

GWAP – Game with a purpose

Asteroid News

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1 Introduction

Collective intelligence is a broad, diverse field of study. In the early stages of the module we saw the power of collective intelligence in the studied example Vox Populi. Vox populi is latin for 'voice of the people' and it's founding principle is that by aggregated the approximations of many we can make a very good estimates. One example discussed in class involved people at a fair guessing the number of jellybeans in a jar. The average number of all the participants guesses was closer to the actual number than any one persons individual guess. We implemented this fact in our first assignment by building a recommender system which by its very design aggregates the ratings of other users. I find the power and accuracy of this techniue to be a particularly interesting and I always planned to leverage Vox Populi in some form in my GWAP.

The primary topic for my GWAP is fake news. Fake news comes in many forms and each form of fake news has it's own distinct implications and potential dangers. The question therefore is how can we begin to avoid fake news and solve the fake news epidemic? This question forms the basis of my GWAP.

2 The Problem: Fake News

Fake News can be defined as any information offered as a true and factual account of events in the past, present or future which are deceptively false – this includes accidental and intentional falsehoods. Examples of fake news are all around us – from satirical pieces in the Waterford Whispers with heading like “NASA Drafted In To Help Waterford Mother Find Where All The Time Goes” to serious, intentionally misleading headlines from fake news websites like www.abcnews.com.co like “Obama Signs Executive Order Declaring investigation Into Election Results; Revote Planned For Dec. 19th”. The latter of these examples illustrates the growing problem of Fake News being circulated solely to enrage and aggravate individuals. My GWAP aims to help filtering out enraging articles, quotes and statements from fake news outlets on the web.

The internet age has provided a medium through which information can flow at an unprecedented rate, the right to free speech has been embodied by the totally unregulated and instantly accessible world wide web. However, this platform facilitates the publication of unfiltered opinions and articles with zero fact checking and articles are often presented as completely legitimate and well-researched scholarly pieces. This is a breeding ground for misinformation and deceptive reporting.

It is easy to consider the problem of fake news a byproduct of the internet age, and in many ways, it is. However, it is important to remember that fake news predates the internet at by several thousand years. As far back as ancient Rome, falsehoods were spread across the empire to unsettle diplomats and senators for political, financial and personal gain. One of the first examples that springs to mind is the so called ‘disinformation war’ that erupted after Julius Caesar’s murder by his fellow senators in 44BC. Julius was stabbed in the senate 23 times by Brutus and his loyal senate following. His untimely death left a succession struggle between Mark Anthony, Caesar’s confidant and advisor and Augustus, Caesar’s self-styled successor and adopted son. Augustus had coins brandished with short snappy slogans describing Mark Anthony’s lack of discipline, fondness of wine and affection for Cleopatra – the leader of a foreign sovereignty. The well-educated senators and patricians of Rome were not the aim of the propaganda as they could see it for what it was: fake news. However Augustus won the battle for support against Anthony from the Roman people and would ultimately go on to rule Rome as its undisputed Emperor. Fake News was used to gain control of what was at the time and for many years to come, the most powerful empire on earth. [1]

Although the world has progressed dramatically since the era of the Roman empire’s rule, the prevalence of fake news can still be clearly seen. A comparison can be drawn between Augustus Caesar’s use of fake news and the fake news circulating around the time of the Brexit vote – which will have long lasting implications for the United Kingdom.

3 Motivation & Target Problems

In 2016 we have seen the rise of fake news and false news in the media, using social media to spread their ideas. The success of the Brexiteers is widely considered to be partially due to fake news. Nigel Farage's band of merry Brexiteers utilized provocative images of migrants implying that they would enter the United Kingdom once Turkey entered the EU (88 million people). Their positive points were picked up by mainstream media, The Daily Mail and the The Sun, while completely ignoring any possible complications. The guardian attempted to remain impartial and after the brexit they released figure stating that 41% of all Brexit articles were purely positive while only 27% were negative. [2]

This fake news made Brexit a reality and the backlash on the media reduced confidence in british media and media outlets as a whole. Trump capitalized on media inaccuracies and leveraged the lack of confidence to label the media as 'fake' and 'untrustworthy'. The problem of fake news needs to be solved to avoid similar voter misdirection in the future.

