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# Graduation Work/Thesis

## Intermediate Report

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2022 Year Fall Semester

Title	Instagram Search Engine Optimization (InSEO)	Work( <input checked="" type="checkbox"/> ) Thesis( <input type="checkbox"/> ) * Check the box
GitHub URL	https://github.com/seungmin11998/ThesisPRJ	
Evaluation Grade	Advisor Modification/Supplement List	Member List
Choose 1 among A, B, F (will be given by the advisor professor)	<input type="radio"/> Create a buisness model. <input type="radio"/> Create caption deletion. <input type="radio"/> Check Hashtag volume. <input type="radio"/> Create a table that shows a daily trending keyword list with its volume.	 이승민 (Seungmin) (Std no.: 2016314869)

2022. 09. 13.

(yyyy. mm. dd)

Advisor: Tamer Abuhmed

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## ■ Abstract

In this report, an explanation will be given of **why** an Instagram search engine optimizer is needed, **how** it will be going to be made and **what** changes will this web application be making to instagram influencers. Moreover, I will be explaining the reason why I want to make this application following with the future visions regarding this web application. Adding on, I am planning on opening this to the market, hence I will be explaining how I will be implementing this and what data will be analyzed in order to check if it is a need to the market or not. Before making this application I did a market research regarding it and also researched about search engine optimizations which will be made later on.

I will be starting with a brief introduction about my project “Instagram Search Engine Optimizer” (**InSEO**).

## ■ Introduction

The “Instagram Search Engine Optimizer” (**InSEO**) is a web application made for instagram influencers.

SKKU Thesis Project



*InSEO*  
"Instagram Post SEO for Instagram Influencers"

- *Image #1* -

*This is the Index Page of InSEO Web Application. It is the first page that the users will see and when Start is clicked, the OAUTH call will be made.*

### A. Background of proposal and need

Nowadays, social media has become a great part in people's lives and it is the medium used to build small to big communities. Without it, social life becomes impossible. Moreover, social media heavily affects the success of companies. Meaning,

their success depends on how they market their products through social media influencers. The reason behind this is because one of the most used app is Instagram which can be interpreted as the platform where most people spend their time. However, it costs less to promote their product compared to advertising in big screens in big cities. Shortly, it is *cost-effective*. [1]. This also leads to the reason why optimizing content is important for Instagram influencers. In order for the companies to get the 100% from social media or Instagram marketing, they need to choose the right influencer that produces high engagement and in order for them to produce high engagement they *must* produce interesting content. [2]. Instagram influencers can increase the sale of a certain product of a company because in order to gain more followers, influencers tend to find a way to bond with their followers or future followers in a psychological way. [3]. This is why people tend to buy more products that influencers, they follow, use. In order to form a bond with the followers and make non-followers to follow an influencer, they must know if their posts are appealing to the users watching their content and the insights used to do so is by checking the following values: (i) Likes (ii) Comments (iii) Reach and (iv) Interactions. One of the most important insight from the above is the reach insight. [4]. This is because every posts must reach the people first in order to get any interaction.

Hence, in order to increase reach, Instagram influencers need the help of the Instagram algorithm. The algorithm must know what type of picture it is and to what kind of people it must show the content. To do so, people insert hashtags as meta-data when uploading their posts. Hashtags are important because this is the main meta data which is used to let the algorithm know what type of image or video an influencer is posting and by letting the algorithm know this, it can find your audience for you and provide the users contents they want to see. [5]. When the audience that the algorithm found for the influencer by using its post's meta-data stays in the app to see your post, it would mean that the algorithm has correctly found the audience which will increase the post's engagement. Good engagement means that more users are staying longer in the platform which is good for Instagram itself. This why Instagram shows the most engaging contents first to people which increases the influencer's posts reach meaning, growth. [6].

## B. Goal of the graduation work/thesis

The main goal of the graduation thesis project InSEO is to make a web application that Instagram users can use in order to check the grades of their posts. This will allow them to optimize their current posts and correct what they did wrong in the past to optimize their future posts. Moreover, the thesis project will also act as a planner for future posts. I am making an application that will act as a Instagram Post

Hub where Instagram Influencers will be able to check their post's status and plan their future posts in just one application.

