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Study, Analysis and Comparison between Amazon A10 and A11 Search Algorithm

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ABSTRACT

The entirety of Amazon's sales being powered by Amazon Search, one of the leading e-commerce platforms around the globe. As a result, even slight boosts in appropriateness can have a major impact on profits as well as the shopping experience of millions of users. Throughout the beginning, Amazon's product search engine was made up of a number of manually adjusted ranking processes that made use of a limited number of input features. Since that time, a significant amount has transpired. Many people overlook the fact that Amazon is a search engine, and even the biggest one for e-commerce. It is indeed time to begin treating Amazon truly as the top e-commerce search engine across the globe because it currently serves 54% of all product queries. In this paper, the authors have considered two most important Amazon search engine algorithms viz. A10 and A11 and comparative study has been discussed.

1. Introduction

Amazon is basically a world-based e-commerce company which has over 2 billion of users/clients directly and indirectly involves into this e-commerce platform [1-3]. Customers have convenient access to information about a product through the product detail page, which also makes it easier for customers to compare different offers that are currently available. On the product detail page, the Fea-tured Offer will present the offer that it has determined the customer is most likely to select after conducting an in-depth comparison of all of the available offers. Amazon determines whether an offer qualifies as a Featured Offer by taking into account a number of factors, including the price, the delivery speed, whether the offer is eligible for Prime, and the performance of the seller. As a direct consequence of this, there might be more than one Featured Offer available for a product, or there might be none at

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all. Customers can easily begin their shopping experience by browsing all of the available offers from the product detail page. The vast majority of customers who compare these offers end up selecting a Featured Offer as their preferred option. Please click here for further details regarding the Featured Offer. The requirements listed in this section, which are located there, must be adhered to in an order so that one can be eligible for the Featured Offer. We reserve the right to remove a seller's eligibility for the Featured Offer or to not display a Featured Offer at all in order to prevent abuse or for any other reason that helps us maintain a positive experience for our customers. The provision of assistance to customers in the course of their product searches is the primary purpose of the Amazon Algorithm. In order to provide users with the most relevant information possible, the system performs an analysis on a variety of businesses and the products that are offered on the website by those businesses. The A9 Algorithm and the A10 Algorithm [4] are very similar to one another and share a lot of similarities. The primary distinction between the two lies in the level of significance attached to the various criteria used for ranking [5]. It is imperative to keep the customer in mind at all times rather than focusing on the algorithm; doing so will allow you to gain an advantage over your competitors. Because the primary objective of Amazon does not change, regardless of whether the algorithm is "A9" or "A10": to satisfy the needs of the customer by providing an exceptional experience when making digital purchases. This objective is not dependent on which algorithm is used. It is difficult to be successful in the ever-increasing competition on Amazon because there are more than 2 million sellers expanding their businesses there. Amazon's goal is to increase the number of new sellers and encourage healthy competition at all times in order to foster innovation. Advertising is one of the key strategies that must be utilized in order to dominate Amazon; the other part of this strategy is to remain current with the Amazon A9 algorithm. However, despite the fact that some people have started referring to it as the A10 algorithm, it is extremely comparable to the A9 algorithm. However, the most important distinction lies in the importance placed on various parameters. Amazon began providing customer searches with a greater degree of relevance after the most recent update. Amazon discovered that customers tend to look further than what sellers are trying to promote in their listings. Therefore, Amazon is making adjustments to its A10 algorithm in order to make the search results more pertinent to the customer. Table 1 contains information about A9 in more detail. The A10 algorithm is the most powerful incarnation of the searching and ranking algorithm used by Amazon.com. A10, which

taking over just for Amazon's "A9" algorithm in 2020, provides more emphasis to a lot of ranking factors, enhancing its ability to match customer queries with appropriate products. Here, a comparison study of the two most significant Amazon search engine [6-9] algorithms, A10 and A11, has been presented.

Table 1. Information about Amazon A9 Algorithm

	A9
Type	Search Engine
Industry	Communications
Founded	2004
Founder	Udi Manber
Headquarters	Palo Alto, California
Parent	Amazon
Website	https://www.amazon.com/

2. Definition and Technical Implementation of Amazon A9 and A10 Algorithms

This section has discussed in brief the definition and technical implementation of the Amazon A9 and A10 algorithms.

2.1 Define Amazon A9 Algorithm

The Amazon A9 algorithm is a ranking system [10] that determines where your products will be displayed in the various search results on Amazon. It makes it easier for customers to find the product that best meets their needs by using the search keywords. This helps Amazon sellers gain traffic for their products, which in turn leads to a higher ranking of the products, which in turn helps Amazon sellers make more money. The Google algorithm [11,12] does not take into account the number of sales conversions that the Amazon A9 algorithm does. Because of this, products that have a longer history of sales will rank higher and better than comparable products that have a shorter history of sales. This is due to the fact that Amazon's A9 algorithm will promote the products that have a higher probability of being sold in comparison to other products. When determining where a product should be positioned in the list of results returned by an Amazon search, the A9 algorithm takes into account a wide variety of factors, including relevancy, reviews, keywords, sales history, product promotions, search terms, availability of the product, price, and many others. When determining the ranking of a seller's products, it is at the very centre of what Amazon does.