Fake News articles are the primary focus of my GWAP. I decided to keep the amount of reading needed by the reader to a minimum so I split news article content into 3 categories:

1. Article Headline
2. Article Statement
3. Quotes

From my research of fake news these are the 3 areas I have identified as the primary sources of misinformation. I will examine them one-by-one giving justifications on why they were selected and how we could mitigate their efficiency and effect.

3.1 Article Headline

Deceptive, clickbaiting headlines like "You'll Never Look At Kim Kardashian The Same Again After Seeing These Pictures" aim to generate the maximum number of possible clicks. The content itself is inconsequential as the sites main focus is to attract user views and clicks on advertisements. They often involve a button the user has to click to move to the page which contains the advertised information so the site can get the maximum number of page refreshes as possible.

It is my postulation that by allowing users to view and evaluate article headlines and by giving them feedback, they can become better versed and more adept at identifying and therefore avoiding fake news articles. There is also a value to compiling a list of fake news headlines in that many of these clickbaiting headlines follow a formula, a common headline might be "You'll Never Believe What Justin Beiber Said About Kanye West". This statement addresses the user directly and involves two extremely famous and infamously controversial celebrities.

In the future I would like to try and implement a topic model to identify the likelihood of an article being an example of fake news based solely on its headline.

3.2 Article Statement

Aside from clickbaiting, many fake news articles are intended solely to deceive the user in a way that makes them feel strong emotions such as anger, hatred, fear etc. A common method of achieving this effect is the use of strong provocative statements amongst less extreme, more believable pieces of information. This is arguably the most difficult aspect of fake news to identify, there is often very little reliable information

available on the topic which makes fact checking difficult. The first articles published on a given topic receives a sizable amount of attention and so truth is rarely the motivating factor when publishing rushed articles. A typical article may have the headline “North Korea or America: Who Will Win” – nice alliteration in the headline and no apparant bias makes the article appear professional, inpartial and reliable. The article may begin with well established facts like the number of nuclear tests conducted by Kim Jon Un, the malnutrition epicdemic in North Korea etc. however later on in the article an untrue statement may be used inflame the reader.

The goal of the application here is to find the source of the statement e.g. www.ABSnews.com.co and user the player’s of the game to decide if a statement is fact or fiction. Once a large majority has made their assessment on a number of articles we can add a source as credible or not credible and make this list available to the public and possibly to other GWAP and APIs.

3.3 Quotes

It is a common feature of fake news for well-known people to be misquoted. Quotes have traditionally been used by news articles to give credibility to an article and act as a draw towards the article. However, this has been exploited by fake news articles and can give them unmerited credibility. By allowing users to view quotes and evaluate their validity, they can be categorised as true or untrue. A similar topic model to that discussed in section 3.1 could be used here to try and identify and common misquotes.

4 Overview & System Architecture

In class and tutorial sessions we discussed how certain applications may not necessarily need their own method of attaining fake news and how they may rely on external inputs for their news. After commencing the project I realised that I wanted to design a self contained online news ecosystem which has the ability to allow users to upload content, evaluate that content and review uploaded items all without leaving the site.

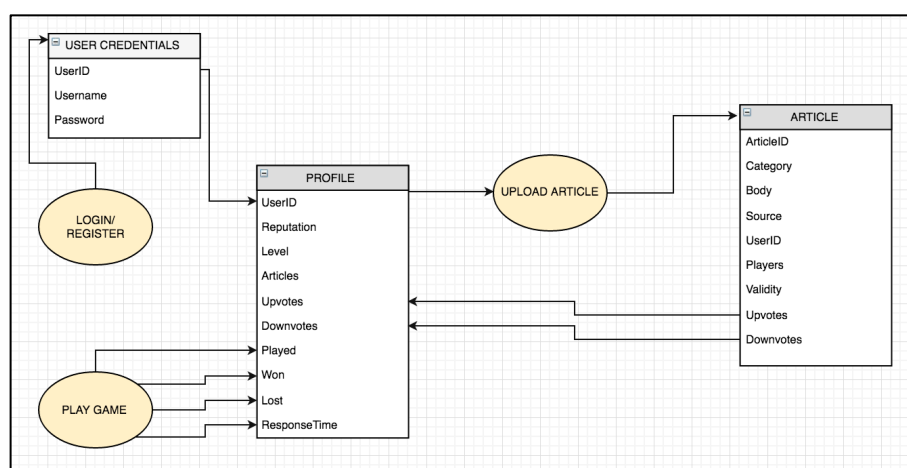
Users uploading articles, statements and quotes is the main way that the game gains content. I intend this to be the primary source of information for the game, however, the game could take this input from anywhere, notably, google chrome applications which allow users to select certain elements of news articles.

