

# The Fakkion Blog: Prototype of a blogging application that uses relational design

Deovandski Skibinski Junior and Anne Denton  
Computer Science Department  
North Dakota State University  
Fargo, North Dakota 58102  
anne.denton@ndsu.edu  
deovandski.skibinski@ndsu.edu

## **Abstract**

Hierarchical organization for blogs has been in use from the outset of blogging several years ago. However, this type of organization does not allow structuring posts based on two unrelated types of concepts, i.e., in a relational fashion. Faced with this issue, the authors decided to create a prototype of a new blogging platform in which the two types of concepts are two distinct entities. The blog posts themselves relate the two entities which for Fakkion are fiction and fact. The design can be viewed as a bipartite graph in which nodes of the different types are being connected through the blog entry. This relational blog with a seasoning of forum will serve as the foundation for netizens to interact with each other while discussing the relations between the two worlds of fact and fiction.

# 1 From USENET to today's WEB 2.0

Blogs have been around since when the internet was as restrictive as space travel is today. Well, not that restrictive but still only a few could get access to it. Jokes aside, Blogs or also previously called weblogs began to appear in the late 80's, especially after Tim Berners-Lee proposed an information system known as the World Wide Web [1]. However, there were some earlier blogs (previously categorized as newsrooms) such as Rec.humor.funny which was created on August 7, 1987 [2] when USENET usage spread like wildfire [3].

However, since the definition of words is not absolute and the same idea may be represented by other words, some people do not consider Rec.humor.funny as the oldest blog still running. Words such as Social network and Forum may also overlap depending on the definition when trying to categorize new or old websites. That makes it necessary to establish categorization guidelines in order to further discuss Faktion.

## 1.1 Blog

Today's mainstream view of what constitute a Blog has its roots in the newsroom from the USENET era. Blogs are considered as an alternative news<sup>1</sup> source [4] while still promoting participation from the community mainly through comments. With that, we can establish a general view of what a blog is:

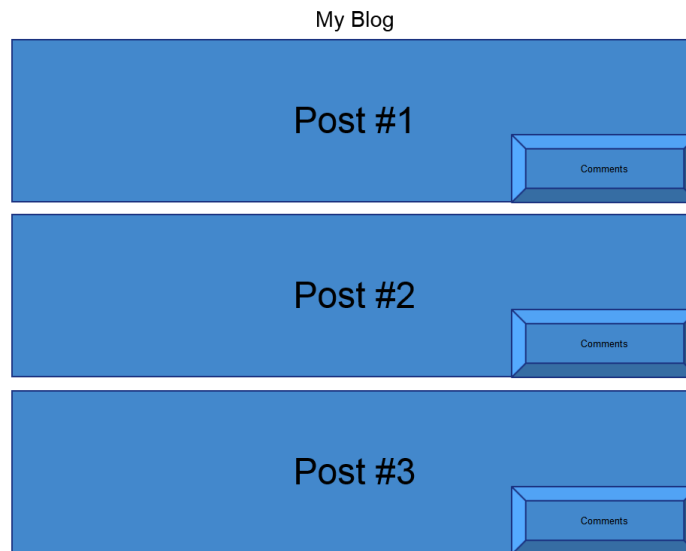


Figure 1: Simple Blog

Although many blogs deviate from this pattern and have many more features, they all share the same hierarchical structure where the main purpose of the website is for a user to publish news through posts that follow a hierarchical pattern with the user being the

---

<sup>1</sup> News: Refers to actual news, but also any new content including dogmatic opinions from a Blog owner (or from the admins.)

root, posts being the nodes and comments being the leaves. In some cases those comments may be displayed right after each post instead of being show when a user clicks in a post.

