Instagram Automation

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ABSTRACT -Social networking site is an online platform which is used to build social networks with others. It is used to share ideas, showcase talents or to inform about services to a large audience. One of such platforms is Instagram. This paper presents an idea of automating the tasks of Instagram for influencers. An automated Instagram could help influencers by saving their time and energy. Traditionally influencers have to denote a lot of time in growing their Instagram handles. The Instabot performs various tasks such as liking and commenting on bulk of posts together, following accounts in bulk, collecting trending hashtags for a niche, getting information of popular accounts, removing ghost accounts from their list of followers and followings etc. All these tasks are performed by an automated software instead of doing it manually. So, it increases the account's engagement and helps in the growth of the same.
Keywords -Social Networking, Instagram, Automation.

I. INTRODUCTION

Instagram is a famous and the most effective social media platform for people these days. With an audience of more than 1 billion [1], the opportunities of generating leads are limitless. However, Instagram is time-consuming, especially when we need to create engaging content daily for the target audience and find ways to grow the account or when we are using it for business instead of a means of entertainment. Liking and commenting on endless posts, designing engaging stories, brainstorming for content, following people, and it almost feels like dropping the ball. However, one can still maintain the business presence on this platform without much interactions andthe secret is to invest in the right social media tools. This is the time when Instagram Automation comes into picture. We have written a script for Instagram automation it manages the account, perform the required tasks without any human presence.

Instagram automation tools can describe into two buckets:
1. Services that take control of the front-facing interactions with users such as likes and comments
2. Tools that automate Instagram behind the scenes, taking care of tasks such as publishing, reporting and analytics

Features provided by our Instagram Automation Tool:
• Automating Likes, itallows you to acknowledge more accounts and get your Instagram in front of more followers. Likes puts low-effort interactions and probably are not going to result in much trouble to your account on their own.
•Automating Comments, or saving suggested replies to common comments and post without having to write them manually when someone interacts with the account is completely safe.
• Automation Tools have the ability to analyse accounts and hashtags to uncover accounts relevant to your target audience without actually having to worry about interactions or dig through hashtags by yourself, doing so can be a safe time-saver.
• Removal of Ghost Following and Ghost followers becomes easy with Instagram automation.
• Collection of trending hashtags for a particular niche becomes so easy with Instagram automation.
• Following accounts of your interest and unfollowing the accounts which are not following you back is hassle free with the help of automation.
• Using Automation, you can easily login to your account.

• Downloading image from Instagram is generally stressful and hectic but with automation, it becomes super easy.

Further the paper includes the history of the technology used in section II, then the methodology adopted is explained in section III, further it includes the growth strategies that are must for account growth in section IV, then the whole purpose of the paper is in section V, finally it has the conclusion.

II. HISTORY OF SELENIUM

Jason Huggins initially developed selenium in 2004 while he was working as an Engineer in ThoughtWorks on an internet application that needs frequent testing. He created the program using JavaScript, after using it; he realized the shortcomings of manual testing and therefore the got to curb monotony. At the start he named the program JavaScriptTestRunner but after realizing the true potential of the program, he made it an open-source program, which he re-named as Selenium Core.

So, Why the Name Selenium?

Jason cracked a joke to his team, from which the name Selenium came. During Selenium's development, another automated testing framework was popularly made by the company called Mercury Interactive. Jason suggested that name and his teammates agree to it. Therefore, that is how we have to call this framework up to the present. Selenium is not just a single tool but also a suite of software, each catering to different testing needs of an organization. Selenium has four components: Selenium Integrated Development Environment (IDE), Selenium Remote Control (RC), WebDriver and Selenium Grid.
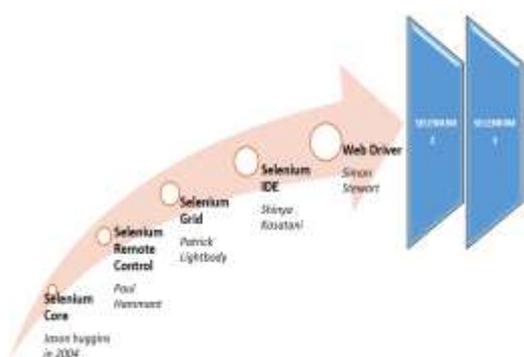

Fig.1 History of Selenium

Due to the Same Origin Policy which prohibits JavaScript from getting used from a special name from which it had been launched, testers had to travel through the strain of installing Selenium Core and Web servers containing web applications to be tested in order that they can belong to an equivalent domain. Paul Hammant another ThoughtWorks Engineer offered an answer to the present problem by creating Selenium remote (Selenium RC) or Selenium 1. Patrick Lightbody developed Selenium Grid for parallel testing purposes, which addresses the need of reducing time spent on test execution to minimal. Selenium automation test was faster as multiple tests are often administered simultaneously. Shinya Kasatani of Japan contributed by completing a project on Selenium IDE within the year 2006. Selenium IDE helps automate the browser through the record and playback feature. Simon Stewart created Web Driver Circa in 2006. This tool helps the software testers to perform tests via programmatic approaches using any programing language that's supported.

