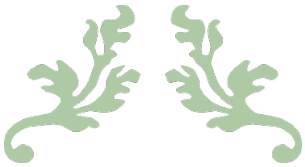

WEB DEVELOPMENT LEARNING JOURNAL

HACKTHEUNI.COM

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Table of Contents

1. Website Design Theme

My website hacktheuni.com, is an aggregator of life hacks for university students, in the form of text, images and videos. The purpose of the website, thus, is the dissemination of content.

To rid the user of distraction from that purpose and also to keep in mind the vibe of the website, I chose a minimalist yet trendy design theme for my website. Every element of the website is designed to that effect. The colour palette is largely grayscale, complemented by a playful light-green for highlights.

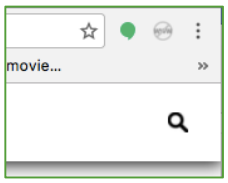


Figure 1: Search Button expands into a search bar when clicked. Search results are shown in a lightbox overlaid on the entire screen.

Any element of the website which is activated is highlighted appropriately To allow the user to focus on that element. The website search feature illustrates this intention well (Fig. 1).

Further, only two fonts are used – one for navigation and headings to guide the user across the website, and the other for the content. An avant-garde font – Open Sans - is used for the content in accordance with the theme of the website.

2. Process and Design

2.1. Who is the website for?

The website is designed to serve students studying at university. However, the content is relevant to more independent secondary school students as well.

2.2. Why should people visit?

Students can find life hacks related to studying and test preparation, work and money, exercising as well as routine chores like cleaning or cooking. Content is filtered to be relevant as well as engaging, thus also catering to visits simply looking for infotainment.

2.3. What information does the website provide its visitors?

In keeping with the goals of the visitors, the website provides articles populated with images and videos, besides text to communicate ideas that make life simpler. This information is categorized for ease of access into 4 categories: study tips, tips on managing money and getting work as a college student, tips on exercising keeping in mind the many constraints of students, and tips on household activities like cooking, cleaning and decorating.

2.4. How often are visitors expected to visit?

Given that there are various tips on the website related to specific tips, many visitors may return seldom, looking for help on specific issues pertinent to them. There is also the expectation that some visitors may visit regularly, looking valuable infotainment.

2.5. Where did the content come from?

The website is an aggregator of content. Based upon the concept of **Web 2.0**, the website relies on user-generated content. Content is sourced from contributors around the world. Presently, for the purposes of academic assessment content is sourced from various pertinent web articles, and is credited on the individual web pages where it is displayed. In the future, any user may contribute to the content, which may be filtered and edited as necessary. The same is explained on the Disclaimer web page. A link to request the removal of copyrighted content is also displayed.

2.6. How is the content grouped and organized?

The content is grouped into 4 sections, namely: Study, Work & Money, Exercise and Living (household activities). The content is organized in an interlinked fashion. The homepage displays a full screen content slider that displays the latest articles. Below that, there is a drawer of links to popular articles from all categories.

Further, each individual content group is also housed inside individual web pages of the same title as the content group. Within each of these content group webpages is also an article drawer which displays links to articles belonging only to that content group.

Also, all individual articles display links to related articles on the website that the reader may like, to promote engagement with the website.