## 1.2 Forum

USENET also promoted online discussion boards or simply know as forums. Although there are some ramifications of the definition and the purpose of a forum, the prevalent underlying structure still remains mostly unchanged. However, how the user enters the forum did change as today's forums are mostly a part of a website instead of being the only purpose of a website. A notable example is the vBulletin company that offers software solutions for building a modular website. In other words, an individual that purchases the software can have a website that can contain a dedicated Forum, Blog, Poll or any combination of these and other offered modules. On the other hand, an example of a more conventional forum is WebsiteBabble.com for which the forum is the only feature available. In other words, it is the only module on the website. Every website that uses this "module" will have the following structure embedded:

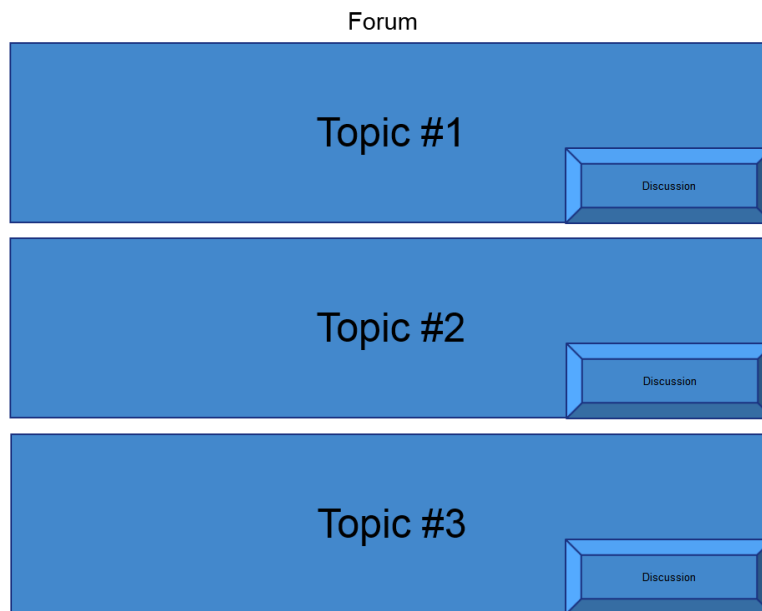


Figure 2: Simple Forum.

As you can see, the Blog (Figure 1) and Forum (Figure 2) structures do share several similarities in the underlying foundation. To make matters worse, each definition is not absolute and there is an overlap between the definition of terms as over the years some people started to use them interchangeably. In order to provide a clear picture regarding the future Fakkktion structure, it is necessary to separate those two terms with the help of the following table:

<b>Structure Facet</b>	<b>Blog</b>	<b>Forum</b>
Content	News (See footnote on page 1)	Content must be in accordance with the parent definition or what the forum is about if the forum is the parent node.
Who can post	administrators	registered users
Usual Hierarchy	-Admin -- Post ---Comments	-Forum --Topic ---Thread ----Discussion
Viewer participation	Comments, Like or Favorite.	Create threads or comment on one. Also rate thread and comments if the forum supports
Viewer participation organization	Time of comment posted arranged in a vertical timeline.	<b>Threads:</b> Can also be organized in several ways such as number of comments or popularity. <b>Comments:</b> Can also be organized in several ways like in a threaded timeline <sup>2</sup> or a nested discussion of a discussion within a topic.
Purpose	Post information for people to see and comment.	Create topics or threads regarding a topic for people to discuss.

Table 1: Differences between Blog and Forum.

### 1.3 Social Network

The term Social Network does not directly relate to the facets discussed on table 1, but actually to how members interact with each other. Social Networks are built around the personal network idea while the forum focuses on a group usually composed of registered users [5]. Blog is considered a network without boundaries as anyone is supposed to be able to view and comment on the posts. In other words, the roles are constant whereas social networks like Facebook use the “Friends” relation to dynamically determine several constraints such as visibility. However, if you look into how most social networks are structured you can easily identify a hybrid of Social Network and Blog called microblogging. The actual implementation can be more like a Social Network such as LinkedIn and its egocentric view<sup>3</sup> or more restrictive Blogging like Twitter (in regard to length). What about Facebook? Facebook stands right in the middle as it contains a section for the egocentric view (aka Profile) while also having the unrestrictive Blogging (aka Timeline).

---

<sup>2</sup> Threaded Timeline: A method of dynamically organizing comments by how each user replied to another discussion within a topic. Actual implementation and organization may vary depending on the purpose of the forum.