### C. Overview of the whole graduation work/thesis

This graduation thesis project is being developed using the following languages:

- (i) HTML
- (ii) Javascript (JQuery)
- (iii) PHP
- (iv) CSS

In order to store the user's caption and hashtag, a caption bag and hashtag bag is being developed in which the data will be stored in a database. In order to manage the database, MySQL will be used. Moving on, this web application is composed of 4 pages which are the following:

- (i) Index Page
  - The page where the users use Facebook login to connect to their Instagram account.
- (ii) Posts Page
  - The page where the users see all their posts analyzed.
- (iii) Hashtag Page
  - The page where the users can see their hashtag bag and also do an hashtag search for future posts.
- (iv) Caption Page
  - The page where the users can see the captions saved for their future posts.

I am the tester of this app because I am also an Instagram Influencer and moreover in order to be a tester, the user should have a business account and connect their ID with the application. As for now, I now can see a general picture of how my posts were doing. More details about the results will be explained later on.

## ■ Related Research

Before starting this project I did a background research about the market itself. I first did a research about why companies preferred to advertise on Instagram. I needed to know if it was worth it for Instagram Influencers to use my web application. It would be worth it for them if they could earn more money or increase their earnings when used. Since Instagram influencers earn money from advertisements deals given by companies, I first wanted to know if Instagram was a preferred place to advertise for companies and if yes, why. I found this information in the first [1] and the second [2] reference. In the first reference study we could infer that companies started to advertise,

heavily, in instagram because it could reach a big audience effectively with low cost, meaning cost-effective. Moreover In page 646 of the first reference written by Andayani, we could see that in order for a successful advertisement, choosing the right influencer because in order for the advertisement be cost-effective, they need influencers with an high engaging community. This is because, according to the reference, low engagement means uninteresting content which leads to low inbound marketing strategy. In order for the influencers be able to achieve an high engaging community, they must connect with their audience in a psychological way. According to reference [3], influencers who are able to bond with their audience or followers in a psychological way, they can "influence" their followers more easily which means that they can make them buy whatever they want. This leads them to get more contracts for advertisements from companies which will increase their earnings. However, achieving this is not that easy. They must be able to analyze their insights and update their contents for the increase of interaction with the audience. According to reference [4]. when reading the insights, (i) Likes (ii) Comments (iii) Reach and (iv) Interactions are used. Between these reach is one of the most important factors when reading the insights because in order for the users to come into your account, it must first reach them. Reach comes first before any other interaction. Hence is the reason why reach is important and according to reference [5] hashtags is what increases reach. When the post reaches the audience and the interaction is good, then the Instagram algorithm shows the content to more people. According to reference [6], this will make the post viral, which will increase traffic as well as the number of people interacting in your community.

With this I could infer that the analyzation of the posts is of high importance for instagram influencers because it is directly connected to their earnings.