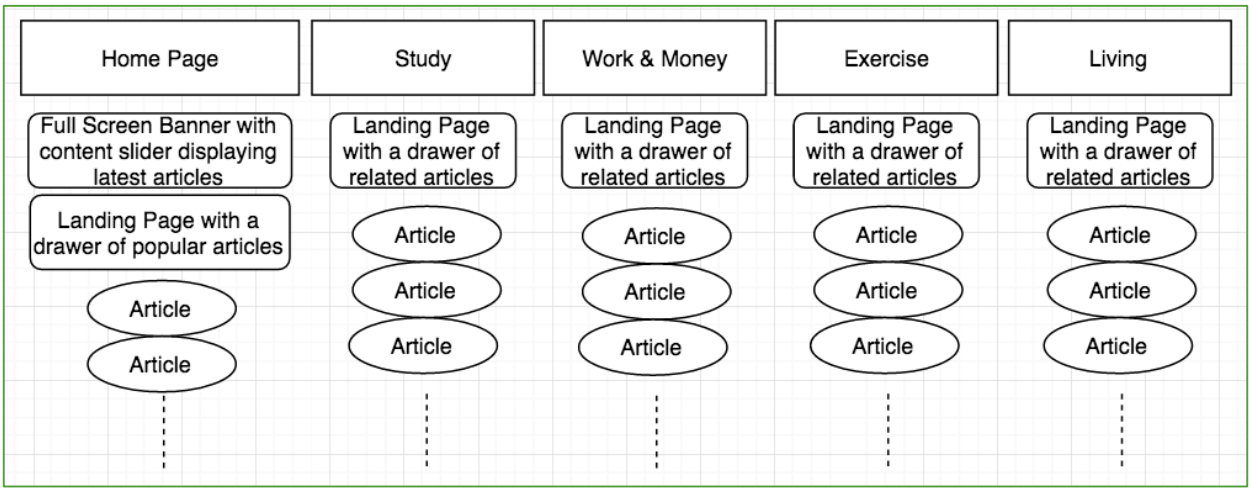


Figure 2: Content Grouping and Organisation

3. Independent Learning Beyond Class Material

3.1. Navigation Bar

I didn't know where to begin to make my navigation bar. I remember having made a website when I was 13 years old, and using images everywhere to design my website. I knew there had to be a better way. So I researched online and found out about using **unordered lists**.

I was also on the lookout for features that made by navigation bar as informative as possible without being distracting. I found and added a feature called **active tab**. This is simply a highlight on whatever section of the website the user is on. I found that it is akin to a high level **breadcrumb**, and lets the user know where he/she is on the website.

3.2. Transition

I noticed that my navigation bar felt very mechanical, since all the animations of the buttons were sudden. I **surveyed websites of my competitors** (lifehack.org and lifehacker.com) to see how they felt so natural to use. I found that all the animations (link, hover, active) had the **property of transition**. This allowed the user's movement on the website feel very natural. I incorporated the same into my website.

3.3. Search Bar

Perhaps the single most time consuming feature to make in my website, is the search bar. I applied the transition property to the feature. It loads as a small button, keeping in mind the minimalist theme of the website. Which then **transitions** into a bar when clicked.

When the user enters a query, a piece of **Java Script** code that I found on **stackoverflow.com**, opens google search in a new tab, and types in the user's query prefixed by *site:hacktheuni.com*. This makes Google Search search only the pages on my website.

Later, inspired by a website presentation in class, I decided to implement the **Google Custom Search** bar. It was a simple cut and paste code provided by google for my website. However, it's appearance was mostly unmodifiable given that the piece of code used many linked files to which I did not have access.

Using help from **stackoverflow.com** I developed a solution to this. I used a previously posted solution to get the id for **Google Custom Search** bar and formatted it as required with CSS. But this still left the search button, which I wanted to hide. I simply wanted a search bar which allows hitting return/enter to search. So I hid the search button many pixels far right of my website (A tip I borrowed from my research about implementing a **Content Slider**), instead of using **visibility:hidden** which made the search bar not work.

3.4. Favicon

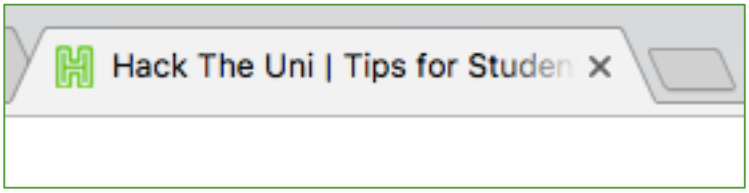


Figure 3: Favicon appears before page title

During my survey of the best websites in the world **(The Webby Awards),** I noted that all websites displayed a mini icon on the browser tab just before the page title. So I found a Favicon generator website (**favicon-generator.org),** uploaded my logo and cropped it to make the **.ico** favicon file, as well as got the code to link it to my website.

3.5. Full Screen Banner and Smooth Scrolling

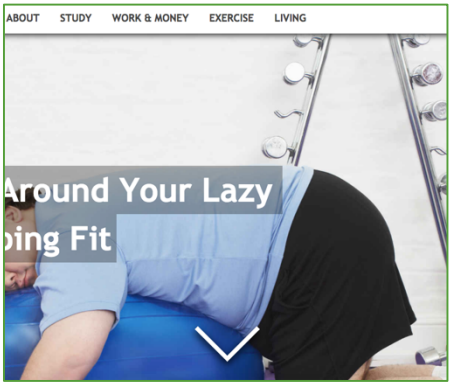


Figure 4: Scroll Down Button at Bottom

Also during my survey of the best websites, I happened upon the **website of Land Rover**. It had an interesting feature. A big image on the top of the homepage that drew attention to the latest product, and a small button arrow at the bottom that, when clicked, **scrolled down** the web page smoothly using **Java Script.** Again I used help from **S.O.**

I copied in **Java Script** to **change the image source** of the arrow button, so that it changed to black when hovered.

3.6. Viewport values (vh and vw)

I wanted latest articles to appear as a full screen image link when the home page loaded. Trouble was, I didn't know what size to make the image to make it full screen. I found the solution in **viewport** values, namely **vh** and **vw**. These can be written as *x* vh for height and x vw for width (where x is a percent of size of the browser screen of the particular user).