<sup>3</sup> Egocentric View: A method commonly used by Social Networks to display in-depth information including the connections about a person. Also, to customize the website to each user by having him/her at the center of his/her community.

## 2 Fakkion

Now that the guidelines have been established, it is the intent of Fakkion to create something unique with it. Fakkion will be a mildly egoistic social network that has a forum nested within a blog instead of creating just another Microblogging hybrid. This nested procedure is not the only main feature as Fakkion will also introduce a relational tagging system which differs from the common tagging system. More information below:

### 2.1 Non-egoistic Social Network

Since there are countless social networks that fill the need for the egoistic requirements, Fakkion will instead focus in having no extra information other than the usually required like display name, full name, email and date of birth. All of the extra information will be handled by APIs to the well know Social Networks. This also has a side-effect of reducing redundancy at a cost of making the user's profile more vulnerable if a connected account is compromised.

### 2.2 Blog with a nested Forum

In order to create a unique website, Fakkion will not create a Blog and Forum hybrid. Instead, it will use the expansive qualities of the forum in order to create a more interactive and dynamic blog. In a sense, each blog post could be considered a forum thread. However, this is not the case as each post will not be tied to a parent node, but instead it will be tied to 5 relational categories. More information about the relational part (R.T.S) will be explained later on. The following 3 figures will show the contrast between the forum, blog and Fakkion's Blog nested forum:

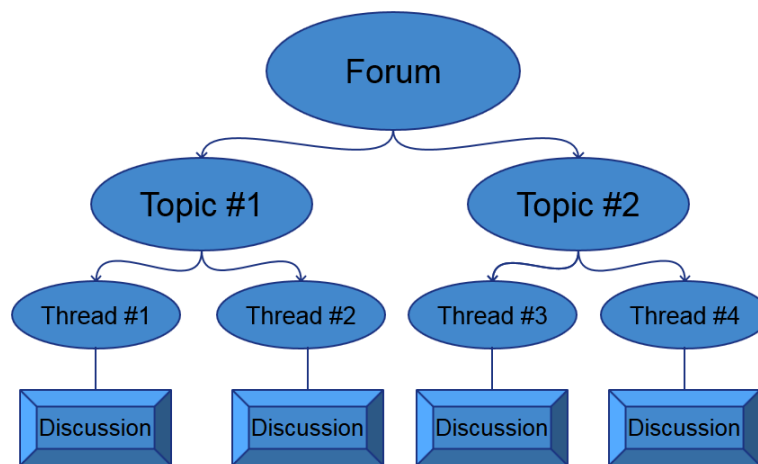


Figure 3: Common Forum Structure

It is common practice to limit who can create topics on the forum (usually restricted to admins and moderators.) Also, more complex forums may add another layer between the topics and Forum called Boards. However, it is also a common practice to have only the admins authorized to manage them. Even though forums may have sections, they do not

affect this structure as this implementation is done on the GUI side in order to organize topics that relate to one another. This means that users can only participate on the Thread and in the Discussion level.

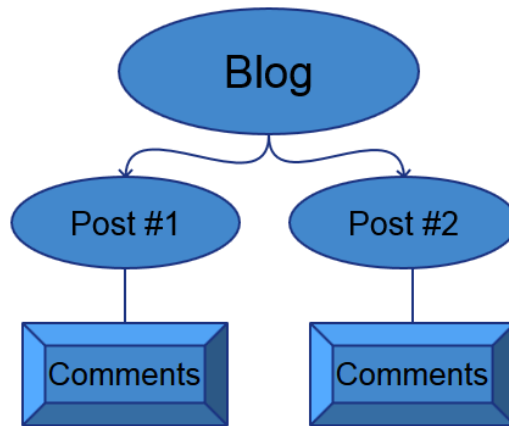


Figure 4: Simple Blog Structure

Figure 4 does not include more complex features such as tagging. However, they would still maintain this basic structure, since otherwise it would not be a blog. Also, the common practice on Blogs is to limit user participation to the comments only if the Blog owner allowed such comments to be posted.

