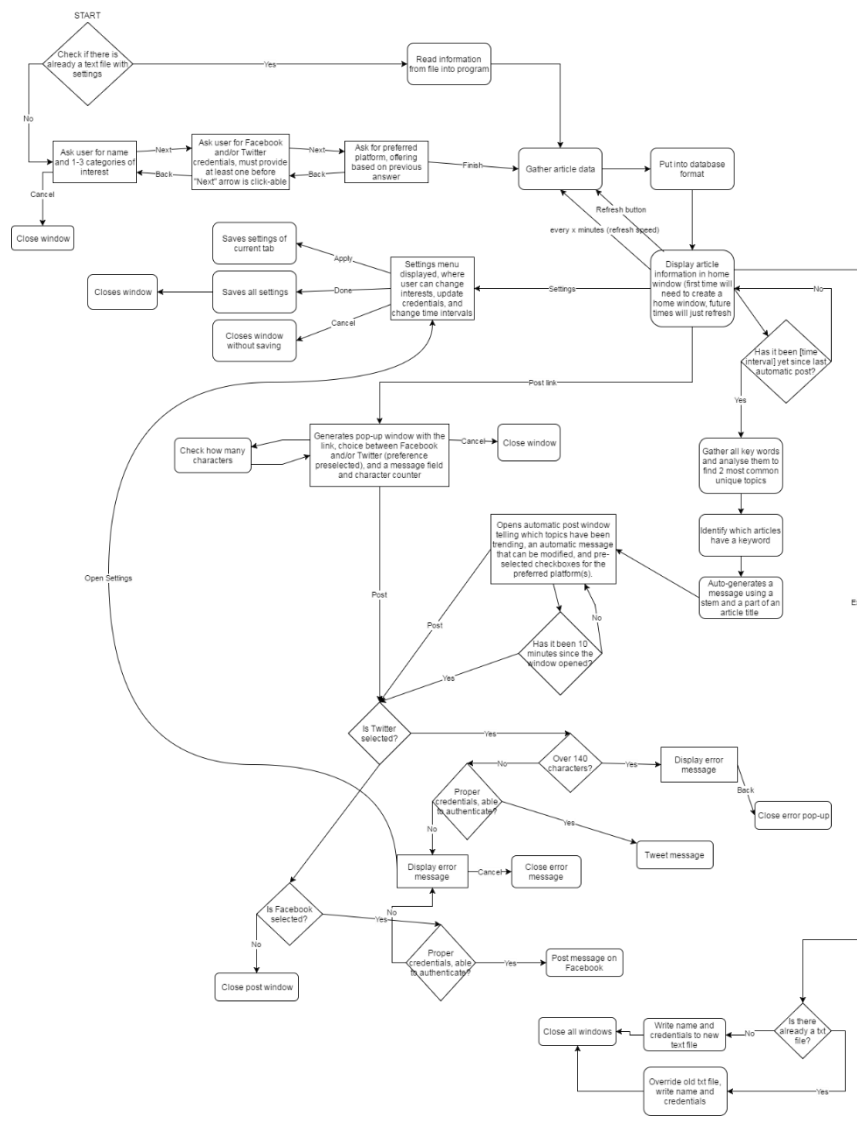
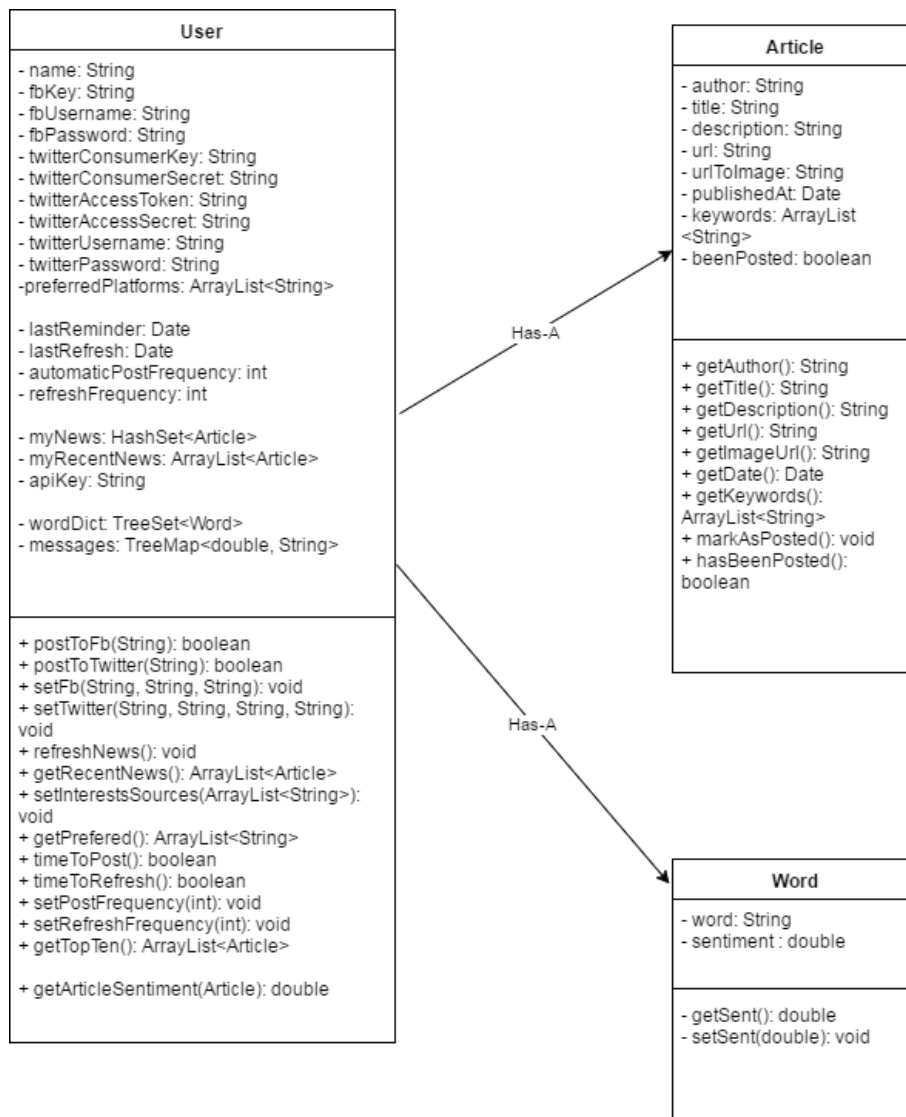