In the year 2008, the entire Selenium automation testing pioneer team decided to merge the online driver and Selenium RC to make a really useful gizmo called Selenium 2. Over the years, many changes and enhancements have taken place and therefore the most up-to-date stable release being Selenium 3.14.0 in August 2018.

III. METHODOLOGY

We have made an automated environment for Instagramusing the technique of Web Scraping [2] or Web Scripting. It is the process of extracting the data from a website where using API is not so feasible. The web scraping software directly access the World Wide Web using the Hypertext Transfer Protocol or a web browser. To implement it using the web browser it is necessary to keep the driver of the specific browser in the system where it has to be implemented, any browser can be used like Google Chrome, Firefox etc. For this we have written a script which extracts the informationthat simulates human web surfing environment. The script will automatically fetch the required data from the website without any human interventions.

The script is written in Selenium [3]. It is a framework which is mostly used in testing of web applications in large scales. This can be implemented in various programming languages which includes C#, Groovy, Java, Perl, PHP, Python, Ruby and Scala. We have used Python programming language for implementing the Instabot.

The process steps are: First, start the web browser session, all the tasks that are needed to be performed will be done in this session. Then find the URL that has to be scraped, that is provide the URL of Instagram. Then, send a HTTP request to

the URL and get the HTML response. The data which is present in the website is also in the HTML format and hence the output the script is giving is also in HTML. Then, parse the HTML content. Then, inspect the web page and find the data that we require. This requirement depends on different situation or task that is needed to be performed on Instagram. Finally, extract the data that is needed for performing the surfing.

The tasks that are automated in the Instabot are: Login into Instagram; Collection of trending hashtags for any niche; liking posts in bulk based on some hashtags given by end user; find the information of the famous accounts of same niche it includes extracting their username, name, profiles links, their number of following and followers, hashtags used by them; unfollowing the accounts that don't follow back; remove ghost accounts from the list of followings and followers and following account in bulk that are relevant to your account. All this is done by keeping the target audience in mind.

3.1 Selenium
Selenium is a free, open-source automated framework for testing used to validate web applications across different browsers and platforms. Its major purpose is to automate websites.It can be done in multiple programming languages like Java, C#, Python etc to create Selenium Test Scripts.
Selenium Software is a suite of software, each one is for different Selenium testing needs of an organization. It includes: Selenium Integrated Development Environment (IDE),Selenium Remote Control (RC), WebDriver, Selenium Grid [4].

3.2 Why Selenium?
Selenium is always the first choice for web automation. It is so because of these reasons:It is open source. It supports multiple languages which includes Python, PHP, Java, C#, Ruby, JavaScript etc. It works with multiple operating systems, so thescript does not need to be changed for execution in any other operating system apart from in which it is written. Its compatibility with all the browsers, so one could execute the script in any browser Google Chrome, Firefox, Safari, Opera, IE, Edge, Yandex and many more. It is easy to implement, it is user friendly. It does not require any servers prior to executing, the code is interpreted into web services and the remote driver get it via HTTP requests. There are many other web scraping methods but selenium is preferred because one can interact with dynamic websites through

selenium. Sometimes the data we want to extract is hidden behind the JavaScript objects, objects that need to be clicked on to reveal the content, so these kinds of scenarios selenium is good to go.

IV. GROWTH STRATEGIES FORINSTAGRAM INFLUENCERS
Some of the strategies for growing Instagram profiles are [5]:
• Good quality content:
This is the backbone of any successful influencer; the content should speak for itself.
• Share your content:
Share your stories, post, reels etc with more and more people, also share to those people who are not present in Instagram, this will increase your reach to the outside world of Instagram and will also increase your views.
• Liking other's posts:
It is very important specially for a new influencer to remain active on Instagram. It can be achieved by liking posts of other influencers which in return can even bring likes to the user's posts. Also, this will help you to get recognized by Instagram algorithm.
• Commenting to increase profile visits and reach:
The influencer can reach a wide amount of audience through comment section of others'posts. The comment should be so convincing that the user reading the comment cannot resist from visiting the profile. Also, one should always reply back to the comments on their posts regularly, as it will hold the interest of people in the influencer's account.
• Follow for Follow Back:
This is a tried and tested strategy which works almost on every social media platform. The user follows a certain number of accounts and then in return get around 30-40% follow backs. The influencer needs to follow accounts in bulk in order to increase the follow back count.
• Don't follow random accounts
This is in continuation with the previous point, one shouldn't follow any random account in order to get a follow back. The accounts which should be followed must be the same accounts which already follow a more successful account of the same niche. Also, you should follow back your active followers, those who like and comments on your posts and are actively engaged with your accounts.
• Use relevant hashtags:
Hashtags are the most important part for increasing the reach of your account, so only the hashtags which are relevant and are trending should be used to reach out to more and more audience.
• Remove ghost accounts:

The accounts which aren't actively using Instagram are known as ghost accounts. These accounts won't do any good to the influencer, so these accounts should be unfollowed.
• Post regularly:
The influencer needs to post content on regular basis so that the activity and reach of the account doesn't go down.
• Use Instagram analytics:
Instagram provides various insights about the posts which are performing well and which aren't, it even provides the region, age and gender of the followers. These insights need to be observed carefully and accordingly strategies should be made.
• Reduce your list of followings:
The accounts which don't follow back after a certain amount of time should be unfollowed.
• Eye catchy captions
The caption should be short and catchy which precisely describes the post.
• Study the competition
One of the main motives of every influencer is to leave the competition behind. This can be achieved by studying the time pattern followed by competition to post content, the hashtags used them and the accounts that are following them.

V. NEED OF AUTOMATION

Even if one has created excellent content on Instagram, it could become a waste of precious time if your posts fail to urge real followers and engagement. Instagram has the highest rate of engagement, and that is the main reason why a lot of online marketers and influencers are so keen on using Instagram for their digital marketing campaigns. However, managing your Instagram account to keep it active, famous and engaging every day would take tremendous time and effort. Not to mention the time you would like to spend on your other social media accounts also. Even social media managers are having trouble managing multiple social media accounts to stay each account engaging simultaneously. In such scenarios, using Instagram bots proves to be very beneficial since it frees you up enough time for other significant tasks.
According to [5], the difference in the growth of Instagram handles with/without bots is:

	Normal Activity	(Old Results Enhancement) Bot	Improvement
Activity Period	22 months	4 months	-81.82%
Posts	130	18	-86.15%
Followers	541	2531	367.83%
Post Like Average	94	(230) 521	(144.68%) 454.26%
Max Liked Post	130	(198) 694	(50.77%) 433.84%
Max Post Reachability	550	(1318) 2197	(139.64%) 299.45%
Weekly Profile Visitors	100	1800	1700%
Engagement rate	8%	23%	187%
New Reached Users	21%	56%	166%

Fig. 2 Comparison in the growth with/without using bots

Reasons behind the need of automation:
Time Saving: Instagram bots can easily look for specific hashtags and influencers within your niche, and follow them instantly [6]. This saves you a lot of time since you do not have to scroll through various profiles.
Time Zone Barrier: Targeting audiences that lives in different time zones is very difficult for a person who lives in a particular country but with the help of Instagram bot, you can effectively engage and interact with them according to their feed time.
Promotional Ease: Manual posting of promotional ads is very time consuming and backbreaking at the same time but by virtue of Instagram bot it becomes manageable.
Hashtag Analytics to uncover new Followers: Digging through Instagram hashtags on your own can be a time-sink. On the other side, tools like Instagram bot can automatically analyse your account and followers to uncover hashtags relevant to your business.
Finding the competitors: In this large pool of accounts in Instagram it is very difficult to find the accounts that belongs to your niche, automation will help you in finding those accounts and along with this it helps in tracking their strategies as well.
Following and Unfollowing accounts: It becomes hectic to decide which accounts to follow and which to unfollow, and also following large number of accounts at once is quite impossible, so this can also be easily done by automation.

VI. CONCLUSION
This paper states that automating Instagram is great for the growth of Instagram handles of influencers. Instagram is great platform for marketing and showcasing the talents, however, for doing so one has to devote ample amount of time in making strategies, finding right audiences for them, making content, engaging in more and

more activities in Instagram etc. and manually performing these activities in Instagram for business purposes is very difficult and monotonous because it includes performing the same thing thousands of times. Automating all the tasks of Instagram reduces the time required as well as saves energy of influencers. Automation of all these tasks means that it will be performed by selenium script which automatically performs everything for the user without any human intervention. It will help in speeding up the growth process of an Instagram handle, reaching out to large and relevant audience and increase the engagement of the accounts to a large extend. So, we can conclude that this method of using Instagram for growth strategy is less prone to errors and very effective.

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