## ■ Introduction of Proposal Work

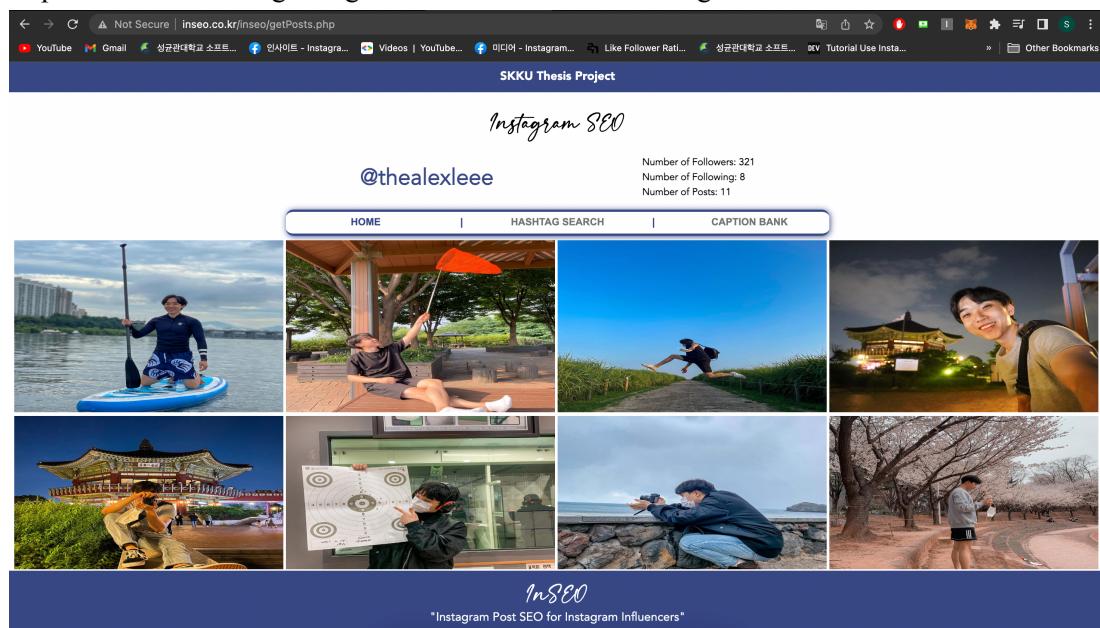
I decided to make an Instagram Search Engine Optimization application named InSEO because of the reason explained above. I am an Instagram influencer too, however, it was always tiring to be planning my next post because I had to analyze the past posts by myself, write captions in my notes as well as the hashtags. Moreover, in order to search for hashtags, I needed to go to Instagram and search for good hashtags. As it can be seen, ***all the process was being done in separate application making the whole process of planning and analyzing difficult and tiring.*** Hence, I decided to make a web application where all of these could be done in one page.

First of all I bought a domain (<https://www.inseo.co.kr>). After buying the domain, in order to be able to get the instagram post insights, I bought the SSL Security Certificate **Sectigo Basic DV Single**. This allows my web page to use "HTTPS"

which is a must in order to use the Instagram Graph API which is the API needed to get the post insights. Afterwards, I connected the domain with the Facebook API which then allowed me to use the Facebook Login OAUTH in order for the users be able to connect using Facebook.

I first made the Index Page. The Index Page is the first page that the users will see and it has the button “Start” as it can be seen in Image #1, page 2. I used HTML, CSS and PHP to build this page. When the button is clicked, the OAUTH will be called and it will take the user to Facebook. They will allow and continue which will take them to the “Posts Page”. Facebook will get the data from the user’s Instagram and InSEO will organize the data to be shown. For all the process I will be needing the access token which can be brought from the developers facebook page.

The second page made was the Posts Page. The Posts page is the second page that the users will see after logging in using Facebook. From now on, the users will have a common menu container. In the menu container, the users will be shown their Instagram ID, number of followers, number of following, and number of posts. Then, below, they will have the menu that is going to be used to move to other pages of the web application. In the Posts Page, the users will see all the posts that they have posted. When a post is clicked, the users will see the data of the post and it will calculate the insights of the post in order to calculate the grade of the post. According to the insight, the application will give the user feedbacks of what it can do to upgrade the post. The following image shows how the Posts Page looks like.:



#### - Image #2 -

*This is the Posts Page of InSEO Web Application. It is the second page that the users will see when login is successful.*

The third page made was the Hashtag Page. The Hashtag page is the second page that the users will see when Hashtag in the menu is clicked. In this page, the users will be able to create their own hashtag bag and do hashtag searches which will allow them to plan for their future posts. I used PHP and MySQL to communicate and store hashtag data in the database. Image #3 shows how the Hashtag Page looks. In the search bar, the users can type in the keyword they want to research. When the search button is clicked, Instagram Hashtag API will be called to get the related keywords with its volume. Then, when the hashtag is clicked, the application will automatically copy the keyword to the clipboard for them to paste it in their hashtag bag. When users click the Tag Bag button, they will be able to see their saved hashtags each of them containing hashtags for future posts.