3.7. Character Set Encoding

Immediately upon testing websites on other computers and browsers, I noticed that many of my special characters (e.g. €, “, ’) were appearing as garbage letters (e.g. ¢`!~). I researched online on how to solve this issue and finally discovered that the character encoding used by the text-editor writing the content code must be specified through a meta tag. I solved this issue by trial and error, since I found that to find my computer's encoding I'd have to know basic **Apple Terminal** code. Finally, adding **UTF-8** character set encoding using the meta tag worked.

3.8. Background behind text using

On a **competitor's website** (lifehacker.com) I liked how all article links were displayed as a thumbnail picture with text written over it which has a dark background. I used the help of **CSStricks.com** to help me understand the **** tag. Using this I added dark background to text displayed on images for readability.

3.9. Content Slider

When I asked my friends for **feedback** on my website, most didn't understand why there was a fullscreen link to 1 random article at the top of my homepage. I understood that the idea that this was a feature to display latest articles was not coming across clearly. So I added a content slider with a heading called "Latest" with help from **kirupa.com**. I also added the **functionality to allow it to automatically slide all the latest articles**.

However, the sliding animation of my article links, looked very slow, even with a reduced transition time. So I researched the **best practices on how to use the transition** property. I learned that using **ease-in-out** value for the transition property makes a transition appear slow. And that simply using **ease-out** makes the transition appear faster. I incorporated this in my slider design.

3.10. Gap between inline elements

An interesting thing that I noticed while making the Content Slider, was that the individual content div containers of my slider had a **gap** of a few pixels in between them that was visible every time the slider transitioned. This looks bad. Searching on S.O. I found the fix. While writing code to add multiple inline div elements, if you add a **new line in between ** of a preceeding element and of the next, a gap is made between the elements. To overcome this, there should be no space between the opening tag of a div element and the closing tag of a preceeding one.

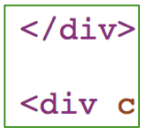


Figure 6: Adds a few pixels between inline divs

Figure 5: Removes any space between inline divs

3.11. Social Media Sharing

Since my website is topical to students, and students are active on social media, I searched for ways to make my website social media ready. I found many features, the two most useful of which I incorporated into my website: **Facebook Comments Plugin** and the **Add-To-Any Share Buttons.** The Facebook plugin allows users to comment on articles on hacktheuni.com using their facebook accounts. Further, the Add-To-Any Share Buttons, display buttons that allow users to share individual articles using their social media accounts on Facebook, Linkedin, Twitter and Google+.

3.12. Engaging with the visitor

Reading online and through my own surveys of many content aggregator websites, I noticed a common feature – a **side bar** on all content pages that links to other content

that the **user may also like** – which greatly enhances user engagement with the website. I added this to my website. I also learned how to embed **YouTube videos** and **Google Forms** into web pages using iframes, to allow enhanced visitor engagement.

4. Experience with Hosting

I hosted my website on Digiweb. After the initial sign-up process which took 3 days, from registering for a domain name, to receiving the credentials to access my FTP account. The website went live within a week of registering for the domain name. Following that, my experience with uploading the website was uneventful. I simply followed the directions to upload the website as described in class.

5. Solving Difficulties with Learning Process

At first I was stumped by the broad scope of the assignment. To make the correct strategic decisions at the planning stage of building the website seemed challenging. However, I soon realized that an easy way forward was to try different ideas, test them and incorporate the best ideas into the website.

This experimental approach to building my website posed another challenge. As the website progressed, integrating new and advanced features - like a lightbox search bar, or a content slider - into the website posed a challenge. To solve these problems, I used extensive help from **stackoverflow.com**. Most of the problems I faced while learning to develop a website, have already been faced by several people before. I went through the several solutions offered by people who have been in situations before, and picked an appropriate solution for my website. For other problems, I went down to the basics, and looked up **video tutorials** online, relating to issues such as layouts and positioning elements and thus equipped myself to handle them.

Initially, on several occasions, I made half-baked solutions to issues - like positioning all website components absolutely to each other, rather than putting subcomponents inside div containers and positioning them relative to each other, which makes adding and deleting components much easier. Naturally, these solutions failed rigorous testing on different resolutions and browsers. I followed these issues up by returning to the basic concepts using **class notes** and online tutorials and rebuilding components from the ground up the right way.

