**Auction Based Internet Advertising Platform**

**Objective:**

To create a Java application that takes into consideration the user interests based on his online purchases and display advertisements based on his interests. A system consisting of publishers of advertising space, advertisers bidding for the space and an exchange platform for the auction to occur is to be built.

**What is real-time bidding?**

Real-time bidding is the bidding of advertising spaces (impressions) by advertisers where the actual price for bidding unfolds just milliseconds before the user loads his web page.

Traditional online display advertising was inefficient. Advertisers buy publishing space in bulk. Each of these spaces can be called an impression. Depending on the target audience and market, the impressions have different values depending on their campaign. But the price they paid for each of them is the same. This system was lacking in several ways.

Publishers face problem with this system because 70% of their inventory is left unsold and the rest were sold at very low prices. This led to their quality of products not recognized because they were not able to reach their targeted market. Therefore, both advertisers and publishers need to be linked in an efficient way to help them get their money’s worth.

This was where real-time bidding came into picture. A bidding scenario may consist of the following entities:

1. Exchange platform: Can be an organization that connects advertisers and publishers, facilitating the purchase of display space in real-time through auctions that place within milliseconds before the user’s page loads.
2. Publishers: Consist of display space inventory. Publisher publishes each of its inventory in the exchange.
3. Advertisers: Purchase individual display spaces at prices that reflect each impression’s value.

When the publisher publishes each of its inventory at the exchange, the exchange holds an auction where the advertisers will bid on each of the impression. The advertisers hold some parameters which are used to calculate each value of the bid. The highest bidder gets the impression space depending on the real-time market demand. This winner is chosen and the ad is placed on the publisher’s website.

The benefits of this system are:

* Increased control of ad spaces.
* Increased spending efficiencies.
* Better results delivered to clients.

Benefits to advertisers:

* Enhanced consumer targeting capabilities.
* Cost effective reach frequency.
* Elimination of wasted spaces and ad dollars.

Benefits to publishers:

* Delivers higher revenue on inventory, depending on the targeted market.
* Increased efficiency of usage of display spaces.

**Key issues:**

* It is imperative to track the user’s habits to consider his interests in products and addressing the issue of displaying products based on the market. We need to develop a certain pattern from the user behavior and thus display advertisements based on that. These are the parameters that can be included as part of the advertisers parameters. Over a period of time, user behavior is accumulated over time to sharpen the effectiveness of the ad.
* Supporting financial accounts of customer, advertiser and publisher roles.
* System is supposed to be globally and geographically aware.