## Criterion B: Design

This problem poses many challenges. First, the collection of data on news articles involves using an API, for example NewsAPI. However, since this API outputs in a JSON format, the Java program will need to be able to understand the JSON format and schema. JSON is also how the data will be organized when it is saved to a file. Displaying the articles should not be a problem using the Swing toolkit. The posting onto a social media platform, which is the end goal of the program, will be done through authentication into Facebook and/or Twitter. In the best case, the user will simply provide username and password to this application on first use, and they will be saved in persistent storage. If making access completely automatic is not possible, the user may have to access a Facebook or Twitter developer website to manually generate an access key for their account.

In addition to the gathering and posting of data, analyzing the data will be just as challenging. Keywords in the news titles and descriptions will have to be identified and compared across articles to see what news is trending. Auto-generating a message will also be difficult. I will likely determine an article's sentiment by breaking down all its words and using a pre-existing word sentiment database. From there, message stems with certain sentiments can be used to create a message. However, users will be able to modify the post in a certain time window.





## User Narrative

### Initial configuration and home window

When the program is launched, an initial configuration dialogue will appear:

**Dialogue 1: Name and Topics**

Name:

Topics Interested in:

- ☐ Sports
- ☐ Celebrities
- ☐ World news

Buttons: Cancel, Next

**Dialogue 2: Choose preferred site to post on automatically**

Choose preferred site to post on automatically:

- ☐ Facebook
- ☐ Twitter

Buttons: Cancel, Back, Finish

**Dialogue 3: Configure social media (may leave one field blank)**

Configure social media (may leave one field blank):

Facebook

Username:

Password:

Twitter

Username:

Password:

Buttons: Cancel, Back, Next

Clicking next will take you to the social media settings box, where you can input Facebook and Twitter credentials (password is hidden). This data will be stored in a text file, along with other necessary data such as name and news trends, on your computer for use in future launches of the program. It will not allow you to click next until you have inserted information for at least one of the platforms. Clicking next again will let you choose a preferred social media site to post to automatically. If you gave information for only one of the platforms, only that one will be shown.

The screenshot shows a window titled 'Settings' with a 'Refresh' button. Below the title bar, there's a section 'Most Recent Stories'. The first story is from BBC SPORT, titled 'Leicester 3-0 Man City - Vardy scores twice'. It includes a description: 'Follow live text commentary from the Premier League as champions Leicester face Man City at the King Power Stadium.' and a link: 'http://www.bbc.co.uk/sport/live/football/37679026'. There's a 'Post about it' button next to each story. Below the first story, there's a placeholder for a logo, title, description, and link, with a 'Post about it' button.