4.1 Implementation

The game would be developed using Unity and be exported as a flash game to be played in browser, with a basic HTML, CSS and JavaScript website making up the front end. The site design is purposely simple to facilitate rapid prototype development and to make it easy for users to navigate. Login and Register would be handled by server side PHP scripts and would sanitize input before execution to ensure site security is maintained.

I have some experience in creating Unity games and a non-graphically intensive 2D game like our Asteroid News would be relatively straightforward to create and maintain. When a user sets up an account their credentials are saved alongside a unique integer identifier called their 'UserID'. As news articles are uploaded and verified by users, it is sent to the back-end PHP script which in turn sends the information to the SQL server, here it is stored alongside a unique 'ArticleID'. A database table contains the uploaded 'articleID' alongside all of the userIDs to which that particular article has been served in the past. Before the game starts it takes the 2 UserIDs and finds 10 articles neither user has encountered in the past, then the game begins. This ensures that netihed player has the advantage of playing the same article multiple times. This is depicted in *figure 1* below:

Figure 1. Database Interaction Model



4.2 Gameplay Issues

In the beginning I foresee many users running out of articles to play the game with, when this happens the users are asked to upload content. Although a player cannot use their own articles in play, it allows other users to play. The site will rely heavily on user's uploading content and will rely on the community. Points will be awarded to contributors (article uploaders) and the top contributors will feature on the homepage of the site as depicted in *figure 2* below:

Figure 2. Top Contributors on Home Page



5 Game Design & Mechanics

5.1 Gathering Input

The game accepts 3 types of input as touched upon in section 3 of the report. When users are prompted for input they are offer a number of fields to fill out including: Article Name, Article Statement, Source, Validity.

Figure 3. *Uploading content to AsteroidNews.com*

The screenshot shows the 'ARTICLES' page of AsteroidNews.com. The header is black with 'ASTEROID NEWS' in white, a small planet icon, and the tagline 'DEFEND YOUR PLANET FROM FAKE NEWS' with a right-pointing arrow. Navigation links for 'HOME', 'ARTICLES', and 'PLAY' are below the header. A 'My Account' link is in the top right. The main content area has a red background. It features a 'SELECT A CATEGORY:' dropdown menu with three options: 'NEWSPAPER HEADLINES', 'NEWSPAPER STATEMENTS' (highlighted in blue), and 'FAMOUS QUOTES'. Below this are three input fields: 'ARTICLE NAME:' (a single-line text box), 'ARTICLE STATEMENT:' (a large multi-line text area), and 'ARTICLE SOURCE:' (a single-line text box). At the bottom, there is a 'REAL NEWS:' label followed by radio buttons for 'TRUE' and 'FALSE'.

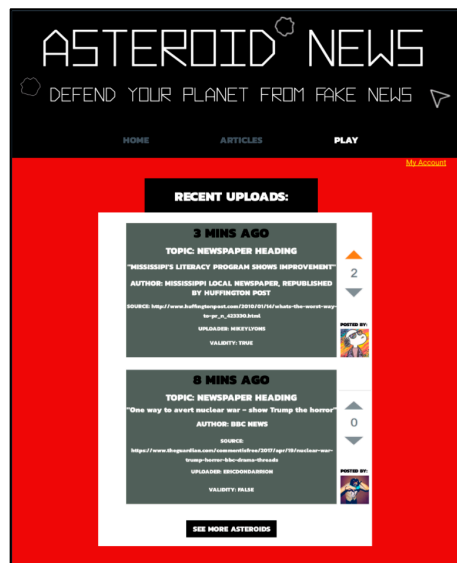
Giving users the ability to upload data means that we place a great deal of trust in the user, they could deceive the game and upload spam or insults. To counteract this problem a large emphasis is placed on reputation on the site. Users can see each others profiles and uploads and they can see each others' win/loss ratio in games, their contributions, upvotes, downvotes and more.