Personally, the most valuable lesson I took from this course is that every problem can be fixed. The issue that helped me make this realization was that of the search bar. I wanted to implement the google custom search bar in my website. For this, there is a simple

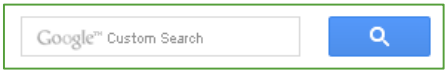


Figure 7: Typical Custom Google Search Bar appearance

process of copying code into a website. However, this code uses several linked style sheets and other resources, which made customizing the search bar beyond my capabilities. This left me with a jarringly distinct and unanimated search bar (Fig. 3).

To keep the form of the search bar I wanted, in true “hack the uni” fashion, I opted for a workaround and gave up the idea of the custom search bar, and instead implemented my search bar using JavaScript code I found on stackoverflow.com, which entered the user query into google search, prefixed by ‘site:hacktheuni.com ’. This opened searches on Google in a new tab (Fig. 4).

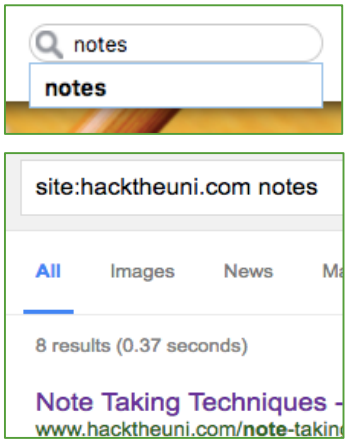


Figure 8: Earlier Search Implementation

However, this looked very unprofessional. But I had given up my search for the dream search bar. Motivated again to do it right, seeing the Custom Search feature on another student’s website, I took help of many users on **stackoverflow.com** and finally implemented code that allowed me to modify the appearance of not only the Custom Search, but also the search results (Fig. 5).

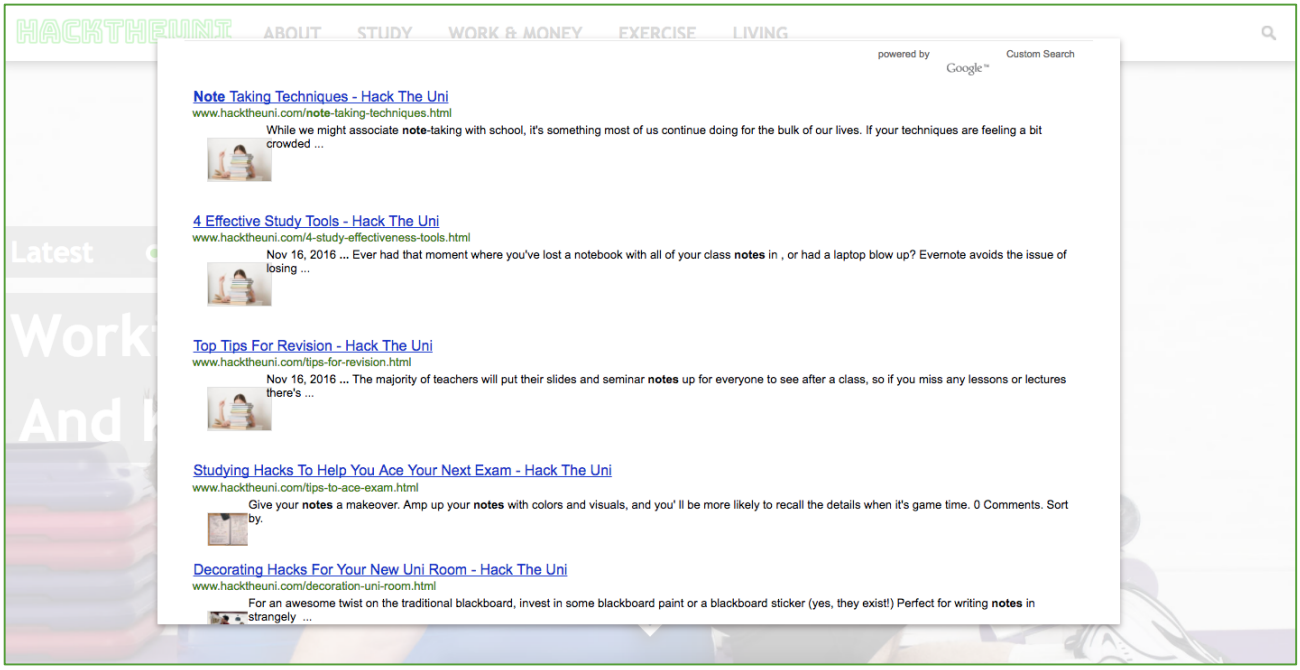


Figure 9: Final Implementation of Google Custom Search. The search bar appears as shown in Figure 4, instead of Google Custom Search’s default appearance as shown in Figure 3.

6. Help Provided to Other Students

While I did not have the opportunity to help another student directly with their code, I attended the website presentations regularly and offered suggestions when I could.

