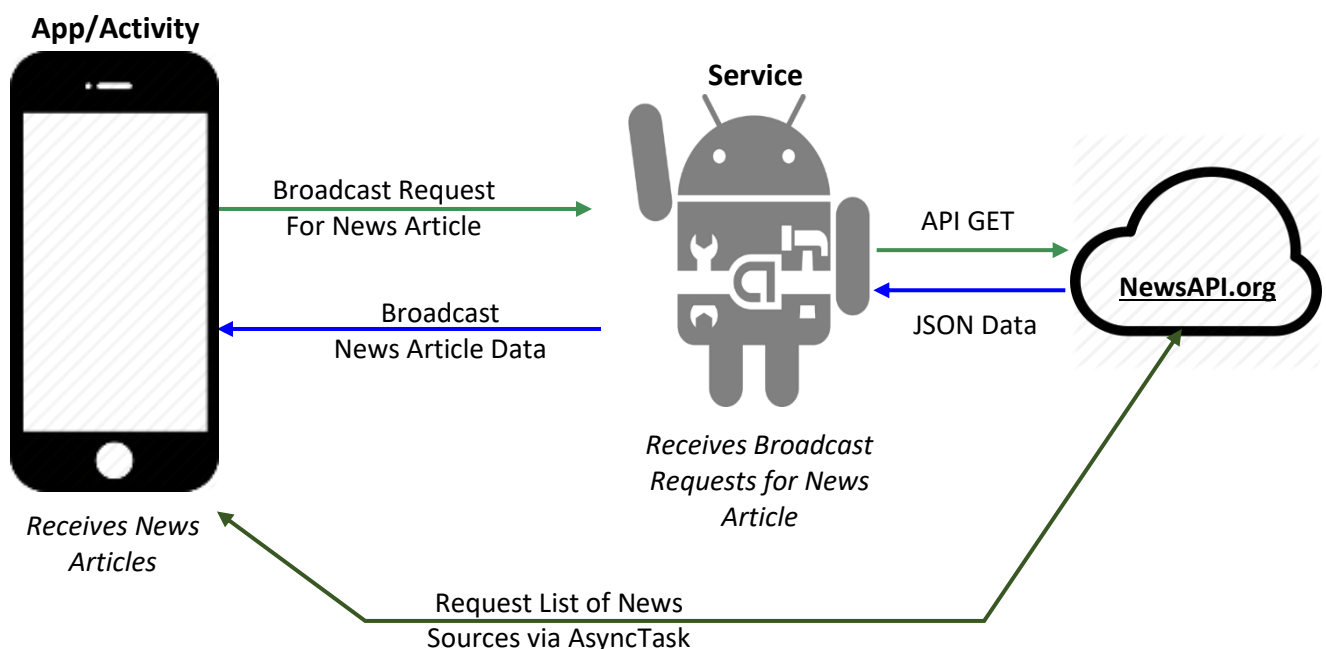
Uses: Service, Broadcasts & Receivers, Drawer Layout, Fragments, ViewPager, Internet, APIs

#### App Highlights:

- This app displays current news articles from a wide variety of news sources covering a range of news categories.
- [NewsAPI.org](http://NewsAPI.org) will be used to acquire the news sources and news articles.
- Selecting a news source will display up to 10 top stories from that news source
- Selecting a news category will limit the news source choices to only those offering that category of news.
- News articles are viewed by swiping right to read the next article, and left to go back to the previous article
- You *will not* need to develop separate landscape layouts
- The user can go to the complete extended article on the news source's website by clicking on the article title, text, or image content.