This essential aspect of the site is based loosely on stackOverflow's profile system which allows users to see previous posts, comments and mentions aswell as their overall rating. On stackOverflow the community is self regulating, any unsatisfactory comments can be downvoted by the user base and removed from the site.

There is a sense of society on the site which helps foster a strong feeling of collaboration and academic discussion on the site. As depicted in the below diagram the upload cycle is intended to allow maximal community power.

When an article is uploaded it appears in the following screen and requires 5 upvotes. Voting can be seen in the below screenshot.

Figure 4. Upvoting & Downvoting posts

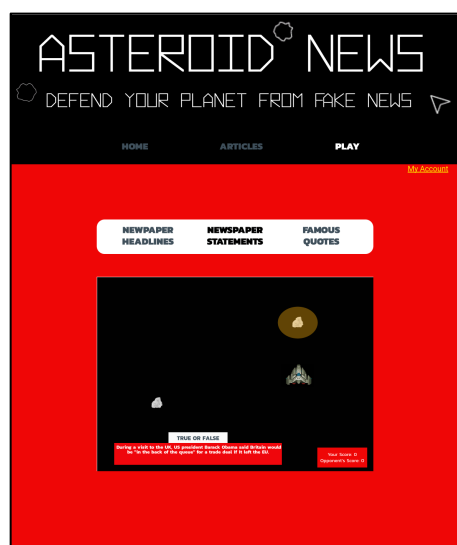


In the above diagram we can see the upvotes beside the recent uploads. This means that if users deem a piece unsatisfactory for any number of reasons such as if the source is not legitimate, if the post contains bad language etc. it will not appear in the game. If a user uploads content that is deemed offensive or constitutes any breach of our rules then that user may be banned. A user must play at least 10 games before uploading a piece, this may help stop malicious making accounts and uploading malicious content.

5.2 GamePlay

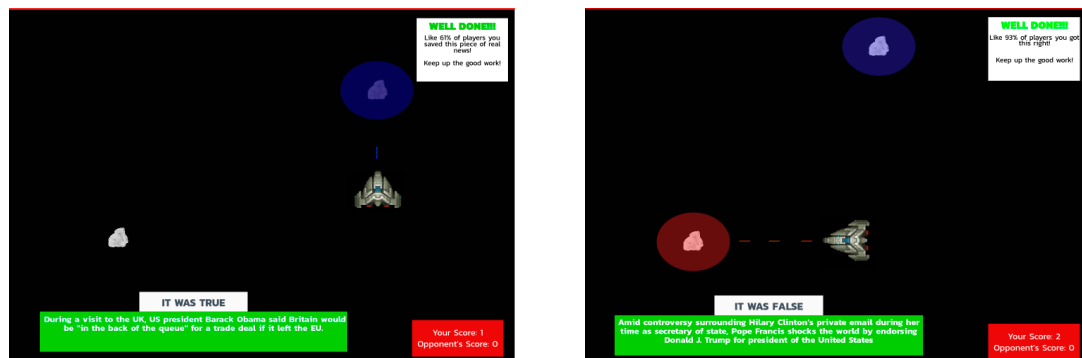
Playing the game is straightforward. The user decides which category they would like to play and the game matches them with an opponent. Both players play the same game with the same asteroids but cannot physically interact while in the game. The player systematically approaches asteroids and scans them using the 'S' key. This is depicted below in *figure 5*.