To a student stuck with a low resolution font for want of an outdated design, I offered the suggestion of using Google Fonts (which allows adding various fonts to a webpage by linking a stylesheet), to get a higher resolution font with the same design.

To a student in want of a method to implement a comment box feature on her website, I suggested the Facebook Comments Plugin, which I had happened upon earlier to solve the same problem for my website.

7. Search Engine Optimization – Changes

7.1. Planning and Preparation

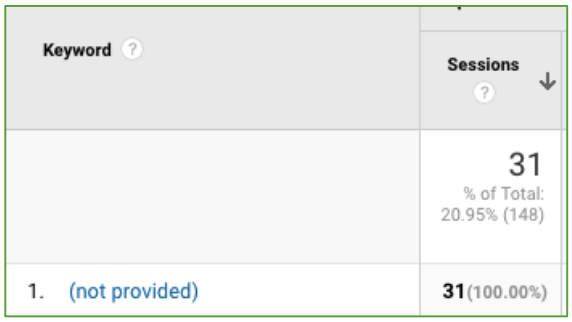
7.1.1. Proposition Development

The **target audience** of my website is the student population of Ireland. (Limited to Ireland due to availability of specific local products suggested in many hacks). This is why I chose a **trendy and memorable, yet descriptive domain name** – Hack the Uni - since as a representative of this segment, I realize that this market segment has low focus and a short attention span with regard to the web.

The **ultimate goal** of the website is to be a high quality content source to users. **Intermediate goals** are to get users to sign up to the monthly newsletters, to contribute to the website, and to share the content on social media.

7.1.2. Keyword/Keyphrase Discovery

Initially, without adding any keywords to the website, the website gathered 20.95% of its users through organic searches on Google Search, however the keyword appears as (not provided) on Google Analytics.



Keyword	Sessions ↓
	31 % of Total: 20.95% (148)
1. (not provided)	31 (100.00%)

List of keywords/keyphrases that a user might use to find my website: university hacks, college hacks, hacks, tips, tips for life, tips for university, lifehacks, life hacks, cleaning hacks, hacks for students, study hacks, study tips, chores hacks, chore tips, household hacks, household tips, food hacks, cooking tips, exercise hacks, work hacks, money hacks, student budgeting, student budget, student budget hacks, student budget tips, college budget tips

7.1.3. Keyword Analysis

Keywords/Phrases from competing websites (buzzfeed.com, studenthacks.co.uk, studenthut.com) were largely the same save for: college tricks.

7.1.4. Keyword Deployment

I put these keywords, as appropriate, in the **titles** and **meta** tags of all my web pages, as well as in headings enclosed in **semantic** tags like h1, h2, etc. All links to other articles within an article are also put inside semantic h4 tags.

7.2. Changes Made during the SEO Campaign

I kept all **image names** and **URLs** as descriptive as possible while not bloating them with keywords. I put descriptive **title tags** and **meta keyword** tags. I laid emphasis on using words that use language that my user demographic might search for, going for informal and trendy vocabulary (such as ‘hacks’ instead of ‘tips’). I put in all my **keywords** into **meta keywords** tags and used **keyword deployment** across the website’s content.

Earlier during the course, I was reading up on the best practices of web development and noticed that the **alt** attribute of **img** tags were unnecessary today as most web users have reliable and faster than before internet connections and are increasingly unlikely to block images from appearing in their browsers.

Therefore, I did not put any alt attributes they seemed to be **bloat code**. However, reading *Moz’s **The Beginners Guide To SEO**,* I realized that alt attributes allow search engines to read and index the non-text elements of the website as well. This would lead to better traffic from search engines. So I added alt attributes to all img tags that contain content which isn’t complemented by text.

8. Appendix A: Google Analytics

8.1. Individual Page Analysis

Plot Rows | Secondary dimension | Sort Type: Default | advanced

	Page	Page Views	Unique Page Views	Avg. Time on Page	Entrances	Bounce Rate	% Exit
		771 % of Total: 100.00% (771)	419 % of Total: 100.00% (419)	00:01:51 Avg for View: 00:01:51 (0.00%)	166 % of Total: 100.00% (166)	12.65% Avg for View: 12.65% (0.00%)	21.53% Avg for View: 21.53% (0.00%)
1.	/	300 (38.91%)	142 (33.89%)	00:04:36	139 (83.73%)	5.76%	38.33%
2.	/index.html	74 (9.60%)	27 (6.44%)	00:01:13	4 (2.41%)	0.00%	20.27%
3.	/study.html	42 (5.45%)	19 (4.53%)	00:00:06	3 (1.81%)	66.67%	7.14%
4.	/about.html	37 (4.80%)	16 (3.82%)	00:00:15	3 (1.81%)	0.00%	5.41%
5.	/work-money.html	35 (4.54%)	13 (3.10%)	00:00:05	0 (0.00%)	0.00%	2.86%
6.	/exercise.html	33 (4.28%)	17 (4.06%)	00:00:03	0 (0.00%)	0.00%	0.00%
7.	/living.html	29 (3.76%)	17 (4.06%)	00:00:03	0 (0.00%)	0.00%	0.00%
8.	/tips-to-ace-exam.html	25 (3.24%)	15 (3.58%)	00:01:34	0 (0.00%)	0.00%	8.00%
9.	/contact.html	20 (2.59%)	14 (3.34%)	00:00:12	6 (3.61%)	83.33%	40.00%
10.	/keep-fit-lazy.html	17 (2.20%)	11 (2.63%)	00:00:53	0 (0.00%)	0.00%	5.88%