2.2 Technical Implementation of Amazon A9 Algorithm

The Amazon A9 algorithm is what customers use to

determine where a particular brand stands in the list of search results for their query. It presents the purchasers with the results that are pertinent to the key terms that they have entered into the search box. In addition to this, it includes the results that are recommended as well as other products that may pique the buyers' interest enough to convince them to purchase them. It provides the results based on the customer's previous search history as well as their previous purchasing history. This allows for the products to rank higher in the search results when they are searched for, which in turn increases the likelihood that they will be purchased, which in turn increases sales of the given product and brand. Because the Amazon A9 algorithm is based on the relevancy of search terms, key search terms play an important role in the process of finding results that are relevant to the item that customers are interested in purchasing.

2.3 Define Amazon A10 Algorithm

The Amazon A10 algorithm is the most recent iteration of the company's search engine. Because of this, the algorithm's overall operation has been modified as a result. The A10 algorithm used by Amazon will guide customers straight to the results they are looking for, bypassing any recommended or other search products in the process. The products that are the most pertinent, popular, and highly ranked are highlighted for the purpose of increasing the likelihood of sales for the vendors, as well as the likelihood of buyers discovering the product that best suits their needs. The product that appeals to buyers more than the others does naturally better in rankings than the products that do not. Not only this, but the method of ranking is now determined not by advertisements but rather by the clicks that are generated organically by the content. Introduction one of Amazon's newest features is called Seller's authority. This feature uses Amazon's buy box or product listing to establish a seller's credibility with customers. The duration of the seller's Amazon activity, the number of feedback and ratings received, the number of products sold, and other factors all contribute to the seller's authority. Parallel to this, organic sales are those that come from products that customers not only view but also buy, as opposed to sales that come from paid advertisements. Parallel to this, organic sales are more valuable than paid advertisements. This is due to the fact that Amazon has been placing a greater emphasis on a secure organic SEO strategy for sales rather than a pay-per-click strategy. Aside from that, traffic that comes to Amazon from other websites is referred to as "offsite sourced traffic". For example, Instagram, Facebook, YouTube blogs, TikTok, etc., it is important to make sure that the traffic is relevant

because doing so will only increase the views of the page, not the sales. It is important to make sure that the traffic is relevant because it will only increase the views of the page. The internal sales are made up of products that come highly recommended and are frequently purchased. Because these are not the products that are returned by a search, but rather products that are shown to buyers in a separate section in order to boost the product's position in search results, simply put, click-through rates measure the number of times prospective customers click on a company's products during their initial research phase. It is only taken into consideration once they have not only been clicked on but also purchased afterward. Because of this, the products require not only a descriptive name but also a primary image of the highest possible quality.

2.4 Technical Implementation of Amazon A10 Algorithm

The Amazon A10 algorithm is an improved and more up-to-date version of the Amazon A9 algorithm, as was previously mentioned. Because of this, there have been many modifications made to the way the algorithm as a whole works. However, there are still some processes that have not been altered in any way. There are a few that play larger roles and others that play smaller roles in these, such as the pay-per-click (PPC) advertising model used by Amazon and the profitability of the products. The Amazon A10 algorithm has caused an increase in product visibility [13], which enables customers to have a better understanding of the items they are considering purchasing. The Amazon A10 algorithm has been modified a great deal in the past, and additional modifications are planned for the future as well. Because of this, both buyers and sellers are now aware of any potentially fraudulent products that are on Amazon's marketplace [14-16], and they can take immediate action to remove these products from the website and search engine. It is essential for any kind of seller on the Amazon web page to have a working knowledge of the Amazon A10 algorithm if they want their products to have the best chance of ranking higher in the Amazon search results.

3. How does the Amazon Search Algorithm Work

Here, we have discussed how does the Amazon search algorithm work. Each and every product ranking is determined by the Amazon algorithm, which examines the product listings, compares them to online customers' search terms, and then displays the most relevant ones on the top page of the search results. In order to better under-

stand the ranking process, Amazon must take into consideration the points listed below.

1) Amazon emphasizes boosting Revenue Per Customer (RPC) at all times.

2) Every transaction a customer takes on Amazon is recorded.

3) The Amazon A9 Algorithm correlates the tracked data mentioned in point 2 to the objective indicated in point 1 by using a series of mathematical operations.

Relevancy, Conversion Rate, and Product Authority are the three main components of the Amazon A9 algorithm, which determines how well a product ranks on Amazon. com. Figure 1 provides how does Amazon A9 algorithm works.