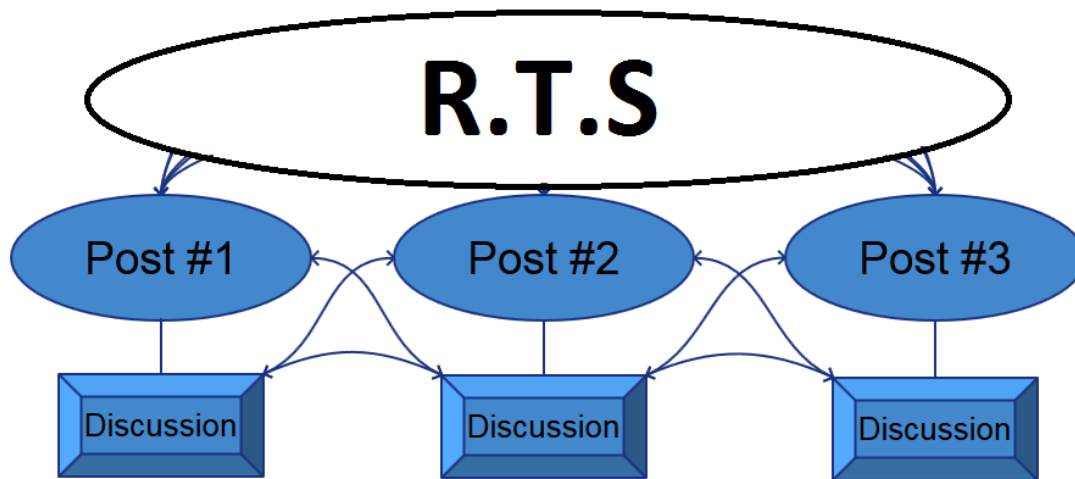


Figure 5: Fakkion Blog with Nested Forum Structure.

Fakkion's nested forum will take place on the Discussion node of each Blog post. Instead of the usual Blog comment system, the Forum's Discussion will create a threaded timeline that can also link to another discussion or to another blog post. In order to prevent performance issues and a complex GUI, the system will only allow one node connection per discussion thread. In other words, a person can only link one another discussion or post to each instance in order for the threaded algorithm to display a non-complex timeline.

The post themselves will follow a Blog guideline where the user will publish his/her News while following the one Fact and Fiction link requirement.

### 2.3 Relational Tagging system

Or R.T.S for short, is the relational backbone of Fakkion. It will allow the symbolic tags (displayed on the orange background) to interact with the fact tags (on the light blue background.) Although an expanded view is not possible due to the size limitations. The figure below does display the Bipartite Graph<sup>4</sup> relation that Fakkion has:

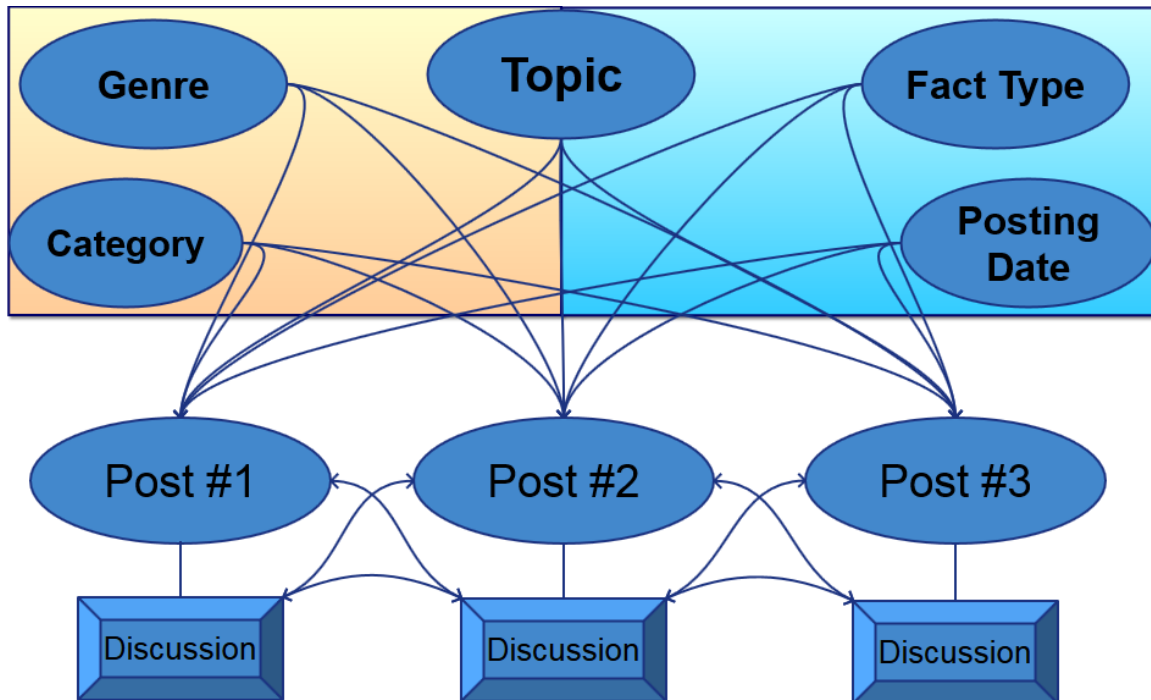


Figure 6: Fakkion Structure

The Bipartite Graph exists by allowing those different tags to determine what posts fit the filter requirements specified by the user, and also allowing posts to determine what content exists within each tag. In other words, as posts are created, the tags will grow in content as they will be defined by the user. However, there is a restriction which is a concern when creating a new tag content. When a user decides to create one, the system will verify if there is one already present and reject the user attempt if it already exists. Aside the Bipartite Graph, the Topic tag is not explicitly defined in one of the realms in order to allow non-fictitious topics such as Electrical Engineering to be inserted into the Fakkion R.T.S system. The table below summarizes the R.T.S. structure:

<sup>4</sup> Bipartite Graph: A graph in which vertices can be divided into two independent sets (X,Y) such that every edge (x,y) either matches a vertex from X or Y or from Y to X.

Tag	Tags per Post	Definition	Examples
Genre	1	The genre in which the main topic belongs	Music, Novel
Fact Type	1	Which type of fact does the fact link belongs to	Technology, Business
Posting Date	1	The blog posting date. Handled by the R.T.S system	March 9, 2015, February 5, 2015
Topic	1 to 3	The topics in which the post is about starting with the main topic.	Hatsune Miku, Vocaloid, Computer Software
Category	1	The category in which the main topic belongs	G-H-I

Table 2: R.T.S Tags

Although Category is not necessarily in the Fiction side, all main topics will be fictional and therefore makes the categorization a fictional tag categorization. Also, the categories Tag will mainly be used for the user to explore the website and discover other tags being used. This discover feature along the trending tags will allow other users to easily find what other people are discussing.

### 3 Fakkion Usage Expectations

In order to better understand how Fakkion will be used in the real world, it is essential to have sample data that conforms to the premises determined on Section 2. The following table demonstrates a common Fakkion Blog post.

Post breakdown	Data
Genre	Music
Fact Type	Technology
Posting Date	March 2015
Topic	Hatsune Miku, Vocaloid, Computer Software
Category	G-H-I
Fact Link	<a href="http://en.wikipedia.org/wiki/Hatsune_Miku">http://en.wikipedia.org/wiki/Hatsune_Miku</a>
Fiction Link	<a href="http://www.vulture.com/2014/11/hatsune-miku-the-future-of-music.html">http://www.vulture.com/2014/11/hatsune-miku-the-future-of-music.html</a>
Post Name	The Concept of reality behind Hatsune Miku
Text	Since Miku became an international hit, people started to consider her as real as any existing singer. Even though she is a virtual character, her impact is widespread through the physical world. The fact link provides more in-depth



	<p>information about her while the fiction link discusses how Miku and her fanbase considers her as part of the future of music. As being part of such large fanbase, I also believe that she is as real as one can be. However, this realism came from her being the channel in which all the fanbase's creativity is represented, be it song, remixes or artworks.</p>
--	--

Table 3: Sample Post

As stated before, the post themselves will be structured in a blog fashion in which each user posting content may demonstrate his/her opinions regarding the fact and fiction relation existing around the subject. This liberty may come in a cost of long discussions in each post including the chance of users committing fallacies such Ad Hominem. In order to remedy this situation, Fakkton will contain an empathy system inbuilt in each post and discussion that will allow users to soft delete such things by down voting them.