Figure 10: All Time Most Popular Webpage Statistics

The *Index* page is **most popular** with 70 pageviews, which is no surprise. **Average time** on this page is 1:03 minutes.

It is followed by *Study*, then *About*, then *Work & Money*, then *Exercise*, then *Living*. The next most popular page – and the **most popular article** - is: *Tips To Ace Your Exams,* with 21 pageviews on which users spend an **average time** of 1:26 minutes. The least popular page is, *Revision Tips,* with 6 pageviews.

Interestingly the article page titled, *Laundry Tips,* has the highest **exit rate** of any article: 37.5%. The lowest exit rate of 0% is shared by most other article pages.

8.2. Full traffic overview just before submitting journal

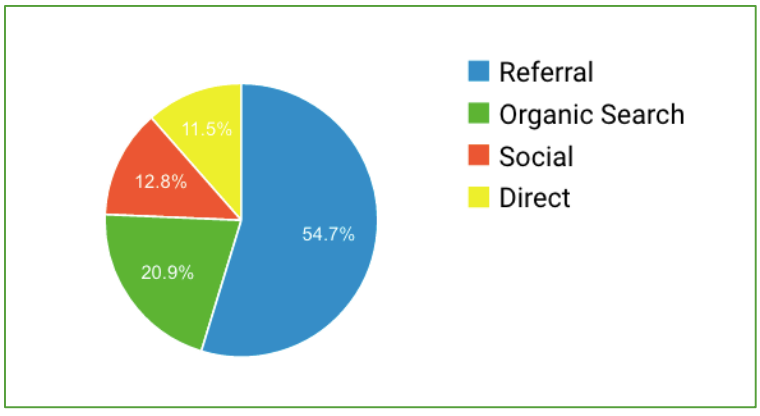


Figure 11: Traffic Overview showing all channels of traffic just before submitting journal

8.3. Traffic Location Trends

When I published the website and it went live (on 15 October), almost all sessions were from Dublin (84.21%), followed by Sao Carlos (5.26%) and New Delhi (5.26%). (Fig. 11)

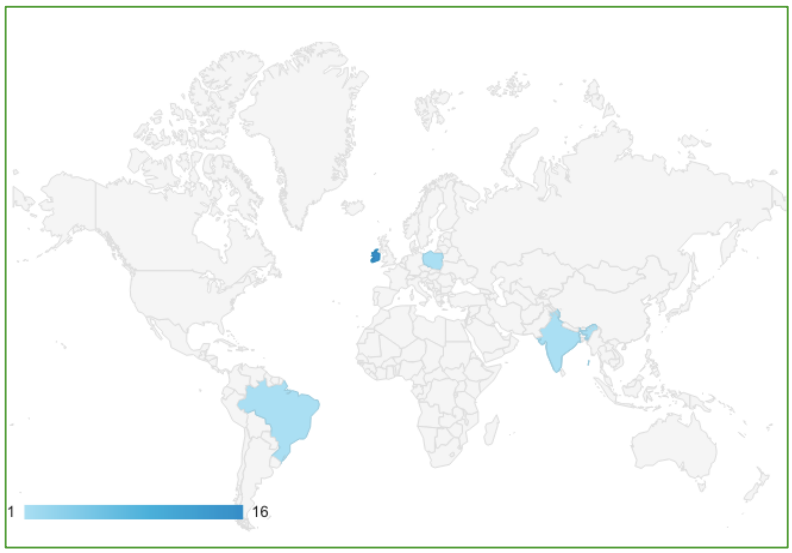


Figure 12: First Week Traffic Location (in number of sessions)

In the 2nd week, the most popular locations for my website were Saint Petersburg (50%), Samara (33.33%), and New Delhi (8.33%) with 6, 4 and 1 sessions respectively.