**NO LATE SUBMISSIONS WILL BE ACCEPTED FOR THIS ASSIGNMENT**

#### Application Architecture:



**A) 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 – CNN, Time, etc.) and one to get top 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/v2/sources?country=us&category=_____&apiKey=_____`

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

`https://newsapi.org/v2/sources?country=us&category=business&apiKey=ABC123xyz`

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

`https://newsapi.org/v2/top-headlines?sources=_____&apiKey=_____`

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

`https://newsapi.org/v2/top-headlines?sources=cnbc&apiKey=ABC123xyz`

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

[https://newsapi.org/v2/sources?language=en&country=us&apiKey=\\_\\_\\_\\_\\_](https://newsapi.org/v2/sources?language=en&country=us&apiKey=_____)

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

```
{
  "status": "ok",
  "sources": [{
    "id": "abc-news",
    "name": "ABC News",
    "description": "Your trusted source for breaking news, analysis, exclusive
                  interviews, headlines, and videos at ABCNews.com.",
    "url": "https://abcnews.go.com",
    "category": "general",
    "language": "en",
    "country": "us"
  }, {
    "id": "al-jazeera-english",
    "name": "Al Jazeera English",
    "description": "News, analysis from the Middle East and worldwide, multimedia and
                  interactives, opinions, documentaries, podcasts, long reads and
                  broadcast schedule.",
    "url": "http://www.aljazeera.com",
    "category": "general",
    "language": "en",
    "country": "us"
  }, {
    "id": "ars-technica",
    "name": "Ars Technica",
    "description": "The PC enthusiast's resource. Power users and the tools they love,
                  without computing religion.",
    "url": "http://arstechnica.com",
    "category": "technology",
    "language": "en",
    "country": "us"
  }, {
    . . .
  }]
}
```

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

[https://newsapi.org/v2/top-headlines?pageSize=50&sources=cnn&apiKey=\\_\\_\\_\\_\\_](https://newsapi.org/v2/top-headlines?pageSize=50&sources=cnn&apiKey=_____)

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

```
{
  "status": "ok",
  "totalResults": 10,
  "articles": [{
    "source": {
      "id": "cnn",
      "name": "CNN"
    },
    "author": null,
    "title": "Negative campaign ads up 61% since 2014 - CNN Video",
    "description": "CNN's John Avlon breaks down the nationwide surge in negative campaign ads and the money behind them as the midterm elections loom.",
    "url": "http://us.cnn.com/videos/politics/2018/11/01/john-avlon-reality-check-negative-campaign-ads-newday-vpx.cnn",
    "urlToImage": "https://cdn.cnn.com/cnnnext/dam/assets/181101081616-john-avlon-reality-check-negative-campaign-ads-newday-vpx-00000000-super-tease.jpg",
    "publishedAt": "2018-11-01T13:24:12.1761649Z",
    "content": "Chat with us in Facebook Messenger. Find out what's happening in the world as it unfolds."
  }, {
    "source": {
      "id": "cnn",
      "name": "CNN"
    },
    "author": null,
    "title": "Voter: I hope Trump changes legal asylum - CNN Video",
    "description": "The debate over immigration continues to grow ahead of the 2018 midterm elections. CNN's Alisyn Camerota sat down with New Jersey women to discuss.",
    "url": "http://us.cnn.com/videos/politics/2018/11/01/new-jersey-voters-immigration-migrant-caravan-legal-asylum-newday-camerota-vpx.cnn",
    "urlToImage": "https://cdn.cnn.com/cnnnext/dam/assets/181101082414-new-day-voters-super-tease.jpg",
    "publishedAt": "2018-11-01T13:23:56.3704266Z",
    "content": "Chat with us in Facebook Messenger. Find out what's happening in the world as it unfolds."
  }, {
    . . .
  }]
}
```