The main page of the application allows you to scroll through snippets of the 10 most recent news stories (according to your interests) and the option to post about those to the social media sites. It also has a settings button which will open the settings menu. It automatically refreshes every x minutes (default is 10 minutes but this can be changed in the settings menu), or the user can click "Refresh". In refreshing, the program gets news articles from the internet and updates its article database (as well as cleaning out old articles that cannot be used for trend-determining purposes anymore).

## Settings window

The settings window has three tabs: 'Interests', 'Configuration', and 'Time Manager'.  
 - The 'Interests' tab shows 'Topics interested in:' with checkboxes for 'Sports', 'Celebrities', and 'World news'.  
 - The 'Configuration' tab has a section 'Checkbox indicates preference' with checkboxes for 'Facebook' and 'Twitter'. Below each checkbox are 'Username:' and 'Password:' input fields.  
 - The 'Time Manager' tab has 'Refresh news feed every' set to '2 minute(s)' and 'Prompt a post every' set to '30 minutes'. There are 'Cancel', 'Apply', and 'Done' buttons at the bottom of each tab.

The settings menu allows the user to pick which topics show up in their news feed and post prompts, modify and add to their social media configuration, change platform preferences, set how often the news feed on the home window will be refreshed and the frequency of automatic posts.

## Posting windows

Clicking "Post about it ►" next to an article on the home window will cause the "Post link" window to pop up. The checkbox for the preferred social media platform(s) will already be checked, and the link will not be modifiable. The character count will update continually.

The 'Post link' window has checkboxes for 'Facebook' and 'Twitter'. Below them is a text area for 'Message (optional, but must be <140 characters for Twitter post):'. Below the message area is a 'Character count: [x]' label. At the bottom, there's a 'Link (will be included at end of message):' with the URL 'http://www.bbc.com/sport/live/football/37679026'. There are 'Cancel' and 'Post' buttons at the bottom.

The error message says 'Error: Message is too long.' and has a 'Back' button.

If Twitter is selected and the message (including the link) is too long, this error message will pop up when you click post.

If there is an error in posting the link, this message will be displayed, which includes a button to open the settings menu:

The error message says 'Error: Please check your social media settings.' and has 'Cancel' and 'Open Settings' buttons.

"[Topic X]" and "[Topic Y]" have been trending in the past 24 hours. These messages will be posted to your [preferred social media site] in 10 minutes unless you click cancel. You may modify the messages and click "Post".

☐ Facebook  
☐ Twitter

☐ Facebook  
☐ Twitter

The automatic post window will open every x minutes/hours/days (default is 1 day). It will close and post an automatically-generated message (such as "What a great game, Leicester vs. Man City!") about two trending topics (determined from frequency of mention) to the preferred social media platform (already selected in the checkboxes) 10 minutes after its opening. It also allows the user to modify the posts and platform, or to cancel the automatic process. As with the other posting dialogue, if the message is too long or if a posting error occurred, the appropriate error message will pop up (see above).

## Test Strategies

Feature	Testing Strategy
Viewing settings and modifying them	<ul style="list-style-type: none"> <li>Click the settings menu and change the automatic-post and refresh frequency, credentials, preferred platform(s) and categories of interest               <ul style="list-style-type: none"> <li>See if these changes have the desired effects on posting and refresh frequencies, preferences, and ability to post</li> </ul> </li> </ul>
Retrieves and displays news article data	<ul style="list-style-type: none"> <li>The main window of the program shows up-to-date news, with hyperlink to article itself</li> <li>Posting windows have relevant news data</li> </ul>
Generates auto-posts	<ul style="list-style-type: none"> <li>Posting window automatically pops up at certain intervals (determined in the settings menu)</li> <li>Auto-posts share posts that pertain to trending topics (they must be reasonably popular)</li> <li>Auto-post message contains link to article and small phrase indicating a certain sentiment</li> </ul>
Individual link posting	<ul style="list-style-type: none"> <li>Clicking on link next to article on main window opens a posting window</li> <li>Posting window contains a text field and posting options (Facebook, twitter).</li> </ul>

	<ul style="list-style-type: none"> <li>○ Character count is also provided.</li> </ul>
Posts to twitter and/or Facebook	<ul style="list-style-type: none"> <li>• Clicking on “Post”, or allowing the auto-posts to post, posts to twitter and/or Facebook <ul style="list-style-type: none"> <li>○ Error message if twitter post is too long</li> </ul> </li> <li>• Facebook or twitter page shows new post</li> </ul>
Saves user data for future use	<ul style="list-style-type: none"> <li>• On exit, user data is saved into a JSON file</li> <li>• When re-opening the program, option is given to load the saved data <ul style="list-style-type: none"> <li>○ Displays sources based on saved categories of interest</li> <li>○ Posting to facebook and/or twitter is successful</li> </ul> </li> </ul>