In the 3rd week, Saint Petersburg strangely retains pole position (33.33%), followed by Dublin (22.22%), New Delhi (11.11%) and Moscow (11.11%) with 6, 4, 2, 2 sessions respectively. (Fig. 12)

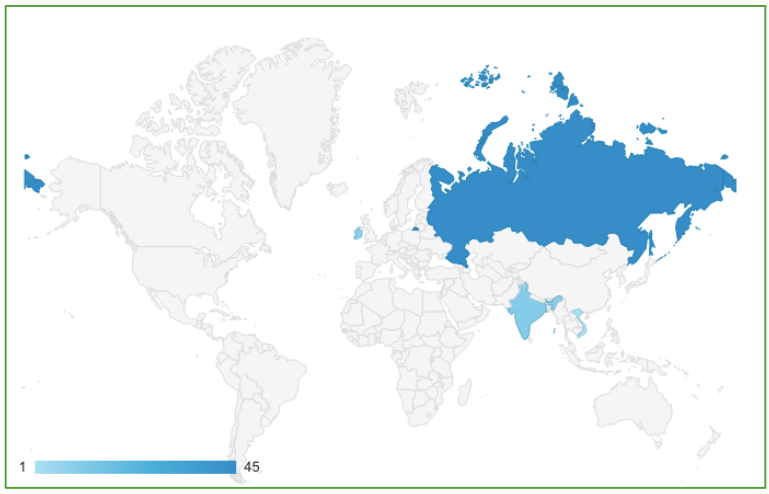
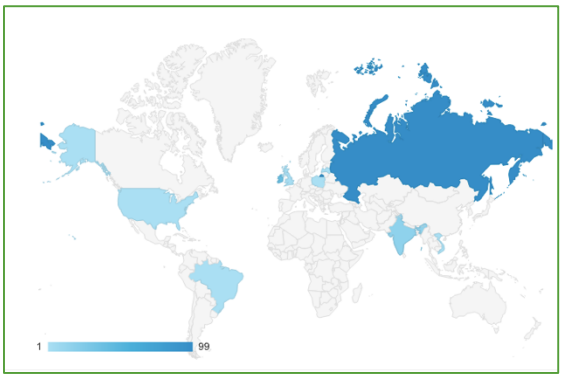


Figure 13: 3rd week traffic location (in number of sessions)

Overtime, the demographic of my website seems to have shifted significantly to Russia from Ireland, while also growing in popularity in India.

I checked the bounce rate of the Russian sessions, to ensure that this wasn't a spam bot or crawler skewing the data. The bounce rate is zero for the data reported in the 3rd week and these are 3 unique users. So these sessions seem to be from legitimate users.

The total traffic location pattern can be observed below. (Fig. 13)



Country	Sessions	% New Sessions	New Users
	148 % of Total: 100.00% (148)	16.22% Avg for View: 16.22% (0.00%)	24 % of Total: 100.00% (24)
1. Russia	87 (58.78%)	2.30%	2 (8.33%)
2. Ireland	36 (24.32%)	36.11%	13 (54.17%)
3. India	15 (10.14%)	40.00%	6 (25.00%)
4. United Kingdom	3 (2.03%)	66.67%	2 (8.33%)
5. Andorra	2 (1.35%)	0.00%	0 (0.00%)
6. Brazil	1 (0.68%)	100.00%	1 (4.17%)
7. Latvia	1 (0.68%)	0.00%	0 (0.00%)
8. Poland	1 (0.68%)	0.00%	0 (0.00%)
9. United States	1 (0.68%)	0.00%	0 (0.00%)
10. Vietnam	1 (0.68%)	0.00%	0 (0.00%)

Figure 14: Overview of All Time Traffic Location (in number of sessions)

8.4. Search Engine Sending Most Traffic

The only organic searches made for my website were on Google Search. Which accounts for 20.95% of all searches. The rest were all direct link referrals from various websites including Facebook.

1.	google / organic	31 (20.95%)
2.	thenextweb.com / referral	21 (14.19%)
3.	abc.xyz / referral	18 (12.16%)
4.	(direct) / (none)	17 (11.49%)
5.	addons.mozilla.org / referral	16 (10.81%)
6.	reddit.com / referral	10 (6.76%)
7.	buketeg.xyz / referral	9 (6.08%)
8.	m.facebook.com / referral	5 (3.38%)

Figure 15: Search Engine Sending Most Traffic

8.5. Navigation and Clicking Pattern

From the landing index page, clicks are distributed evenly across all links, with a marginally higher number of clicks to navigation bar links. (Fig. 14)

