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## Platform to improve the reachability of web-based advertisement

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### ABSTRACT

*Advertisements are the messages that are intended to inform or influence the people who receive them. It is paid announcement in a newspaper or on a television or on a poster about a product, event, or a job. In olden day advertisement was carried out by printing messages in the bronze plate, and by painting in wall or rock and by campaigning. After that it was carried out in the billboards, flyers or pamphlets, television, newspaper, radio etc. In recent years traditional advertisement is getting changed into web-based advertisement. It is the type of advertisement that uses the internet to deliver promotional marketing messages to consumers. It is very important to get the attraction of customer. This project focuses on improving the reachability of those advertisement in cost efficient manner. This platform allows the user to post their advertisement in different website. In turn it will generate the report through which the user can identify the best place to get better response from the social media, e-commerce etc.*

**Keywords**— AdWords, Pay per Click, advertising, social networks, Twitter, Click-Through rates

### 1. INTRODUCCION

Advertisements are the messages that are intended to inform or influence the people who receive them. It passes through huge changes and these changes are bigger and bigger from day to day. In olden day advertisement was carried out by printing messages in the bronze plate, and by painting in wall or rock and by campaigning. After that it was carried out in the billboards, flyers or pamphlets, television, newspaper, radio etc. In recent years traditional advertisement is getting changed into web-based advertisement. Social networks are becoming the most important part of our private lives and business. Social networks advertising is the indispensable part of Digital advertising which is the final and the most visible part of Digital marketing. There are many social networks in the world but the most popular among them are Facebook,

Instagram, Twitter, LinkedIn, Google+, Pinterest, Tumblr, Reddit, Vine, YouTube, Snapchat etc. are considered as social networks.

Mining of the target user is well known that the key issue of online marketing is to exactly find the target user groups for the corresponding advertisements. Nowadays customers would look for the desired goods or services by typing the keywords into the search engine. Google AdWords is one such website that would display the advertisement which contains a link to the e-commerce sites that match the keywords typed on Google search engine. Posting the advertisement in the twitter would give users a lot of options for private and business purposes. Combining the entire website in the single platform will help the user to post their ads in easy manner. And report generated by platform will help the user to post their ads in efficient way with cost effective manner.

### 2. MEASURING THE REACHABILITY OF WEB BASED ADVERTISEMENT

The reachability of online advertising depends on proper selection of the form of the advertisement, its impression, location, and age group, gender, advertising unit location on a website and campaign settlement model. It has been assumed that the greater reachability of online advertising contributes to improving the entrepreneurship among entities that use it. The main reachability models used by advertisers for settling online advertising campaigns were the pay per click and click-through rates.

#### 2.1 Pay Per Click

Marketing activities in search engines are most often defined as a marketing process using SEO techniques (Search Engine Optimization) and PPC advertisement (Pay per Click) to increase the popularity of the website. Search engine optimization will enable a website to appear in top result lists (especially first 10) of a search engine for some certain keywords. There are many different factors that allow a

website to move up top results. On the other hand, PPC can be defined as a paid Internet form of advertising, settled after clicking on the creative. PPC in search engines is called as paid search and it constitutes one of many PPC models. This advertisement is also known as PPC Marketing, Pay per Click Advertising, Pay per Click Search Engine Marketing, PPC ads, cost per click advertising, as well as (more broadly) as sponsored search. The most current definition of PPC indicates that it is a small, usually text-based, advertising form located in search engines that depends on keywords. Furthermore, it is payable only for the user’s click. PPC activities in the Google search engine function under the name AdWords and their popularity is definitely higher than other activities.

AdWords is an innovative advertising program that was introduced by Google. The algorithm of this program was mainly dependent on keywords. A keyword in the SEM area means the entire phrase that the user types in the Internet search engine to find the information that interests him. A keyword is very rarely a single word – usually such a keyword consists of two, three or four words. The essential part of AdWords was to support marketing activities through Google search engine.

Pay per Click is a type of advertisement in the form of a banner or a link with the description, recommendation or opinion of the client – displayed in search engines. The main advantages are the payment model based only on effects, which in the case of PPC are connected with clicks in the advertising creative. The AdWords mechanism has a system of protections against unethical competition activities, called “invalid clicks”. In order to verify each click, the system identifies the user’s IP, cookies and the frequency of clicks. The display of the advertisement itself (regardless of its popularity and exposure time, as well as the number of views) does not charge the advertiser’s account.

**2.2 Click – Through Rates**

A click is an interaction with an advertisement, which means that “an ad was served to a visitor’s browser and then clicked on by that visitor. Click-through rate is a widely used for evaluating the effectiveness of online advertisement, which is the average number of times a viewer clicks on a pop-up ad and is then exposed to the target web site. The banner advertisement click-through is believed to be the popular way to draw consumers into a target site and catch them with a brand or product. Accordingly, computing the advertisement banner click-through rates has become important for both the advertiser and the host website. Researchers on advertising clicks have examined consumer-related factors, contextual factors, and advertiser-controlled factors as issue of online advertising effectiveness.