## B) Application Behavior Diagrams:

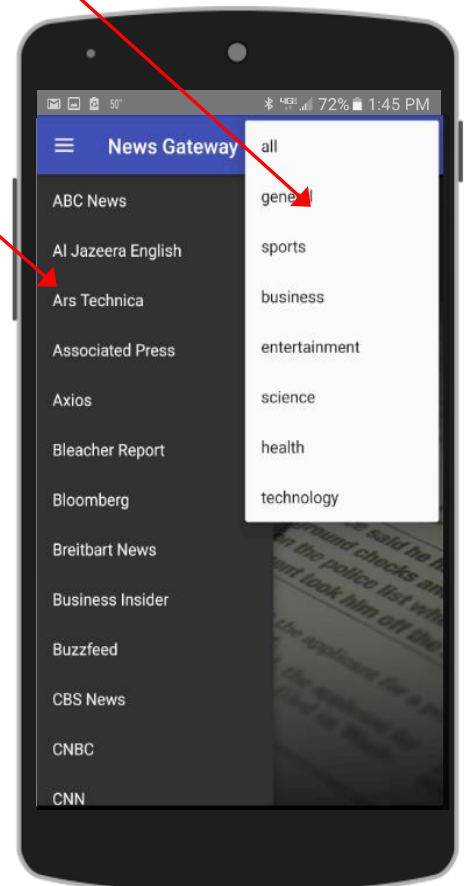
### 1) Overview



A News category (i.e., "business") can be selected using the options menu

A News Source (i.e., "cnn") can be selected by opening the "drawer" and selecting a source

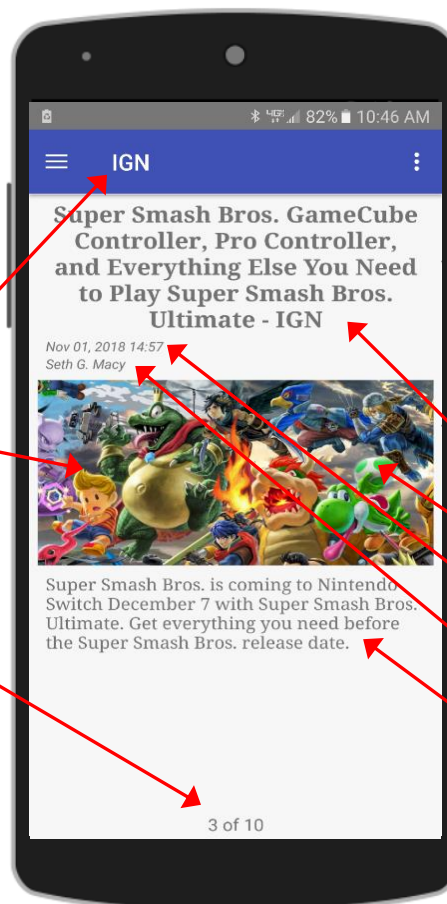
A news-related background is shown before any articles are loaded