Figure 5. Scanning Fake News



Once scanned a piece of news to be evaluated appears. If the player thinks that the statement, headline or quote constitutes ‘fake news’ then they shoot it using the ‘F’ key (f for fake news). If they think that the asteroid contains real news then they shoot it using the ‘T’ key (t for true). For each correct answer the user is awarded one point and for each incorrect answer they are deducted a point. In figure 6 we can see two gameplay images one where the player is saving some true news (left) and the other where the player is destroying fake news (right). In the bottom right hand side of the screen we can see the score counter which tracks both the player’s score and the opponent’s score. Once both players have evaluated their 10 asteroids the game is over.

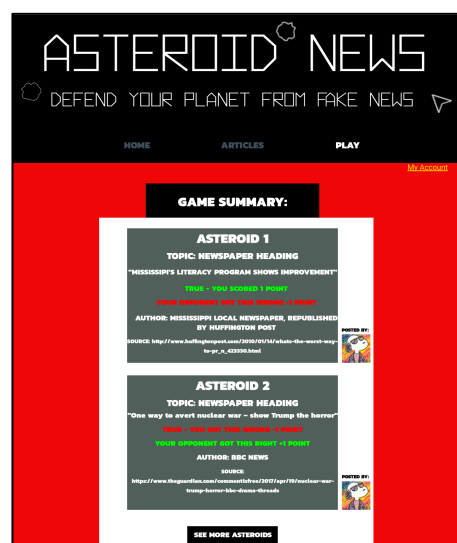
Figure 6. Saving and Destroying AsteroidNews articles



5.3 EndGame

Once the game is complete the user with the highscore is deemed the winner and both players can review their decisions and their opponents decisions. This review process can be scipped but I feel that many users would have an interest in viewing their mistakes and their opponent’s answers. The review feature is intended to give games closure after their game and to further educate the players on fake news topics in the hope that they will improve their ability to identify fake news in the future.

Figure 7. Reviewing Game Decisions



In figure 7 we can see a profile picture to the bottom right of each post, if we click that image it leads us to the article uploaders page as depicted in figure 8.

Figure 8. Sample User Profile Page on AsteroidNews.com



In figure 8 above we can see a user's profile. We can view their rank, reputation, wins, losses, uploads, upvotes, downvotes etc. We can also see which articles the user has uploaded. This is done to give users something to be proud of and serves as an incentive for them to upload content.

6 Evaluation

Having all the information contained in the same site gives freedom to the application in that it does not rely on external GWAPs or APIs. The categorization of data allows users to become adept at identifying the key aspects of fake news articles: deceptive headlines, invalid or false statements and misquotes. These are the primary areas of online fake news articles that I identified as being exploited for the creation of fake news and so these areas were the primary focus of my GWAP.

The purpose of the site is to get people uploading news articles and evaluating the source. Using the sources given by article contributors the site would have a list of deceptive sites which cannot be trusted. Furthermore, certain 'hot' topics of fake news can also be identified (possibly using a topic model) and warn the user to be aware of these topics. Finally, by using the site and playing the game, individuals can become better at identifying fake news and therefore not allow them to affect their opinions and emotions.

I believe this GWAP to be well designed from both a gameplay and a game-output perspective. There are clear steps for its implementation and they are well within the realms of reality.

7 Conclusion

The site offers a fun, interactive, competitive game which helps solve the fake news epidemic. The users can vote on fake news and assess its validity. As more and more people agree with the uploader we can class the news as true or false and this output for other GWAPs and to prevent the spread of fake news by having a list of fake news websites and hot topics.

I learned a lot from this assignment, before I enrolled in this module I had never heard of a 'game with a purpose' and so everything was new and exciting to learn about. Furthermore, I had never tried to prototype a system like this and write a comprehensive explanatory report and so this too was a learning experience.

The problem of fake news will not be solved by a single site nor, in my opinion, will the epidemic ever be solved due to the free, open and unregulated nature of the internet. This GWAP exercise represents a thought process which if properly adopted and employed by internet users could serve a massive blow to the prevalence of fake news.

8 Bibliography

[1] - <https://www.ft.com/content/aaf2bb08-dca2-11e6-86ac-f253db7791c6>

[2] - <http://www.politico.eu/blogs/on-media/2016/05/where-the-british-press-stands-on-brexit-2016-june-newspaper-best-bet/>