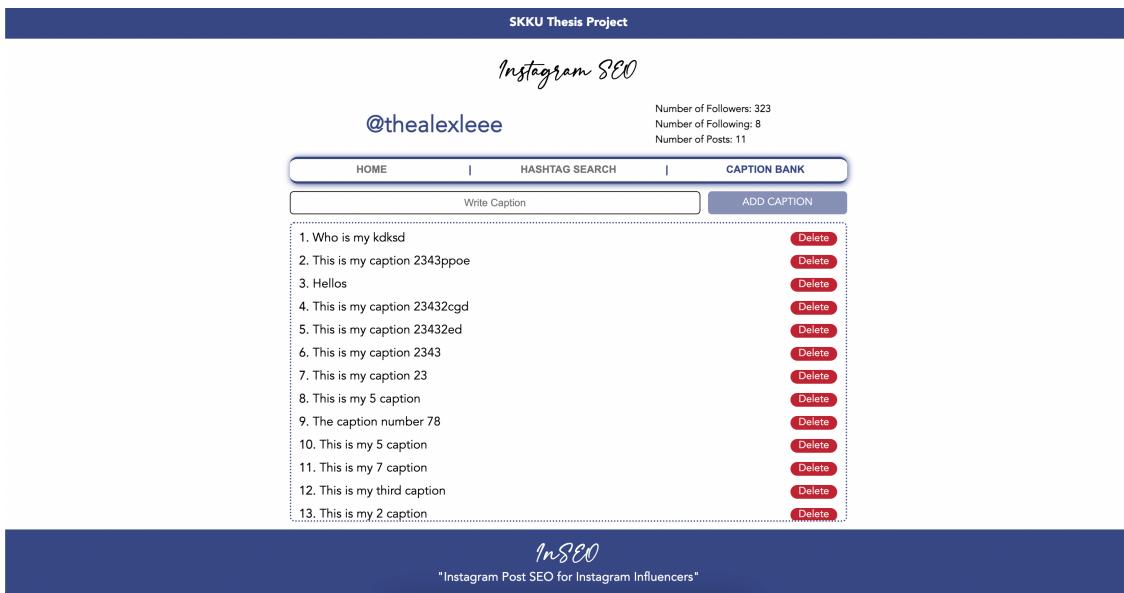
- *Image #3* -

*This is the Hashtag Page of InSEO Web Application. It is the third page that the users will see when hashtag menu is clicked.*

The last page made was the Captions Page. The Captions page is the fourth and last page that the users will see when Captions in the menu is clicked. In this page, the users will be able to create and save the captions for their future posts. I used PHP and MySQL to communicate and store captions in the database. Users will also be able to delete the captions they have already used. Image #4 shows how the Captions page looks like. As it can be seen, the three main pages have the same menu and data in the top of the page.

Moreover, the fonts used to develop this application is called:

- (1) Avenir and (2) Stein.



#### - Image #4 -

*This is the Captions Page of InSEO Web Application. It is the fourth page that the users will see when caption bank menu is clicked.*

## ■ Implementation and Analysis Result

I am currently implementing this application in my instagram account. I have connected my account using the developers facebook page. By doing this, I got the access code which is used throughout all the application in order to successfully get the data. Moreover, in order to make the Facebook login work, I had to buy a domain and obtain the SSL Security Certificate. Currently I am testing the application as a beta tester and it is working well for me. It has become more clear and easy for me to see what am I doing wrong. Moreover, it is easier for me to plan my future posts because I can do everything in one page. I just need to open InSEO web page and login to start planning and analyzing. I do not have to go to notes for my captions, to Instagram for hashtag search and again to notes to get my hashtags.

In the future, I am planning on opening this to the public so that other Instagram influencers can have a more comfortable way of doing their job. Moreover, I am hoping that by using InSEO, users can upgrade their posts making them reach more people for more entertainment. I consider that InSEO will help influencers publish more content in a more regular basis so that instagram users can have more fun in the platform itself.

Overall, it has made the process of analyzing and planning easier and more comfortable which is the main objective of InSEO.