## 4 Results

After enough research about the subject, Fakkton has reached a solid point regarding the theory. However, the implementation facet is still under heavy research for the best possible solution for both the R.T.S and the Blog with nested Forum features. However, it is safe to state that the following assumptions regarding the future implementation will be valid:

### 4.1 Implementation assumptions

This idea must be realized under AJAX techniques in order to have a non-complex (for the user) and responsive website. Implementing those techniques will allow the needed dynamism that Fakkton requires. However, in order to prevent this techniques from affecting performance, some restrictions are required including a strong division between AJAX being used to display posts based on the R.T.S versus the AJAX being used to display the Blog nested Forum.

Another assumption will be regarding the data persistence. In other to have the best possible performance, the following structure displayed on Figure 7 will be used for the R.T.S:

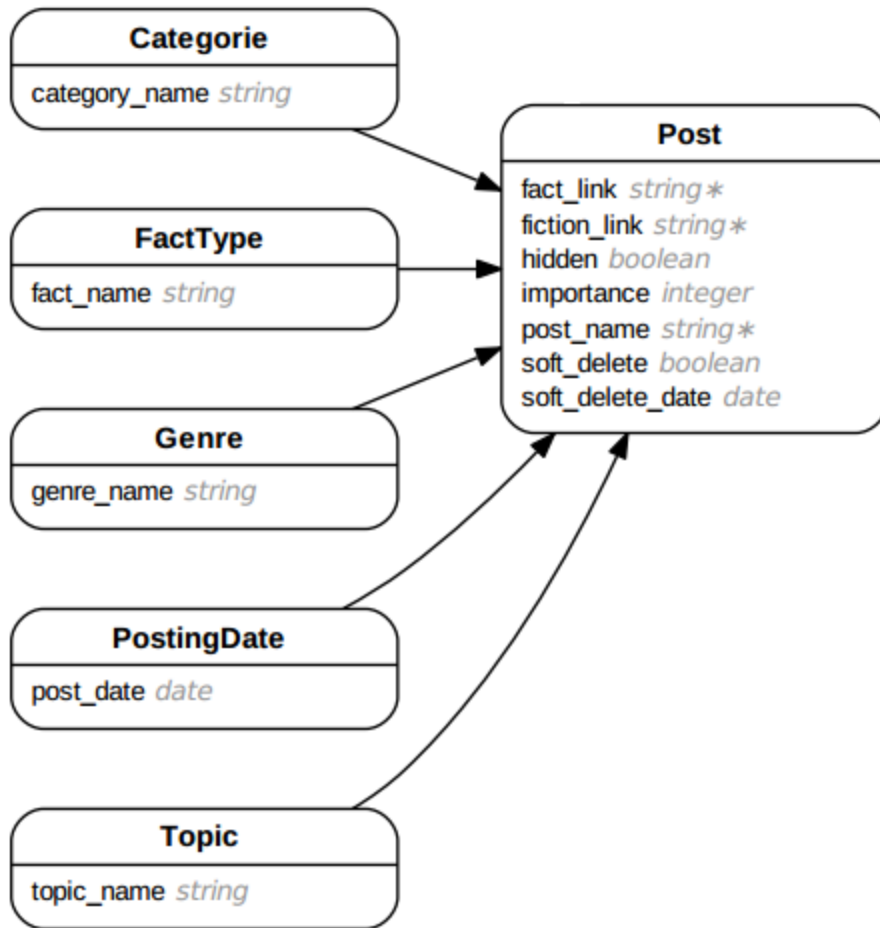


Figure 7: Data Persistence for R.T.S

The reason behind splitting each tag into its own table is that any update to any existing tag will be simple while also having indexed numbers on the post table instead of the actual name. Some experts may point out that a Rails *enum* on the model is an easier process. However, it does not allow users to efficiently create tags which defeats the purpose of having the R.T.S system.