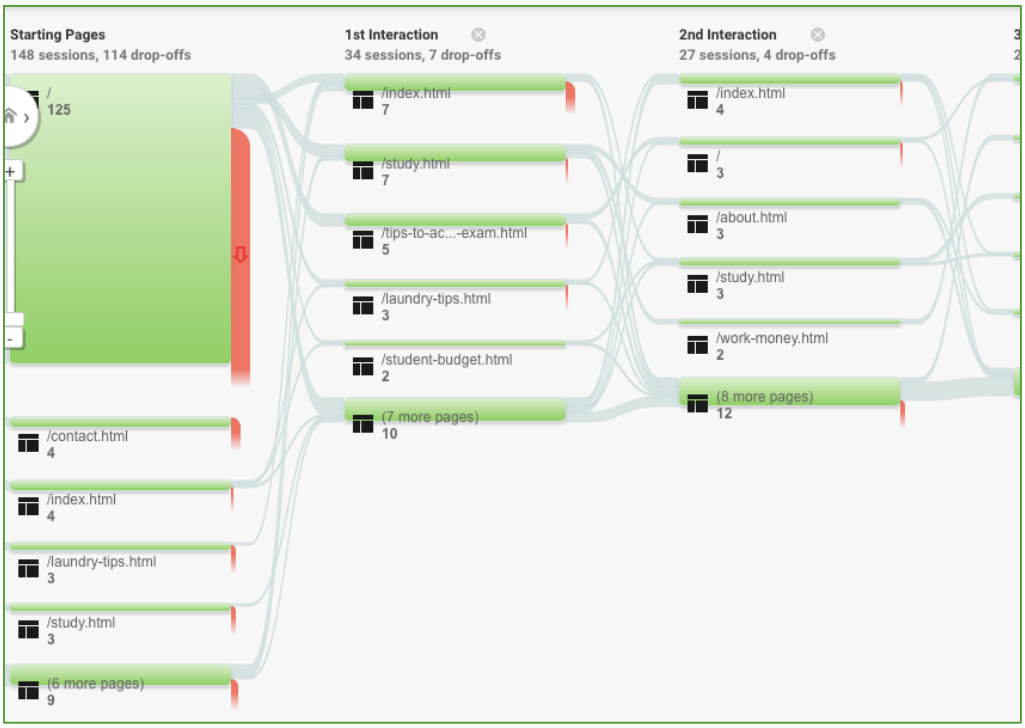


Figure 16: Navigation and Clicking Pattern

8.6. Conversion Rate

Hacktheuni.com is not a commercial website. I don't sell anything on it. There is a small link to a form to sign up for our newsletter which is not attention-seeking nor distracting as such links often are on similar websites (sometimes these links even appear as pop ups on the landing page). The website is built solely for the benefit of the users through dissemination of information, thus a fair estimate of conversion for hacktheuni.com might be the number of returning visitors. As can be seen in the graph generated by Google Analytics, the percentage of returning visitors is 83.8% (124 sessions).

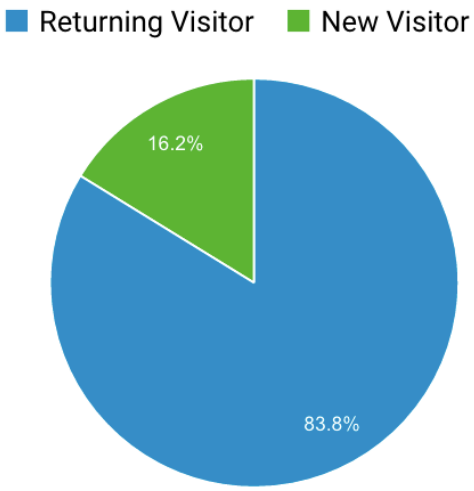


Figure 17: Conversion Statistics

8.7. Tuning

As a response to the changing country demographic, I am planning new content targeted specifically at Russian students. I am presently in the planning stage for these articles to hone in on the more topical issues students in Russia face in particular.

As a response to the fact that google was the only search engine sending traffic to my website while no other engine was sending any traffic, I manually requested my website's indexing on Bing.

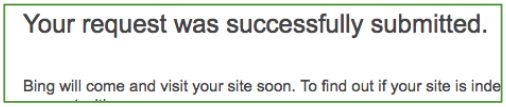


Figure 18: Requesting Indexing on Bing Search

A minor issue I also noticed was that my SEO campaign seemed to have no immediate effect on my search ranking on Google Search. Thus I requested that GoogleBot *re-index* my website, by using Google Search Console, to account for all the SEO changes made to my website.

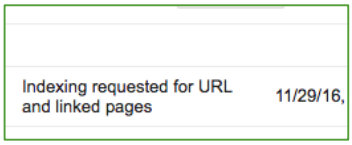


Figure 19: Requesting Re-indexing of my website on Google Search