## ■ Conclusion and Impression

First of all, when making this application, I became more comfortable in using APIs and in making web applications. I am planning on releasing this project in the ends of this semester when the thesis project ends. Hence, I found it very fun and interesting because something that was in my head is becoming true. Now I know why programmers are working for hours without getting tired. This is because when you are coding, ideas become products in front of your eyes and upgrading constantly. Aside of this, I learned how to use PHP. I have never used PHP but in order to proceed with this project I had to learn how to use PHP. I became confident on using it and now I have another coding language that I can appeal when getting a job. Moreover, I learned how to effectively use GitHub. Moving on, I also learned to use APIs and implement them in the application. I consider that this is a very important part when coding because it can shorten your codes and make the application more effective. Last but not least, I also learned that it takes a lot of effort to make a simple web application also. Small details makes a good product. Even small things not working or not good looking in a web application makes the whole application look non-professional. Now I know what I have to get better on when making websites or web applications.

Overall, it is being a good opportunity for me to learn the process of making a good web application and what I should not do next time I make an application.

## ■ References

- [1] Ha, Ashley. *An Experiment: Instagram Marketing Techniques and Their Effectiveness*, 2015.
- [2] Andayani, Farah. "Enhancing Customer Retention in B2B Digital Marketing Agency in Indonesia (Case Study of BIZGO Digital)." *Journal of International Conference Proceedings (JICP)*, Dec. 2021.
- [3] Tafesse, Wondwesen, and Bronwyn P. Wood. "Followers' Engagement with Instagram Influencers: The Role of Influencers' Content and Engagement Strategy." *Journal of Retailing and Consumer Services*, Pergamon, 16 Sept. 2020.
- [4] Wijaya, Cinthya. "Effective Use of Instagram as a Social Mediatoold for The Conversation Media Group." THE UNIVERSITY OF MELBOURNE, June 2019.
- [5] Hu, Yuheng, et al. *What We Instagram: A First Analysis of Instagram Photo Content and User Types*, 2014.
- [6] Rautio, Maria. "HOW TO INCREASE ENGAGEMENT RATE ON FACEBOOK AND INSTAGRAM." Turku University of Applied Sciences, 2022.
- [7] Ortiz-Ospina, Esteban. "The Rise of Social Media." *Our World in Data*, 18 Sept. 2019.
- [8] Yuan, Yuanling. "What Is the Creator Economy? Influencer Tools and Trends." *SignalFire*, 9 Nov. 2021
- [9] Manyana, Nombulelo. "Study Reveals One of Kids' Top Dream Jobs Is to Be a YouTube Influencer." *You, You*.
- [10] TubeBuddy. "The Premier Youtube Channel Management Toolkit." *TubeBuddy*.
- [11] Driel, Loes van, and Delia Dumitrica. "Selling Brands While Staying 'Authentic': The ... - Sage Journals." *Selling Brands While Staying "Authentic": The Professionalization of Instagram Influencers*, Feb. 2020.
- [12] Nandagiri, Vaibhavi, and Leena Philip. "The Impact of Influencers from Instagram and YouTube on Their Followers." *IMPACT OF INFLUENCERS FROM INSTAGRAM AND YOUTUBE ON THEIR FOLLOWERS*, 2018.
- [13] Casaló, Luis V., et al. "PDF." *Journal of Business Research*, 2020.
- [14] Belanche, Daniel, et al. "Followers' Reactions to Influencers' Instagram Posts." *Spanish Journal of Marketing - ESIC*, 2020.
- [15] B. J. McNely, "Shaping organizational image-power through images: Case histories of Instagram," *2012 IEEE International Professional Communication Conference*, 2012.
- [16] R. L. H. Yew, S. B. Suhaidi, P. Seewoochurn and V. K. Sevamalai, "Social Network Influencers' Engagement Rate Algorithm Using Instagram Data," 2018
- [17] X. Yang, S. Kim and Y. Sun, "How Do Influencers Mention Brands in Social Media? Sponsorship Prediction of Instagram Posts," 2019
- [18] E. Halim, R. A. A. Wardaya P, A. Rianto and M. Hebrard, "The Impact of Marketing Influencer and Information Quality to Purchase Intention of Instagram Users," 2020
- [19] S. Sun, M. Kim, D. Nan and J. H. Kim, "Relationship between Hashtags Usage and Reach Rate in Instagram," 2022
- [20] A. Malik and S. Srinivasam, "A Comparative Analysis of Various Social Networking Sites in Marketing," 2020