Also, due to the AJAX nature of the project that gives the user the possibility to choose different types of tags at his/her will, it is essential to have a solution that allows for the least amount of database work. Although queries will become harder to handle due to the increased level of complexity, Rails as the backbone will reduce it dynamically by performing indexation on foreign keys.

With the Fakkton assumptions defined, it is now time for the layout expectations.

## 4.2 Implementation of the layout and its expectations

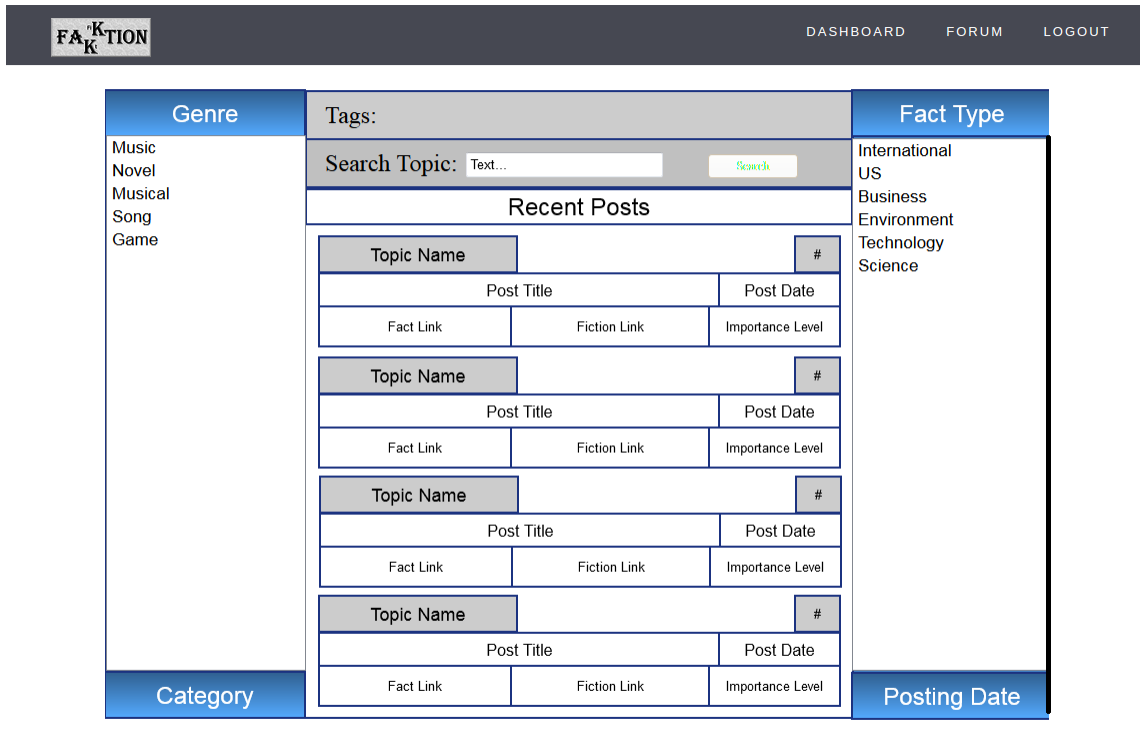


Figure 8: Fakkion Homepage

Figure 8 shows how the homepage is expected to look like. Visitors will be able to navigate through the system, but will not be allowed to see hidden posts nor create tags or posts until login. The header is handled by Rails while the other contents are handled by Ember.js which is a Javascript framework built for easier AJAX development and data persistence through a JSON API. Figure 9 shows the webpage after the user selected a few tags:

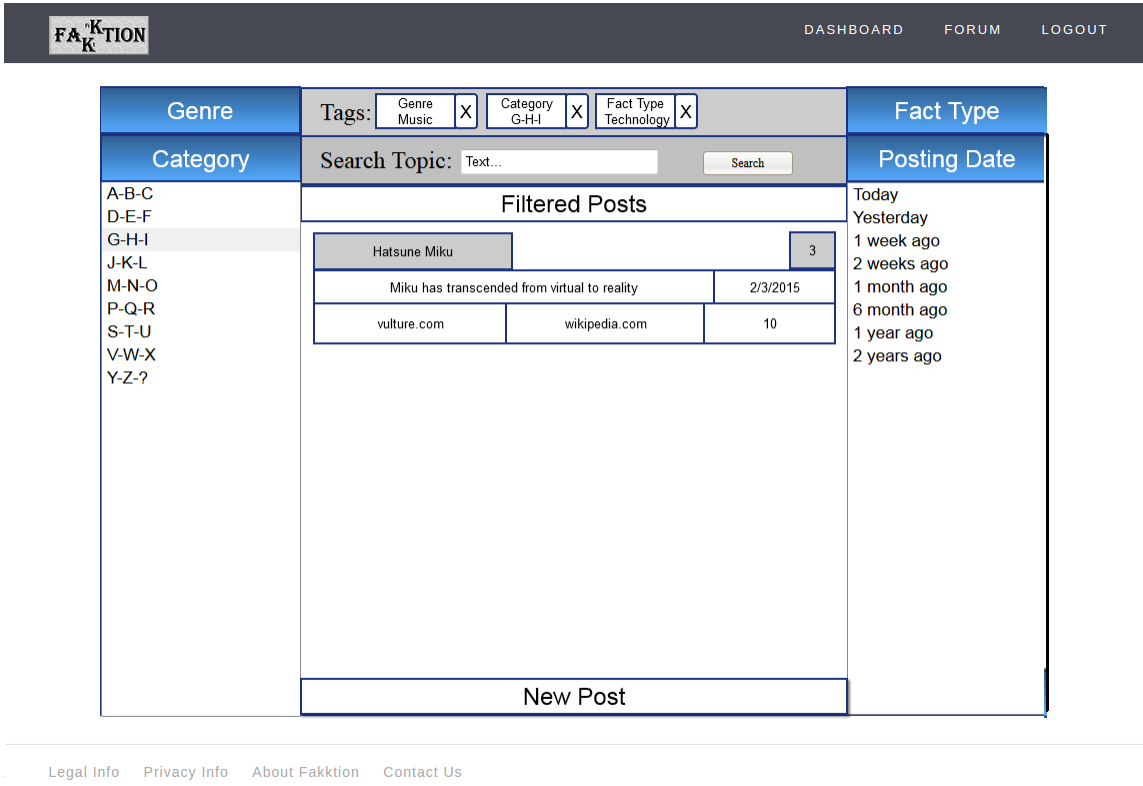


Figure 9: Fakkion website after use interaction

The ability to select tags and the current tags selected are separated in order to allow the user to easily manage each section without interference. The ability to search topics will also be displayed as a tag and only one topic is allowed to be searched at a time.

In regards to the tag selection on the fiction (left) side and fact (right) side, the blue headers will be clickable at any given moment allowing the user to choose any tags in the order that they wish.

Another feature that will be available is the option to create a new post with the current selected tags, but the user will be allowed to change them on the new post interface.

In summary, Fakkion is dedicated to be built with the greatest framework for user contribution as the website will grow as long as there is an active community. Aside the periodic gem and code refactor and update, the only management necessary is to review posts or discussion with negative empathy, and also data collection to see if it is necessary to scale up the resources for the website. Database management will be done periodically through scripts.

## References

- [1] A brief history of the internet. *New Statesman*, page 30, August 2011
- [2] Brad Templeton. *NetFunny.com*, August 2011
- [3] Brad Templeton. I remember USENET. *O'Reilly Archive*, December 2001
- [4] Laurie Johnson. Between Form and Function History and Identity in the Blogosphere. *Cultural Studies Review*, pages 59-85, March 2012
- [5] Danah M. Boyd and Nicole B. Ellison. Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communications*, pages 210-230, October 2007