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



News Article Headline

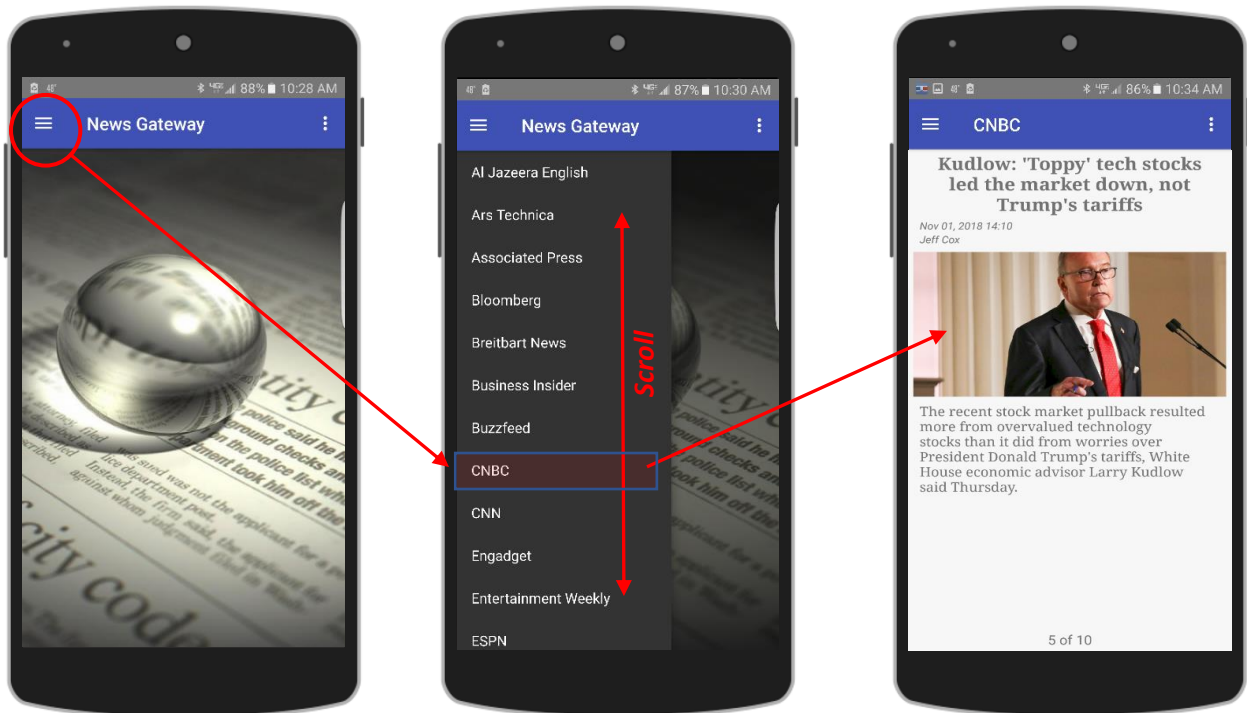
News Article Image

News Article Date

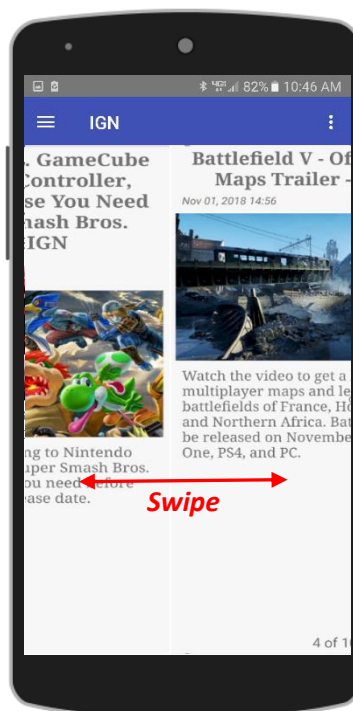
News Article Author(s)

News Article Text

2) Selecting a news source:

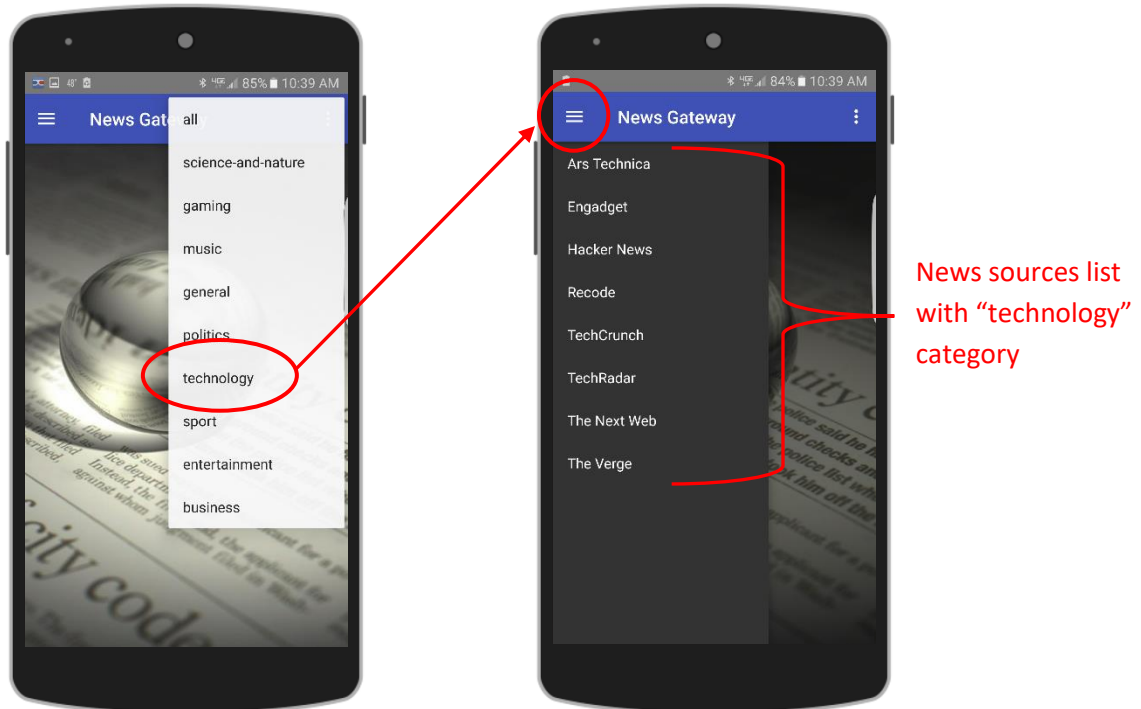


3) Swipe Right (or Left) to scroll through articles from the selected new source:

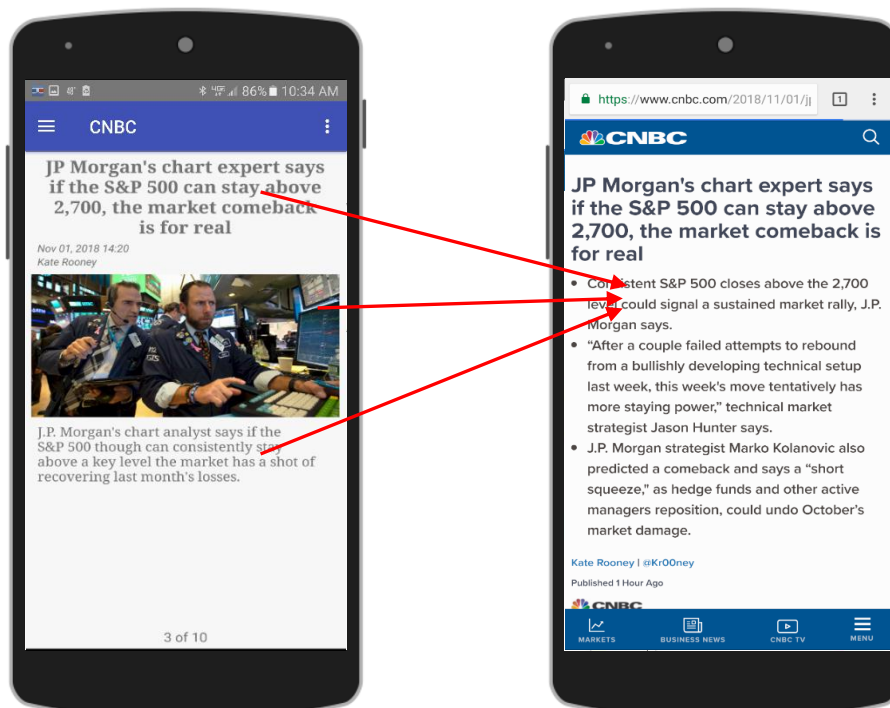




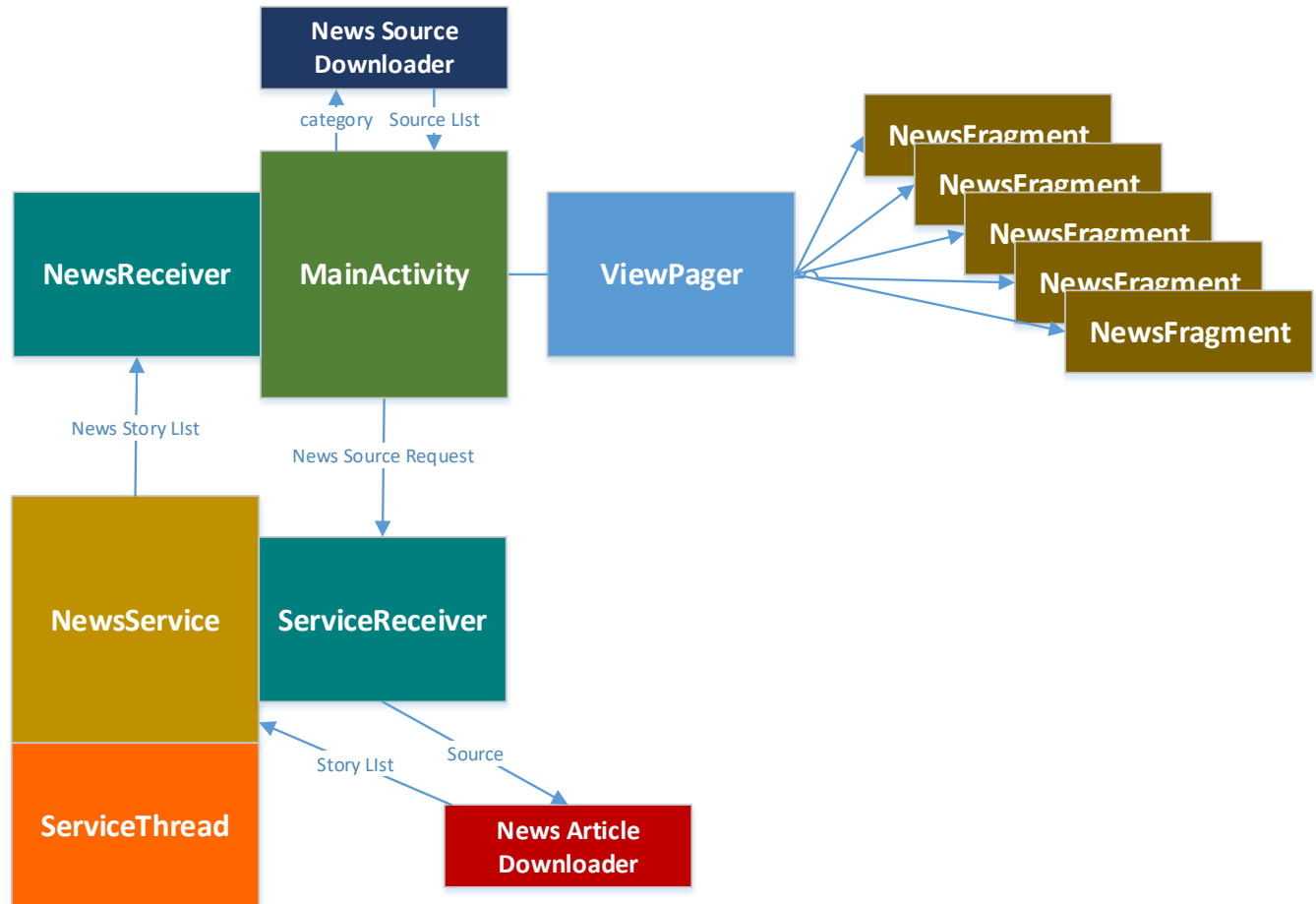
- 4) Select a news *category* from the options menu to limit the news source choices to only those offering that category of news.



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



C) Application Content:



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D) Extra Credit:

- Up to 20 points of extra credit will be awarded if you save and restore the app state when transitioning between portrait and landscape layouts to ensure a smooth user experience. Without this, the app reverts to the start state upon rotation. If this is done properly, the current category selection, the current source list (in the drawer), and the displayed articles will be maintained upon device orientation change.
- Up to 10 points of extra credit will be awarded if add a professional looking launcher icon to your app.



### 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.

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### 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) **NO LATE SUBMISSIONS WILL BE ACCEPTED FOR THIS ASSIGNMENT**
- 4) Grading will be based upon the presence and proper functionality of all features and behaviors described in this document.

### NOTE

**This assignment is worth 450 points. This means (for example) that if you get 89% on this assignment, your recorded score will be:**

**$(89\% * 450 \text{ points} = 401 \text{ points})$**

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

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

***Unsure? Ask!***

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