Consumer-related and contextual factors that has affected the clicking of banner ads and found that people are more likely to click on banner ads if they (1) are highly involved with the product, (2) perceive a congruency between the content of the web page and the ad placed on it, (3) have a liking toward the host web site, and (4) exhibit an overall commending attitude toward web advertising. The first factor (involvement with the product) was classified as the consumer-related factor, and the remaining three were the contextual factors. As for the advertiser-controlled factors, using econometric modeling of actual data on banner ads, found that ad characteristics such as banner size, animation, message length and logos, campaign length, number of host web sites, and campaign cost may influence the direct response of viewers in terms of click-

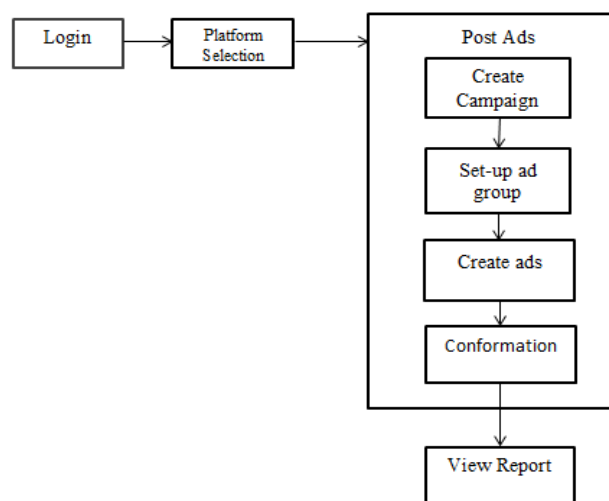
through rates. Click-through was a notable predictor of ad recall; it has no impact on brand recall, attitude towards the brand, and purchase consideration. Hence, online marketers should realize that the utilization of click-through alone is not sufficient in measuring advertising effectiveness, and that what measures to be used depend upon the objectives. If the target is to get Internet users to click and buy products over the web, it seems that posing for an action like “Click here” will do the job. If the objective is to build brand awareness and to shape attitudes, then click through appears to be an irrelevant measure. Click – Through Rate is obtained by dividing total measured click by total measured ad impression.

$$CTR = (Total\ Measured\ Click \div Total\ Measured\ Ad\ Impression) \times 100$$

**3. METHODOLOGY**

Advertisement is first posted in the website through the platform. The user can select the website where to post their ads. The user can also create the campaign and objective to post their advertisement. User can select the type of campaign, location, age group the customer, gender of the customer and the budget of the post. After creating the campaign, the user can post their advertisement in social media.

Figure 1 shows the block diagram of the process. Through API key the attributes like clicks, click-through rates, location, time etc. are collected. Based on the above-mentioned attributes the available data will be analyzed in different dimension using linear regression. Linear regression is the prediction algorithm that helps to predict the reachability of the advertisement for future works.



**Fig. 1: Block Diagram**

**3.1 Report Generation**

Linear Regression is a statistical procedure to regress the data with dependent variable having continuous values whereas independent variables can have either continuous or categorical values. In other words, “Linear Regression” is a method to predict dependent variable (Y) based on values of independent variables (X). It can be used for the cases where some continuous quantity has to be predicted. Linear Regression is a statistical method to regress the info with dependent variable having continuous values.

Linear regression uses traditional slope-intercept form, where m and b are the variables your algorithm will try to “learn” to produce the most accurate predictions. X represents input data and y represents prediction. ie, y=mx+b. After a regression line has been computed for a group of info, a point

which lies far from the line (and thus has a large residual value) is understood as an outlier. Such points may represent erroneous data, or may indicate a poorly fitting regression. Initially the analysis has to made between social media and years and between sales in social media like facebook, twitter, instagram and years. By consolidating output of these analysis the reachability of advertisement can be predicted. Figure 2 explain about the linear regression.

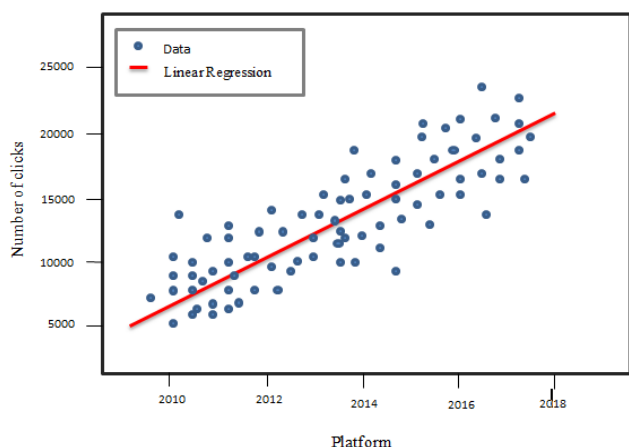


Fig. 2: Linear Regression Illustration

## 4. RESULT

### 4.1 Evaluation Metric

The linear regression algorithm is used to predict the better website to post their advertisement. The attributes like clicks, click-through rates, location, time etc. can be used to predict the reachability of the advertisement. The best website can be chosen by the user to post their advertisement.

### 4.2 Experiments and Results

In our experiment, the report generated every time when the advertisement is posted. Each and every time the reachability of the advertisement can increase so that the user gets maximum number of customers.

### 4.3 Summary of Results

From the above experiments and results, the linear regression algorithm is used to predict better website to post the advertisement in future. It is seen that the algorithm works for better prediction reachability of the advertisement.

## 5. CONCLUSION AND FUTURE WORKS

The above model provides the platform to improve the reachability of web-based ads. This model also has some scope for improvement. The report will be generated every time when the advertisement is posted. As the result the reachability of advertisement may hit the peak one website and on other hand the reachability of advertisement may remain low in some other website.

In order to avoid such situation, the report will be generated by analyzing the catalysts for low reachability. So that the advertisement can reach different categories of customer. This will help the user to promote the product and improve the reachability of their advertisement.

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