Every Amazon product needs to be sufficiently relevant to be given a higher search ranking. It is the initial solution to the question of how to rank highly on Amazon. com. The components that need to be taken into account are (i) the title, (ii) the bullet points, (iii) the descriptions, (iv) the brand and manufacturing number, (v) the category and sub-category, (vi) the search term, and (vii) the product specifications. Different factors of A10 algorithm have been shown in Figure 2. Better conversion rates depend on different factors, and one can raise them by paying attention to the following factors which are (i) Sales (ii) Questions and Answers (iii) Product Image (iv) Pricing (v) Variant Products' Placement (vi) Bounce Rate and (vii) Customer Review. When a customer searches for a product on Amazon.com, the product details for the Computer Network Book are shown in Figure 3.
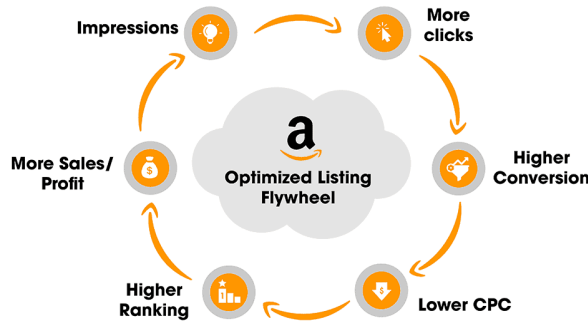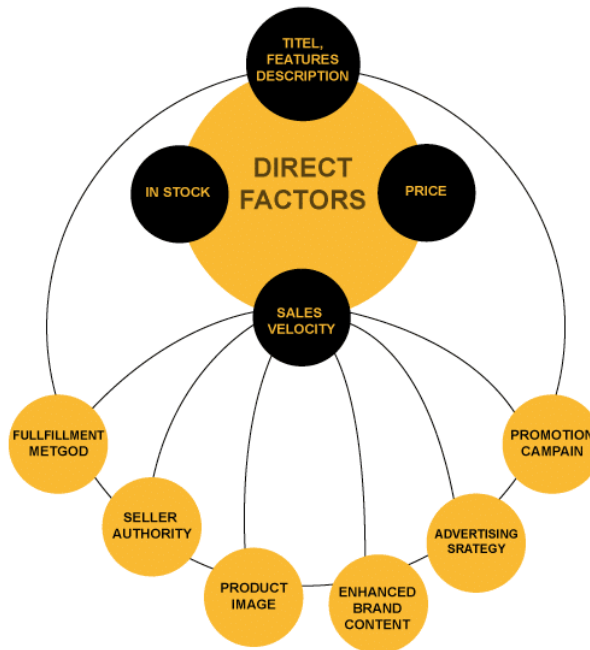

Figure 1. Work flow of Amazon A9 Algorithm

Figure 2. Factors of A10 Algorithm

Figure 3. Details of Computer Networks Book by A. S. Tanenbaum, N. Feamster and D.J. Wetherall

4. Amazon A9 Algorithm vs. A10 Algorithm

Both the A9 algorithm and the A10 algorithm that Amazon uses are very similar to one another because they both assist Amazon sellers in increasing the amount of traffic that is directed to their websites and the number of sales that are made using their products. However, there are some distinctions between the two when it comes to the activities that the algorithms perform. Amazon A9 is an older Amazon algorithm that helps sellers on Amazon achieve a higher ranking with search keywords, pay-per-click (PPC), and Amazon's paid advertisements. Amazon A9 is an algorithm that was developed by Amazon. On the other hand, the Amazon A10 algorithm raises a seller's product to a higher position in the list of search results based on the number of times that result is clicked. It

ranks the products that are most viewed or clicked on the website, along with the products that are most bought and the items that are most likely to be purchased. In addition, it displays the products of your competitors directly below the product that your brand offers. This is the point in the programming where the Amazon A9 and A10 algorithms diverge from one another. The first is for pay-per-click advertising and paid advertisements, and the second is for unpaid, organic selling that is determined by the number of views and purchases. In any case, both of these results come from the same search engine that is used by Amazon. This search engine is designed to locate the appropriate product for customers and the appropriate rank of products for sellers on the Amazon web page.

5. Conclusions

The primary objective of the Amazon Algorithm is to provide support for customers during the course of their product searches. The system analyses numerous businesses and the products they offer on the website to provide users with the most pertinent information possible. There is a lot of overlap between the A9 Algorithm and the A10 Algorithm. The level of importance placed on various criteria for ranking is the primary difference between the two. Instead of focusing on the algorithm, it is imperative to keep the customer in mind at all times; doing so will allow you to gain a competitive advantage. Because the primary goal of Amazon remains the same, regardless of whether the algorithm is "A9" or "A10": to fulfil the requirements of the customer by delivering an outstanding experience when making digital purchases.

Author Contributions

S. Maitra, L. Sahoo and K.S. Tiwary formulated and studied the problem. S. Maitra, L. Sahoo and K.S. Tiwary wrote the first draft of the manuscript. All authors edited the manuscript and approved the final version.

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Conflict of Interest

The authors declare no conflict of interest.

Ethical Approval

This article does not contain any studies involving animals performed by the authors.

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