

# Initial Plan

Creating an online adblocker  
CM3203

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# Project Description

When browsing the internet, users are regularly bombarded with adverts that will hinder and alter their browsing experience. Adverts are used as a revenue technique for many free and paid websites. Over time the market for adverts has evolved and now an ever-raging war between website hosts and adblockers exist, with each trying to combat the other. (nytimes.com, 2016) In recent years adverts have been used as a strong part of political campaigns – being used to spread propaganda across the internet using smart targeted adverts (qz.com, 2020). In the current day and age, it's not uncommon to see adblockers being used by day-to-day users of the internet as doing so may provide less distractions and allow content to be accessed quicker as well as filter out inappropriate content from web pages.

In this project I aim to create a reliable and effective adblocker that will be able to detect and circumvent adverts that may be displayed on any given website. The blocker should be able to identify adverts of different types such as pictures and banners that maybe placed on websites or videos that play when trying to watch another advert. Since there are already adblockers available I will spend time researching the techniques and algorithms that have previously been used to help identify adverts on a web page and begin to build my own method of detecting them. As websites are loaded on the client side of the browser, removing (blocking) adverts from the web page will likely just involve removing relevant HTML elements from the website.

There are many different features that could be added to an adblocker to make it more appealing and useful. Some of the content I believe would be a good addition includes:

- Enabling and disabling of adblocker. The adblocker needs to have the option to be disabled and re-enabled on different websites. Some users will choose to leave adverts enabled on specific websites as to support them monetarily. Websites that have adverts enabled on them need to be saved in a whitelist so that the user won't need to change it back to on, whenever they re-visit.
- Disabling specific types of adverts. Allow the user to specify what adverts they would like to be blocked. Whether that be videos, or text, amongst other types that may exist online. This is important as again; the user may wish to view some specific types.
- Manual addition of adverts. The adblocker I will create aims to identify and block as many adverts as it can, however it won't be able to identify all of them. Having the option for the user to identify and select adverts to be manually be blocked will help improve the relevance of the adblocker.
- Statistics. The adblocker should offer statistics about the current website and the total browsing experience, listing information about how many adverts have been blocked, the types of adverts that are trying to be displayed as well as their location on the page. In addition to being interesting or useful to the user it could be used to help identify more adverts in the future.

# Project Aims and Objectives

## Identify adverts

I believe that this is going to be the hardest and most time-consuming part of the project. This is where most of my research is going to be spent. Having previously looked at how adverts can be identified at a basic level, I have some understanding in the process I am going to use, but with a whole internet at my disposal I will need to figure ways to capture as many adverts as I can, including those where circumvention is in place. As well as research I believe this will be the topic where most of my coding ability will be put into practice. I believe I will need to develop a variety of algorithms that deploy varying techniques allowing my application to identify adverts. The main objectives are:

- Research algorithms to detect adverts
- Create code that will detect adverts
- Run code through the browser to detect adverts on a real website.

## Block adverts

Blocking adverts is of course the main overall objective of this project, but also just a smaller part of the project. In this aim I will be looking at how I am able to extract and remove adverts from the webpage that's loaded on the user's screen. Having previously seen examples of removing elements from websites I believe I will have a working removal system quickly, but fine tuning will be a longer process as the sheer number of different websites will need testing.

- Create code that will remove adverts (elements) from the web page'
- Have the code run automatically when a user loads a website
- Ability to toggle the blocking of adverts to be on or off

## Understand circumvention techniques

Adblockers and websites are both constantly coming up with new methods of circumventing the other efforts. I would like to understand how both website owners and Adblock creators are combatting efforts.

- Research methods used by adblockers to tackle circumvention
- Research methods websites are using to circumvent adblockers
- Implement research into my own adblocker.

# Work Plan

I have decided that I will be breaking down my work plan into a week-by-week cycle of work to complete. I will be just using the 12 academic calendar weeks to conduct real effort towards this project and will therefore use the Easter break as a time to experiment and test bonus, or extra features.

Throughout this process I would like to hold weekly meetings with my supervisor to discuss my progress as well as talk about any problems or walls I may be hitting. Adhering to this work plan will allow me to make steady and reasonable pace towards finishing my project.

For the first 3 weeks I will mainly be focusing on undertaking research and gathering relevant resources that will help me understand what adblockers are available and the different techniques that they will use to remove adverts from websites. During this time, I will also be looking a step further at the way's websites are combatting the use of online adblockers.

From week 4-9 I will begin by designing some of the core foundations of my adblocker, before moving on to building the whole thing itself and getting it to a stable piece of software. This process will involve creating a chrome extension, creating algorithms that can detect adverts on web pages and implementing a method of extracting them from a user's web page.

Week 9-12. During the final few weeks I will work on writing the bulk of my report and ensuring the software is tested and able to be distributed correctly.

## **Week 1 – 27.01.20:**

- Research current adblockers available online
- Draft Initial Report document

**Deliver:** Initial Report

## **Week 2 – 03.02.20:**

- Research different techniques used to block adverts, for videos, pictures and unwanted sound etc.
- Research cross browser compatibility of adblockers
- Research advert blocking that can be done outside of the browser.

## **Week 3 – 10.02.20:**

- Research different ways in which websites are combatting the use of adblockers
- Research how websites are detecting adblockers

## **Week 4 – 17.02.20:**

- Learn how to and create my own chrome extension in which I will house my adblocker.
- Look at how to implement my solution onto Firefox and IE

**Deliver:** Barebones chrome extension

### **Week 5 – 24.02.20:**

- Initial creation of algorithm that can detect advert (images/banners etc)
- Adapt algorithm created to detect videos
- Discover initial problems of detecting, what's hard to find

**Deliver:** Initial detection algorithm

### **Week 6 – 02.03.20:**

- Improve initial algorithm, better detection, faster speeds.
- Begin creating technique of removing adverts from web page.

**Deliver:** Core functionality of adblocker (not integrated)

### **Week 7 – 09.03.20:**

- Refine removal of adverts, make sure it doesn't change the layout of the website etc.
- Integrate algorithms into chrome extension

**Deliver:** Basic adblocking extension

### **Week 8 – 16.03.20:**

- Add tracking for how many adverts are being blocked and have been blocked in total
- Add error collection
- Add option to enable and disable adblocking

**Deliver:** Final extension features that aren't directly adblocking features.

### **Week 9 – 23.03.20:**

- Testing, ensure there are unit tests in place for the application I have made
- Tidy up, complete code commenting
- Refactor code to make it easier to read

**Deliver:** Final application

### **Easter – 27.03.20 – 17.04.20:**

- Spend time looking at extra features that can be implemented to make the product more desirable.
- Create items like chrome extension page (icons etc)

**Deliver:** Cosmetic changes, extra features

**Week 10 – 20.04.20:**

- Create template for final report
- Add initial thoughts and information into the final report
- Get feedback on rough draft and noted thoughts

**Deliver:** Rough notes – final report

**Week 11 – 27.04.20:**

- Shape rough draft into more concrete report
- Add proper references and ensure references, title page and contents are all satisfactory
- Compare final product with report

**Deliver:** Draft Final Report

**Week 12 – 04.05.20:**

- Collate final report feedback into useable information
- Apply changes and finishing touches to report

**Deliver:** Final Report

## References

(2016, Feb 20). Retrieved from nytimes.com:

<https://www.nytimes.com/2016/02/21/opinion/sunday/the-ad-blocking-wars.html>

(2020, Jan 10). Retrieved from qz.com: <https://qz.com/1782348/cambridge-analytica-used-these-5-political-ads-to-target-voters/>