

Introduction to Web Science

Assignment 11

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Submission until: February 08, 2017, 10:00 a.m.

Tutorial on: February 10, 2017, 12:00 p.m.

This assignment focuses on **Online Advertisement**. As discussed in the class, teams with exact similar answers that give an indication of copying will receive null points for those questions. If you are taking answers from some source, please cite your sources.

Team Name: Golf

Members: Atique Baig, Mtarji Adam, Deepak Garg

1 Online advertisement (10 points)

In the videos about online advertisement, you learned about the three different payment methods for online advertisement.

1. Name all three methods.
2. Mention the advantages and disadvantages, for publisher and advertiser, of all the payment methods and explain them in your own words.
3. Provide real world examples for the three payment methods.

Answer: CPM (Cost per mille)

The advertiser pays a specific amount for every 1000 view to the advertising agency, the revenue is generally split between the publisher and the agency.

PROS:

The publisher knows exactly how much he is getting for attracting a 1000 view.

CONS:

The advertiser runs the risk of having his ads not attracting the users and thus resulting in low traffic to his own website. Viewbots can be considered a risk for the advertiser too, where bots simulating users can use the publishers website which falsifies the number of actual views.

Example :

Youtube pays the channel owner following a similar method, for each specific number of viewers, the channel owner receives a certain amount of money.

CPA (Cost per acquisition)

The advertiser pays the advertising agency for each goal achieved or conversion in its own website by a user coming from the publishers website. Revenue can be a percentage of the advertisers gains from the achieved goal.

PROS:

The advertiser only pays for successful advertising

CONS:

Complex to achieve since it requires tracking technologies on the advertisers website Publisher runs the risk of having its users not interested into the advertisement and thus generating no revenue.

Example :

Some website offer their content only after doing a survey or downloading a certain product. Used to be common from certain file-download websites.

CPC(Cost per click)

A middle ground between CPM and CPA, the advertiser pays the advertising agency for each click on the ad on the publishers website.

PROS:

Lower risk for both the publisher and the advertiser.

CONS:

Click fraud, where bots can simulate users clicking on ads.

Example: Google ads follow a similar model by paying the publisher according to the number of clicks on each ad.

2 Payments in Online Advertisement(15 points)

Provide the complete calculation with your solutions for the following questions.

1. An online advertisement company offers you to advertise your website on a cost-per-click base (CPC) with a cost of 0.70€ per click. Assuming that in average three out of ten visitors of your website are buying a product from which you are earning 20€, would you accept this offer? What is your average profit/loss per visitor?

Answer

If we accept the offer, each click on our ad will cost us 0.7 € and since 3 out of 10 visitors buys a product resulting in a profit of 20€ each, meaning for 10 visitors, we profit 60€ while costing us 7€ for the ad. Our average profit per visitor would be 5.3€ and average loss would be 0.7€ in this case. We believe this is a good offer.

2. What would be the minimal conversion rate (CR) to guarantee your profit?

Answer

For every 10 visitors, we need at least a profit of 7€ to balance out the cost of the ad, since our current CR of 30% yields a profit of 60€, the CR value to yield a profit of 7€ would be : $\frac{7 \times 0.3}{60} = 0.035$.

The minimum CR would be 3.5%

3. Two online advertisement companies A and B are making you offers to advertise your website. Company A follows a cost-per-mille (CPM) model with a cost of 2,40€ for displaying your banner advertisement thousand times. Company B follows a cost-per-action (CPA) model charging a commission of 6% from every profit generated on your website through clicks on the banner ad. Assuming a click-through-rate (CTR) of 0.5%, a conversion rate (CR) of 20% and an average profit of 40€ for every transaction on your website, which offer is the best?

Answer

Lets assume we have 1000 visitor, Company A will pay us 2.4€, while Company B will pay us according to the number of conversions. on 1000 visitors we have a CTR of 0.5% which means 5 visitors will click the ads, and since we have a CR of 20%, 1 visitor will perform a transaction resulting in a conversion, since our average profit is 40€ and company B pays 6% commission, we have $40 \times 0.6 = 2.4\text{€}$ profit from Company B offer. In this case, both offers are equally good.

4. Assuming an online advertisement campaign for a website has obviously a high click-through-rate (CTR), but the earnings from the website are still very poor. What do you think could be the problem (please provide your answer in one or two paragraphs)?

Answer

A high CTR and low CR could be the result of click fraud, in this case, since we as a publisher are not involved in such a practice, we can assume that the advertisers competitors are using clickfraud on our website to hinder and disturb the advertisers traffic. The competitors might be using botnets or click farms to

simulate a high traffic through our website, this could be hard to track since clicks coming from real users and fraudulent click are hard to differentiate, one way that could mitigate this would require to reduce the privacy of all stakeholders.

3 Online vs. TV Advertisement (10 points)

1. Which of the three payment models is most similar to advertisement on TV (*explain your choice and also why you think other models are not similar*)?

Answer

We believe that the CPM is the closest model to advertisement on TV. Since TV ads are done offline, paying for a fixed amount of viewers fits the context the best, for example a tv program can attract a certain number of viewers on certain time period, the ad can offer a CPM base model to broadcast the ad on a specific time to benefit from the number of potential viewers, all done offline.

a CPA model will be hard to implement, some programs do use such models by offering the viewer a special code to submit when buying the product in the add, this code is used by the advertising company to track conversion, but this is not common and seems to be far less reliable since a user can still ignore the code and result in a conversion anyway. Since this model is rarely used we don't think it fits the TV context better than the others. a CPC model can't be implemented in the case of TV since it's usually offline, although with TV streaming becoming more common, access to Internet while streaming might make this model viable in the future.

2. What do you think are the most important advantages of online advertisement compared to advertisement on TV (*highlight 5 advantages and explain each of them*)?

Answer

Re-targeting

Using cookies and sessions, the ad agency can track and re-target the consumer with better suitable ads. **Real time tracking**

Can determine the success of the campaign in real time by monitoring the online traffic. **Access to advertiser using a link**

The user can access the advertiser website by a single click, can even result in a conversion. **Potentially higher amount of traffic and large data to analyze and study**

The internet has a much higher user pool, the advertiser has access to a large client el, The advertiser also has, depending on the context, access to a large amount of data about the type of users, demographic etc, which can be used for optimizing the ads, re-targeting etc.. **Better payment models and lower risks**

Access to CPA and CPC models, which have better and more controllable and predictable risk factors.

Important Notes

Submission

- Solutions have to be checked into the github repository. Use the directory name `groupname/assignment11/` in your group's repository.
- The name of the group and the names of all participating students must be listed on each submission.
- Solution format: all solutions as *one* PDF document. Programming code has to be submitted as Python code to the github repository. Upload *all* `.py` files of your program! Use **UTF-8** as the file encoding. *Other encodings will not be taken into account!*
- Check that your code compiles without errors.
- Make sure your code is formatted to be easy to read.
 - Make sure you code has consistent **indentation**.
 - Make sure you comment and document your code adequately in English.
 - Choose consistent and intuitive names for your identifiers.
- Do *not* use any accents, spaces or special characters in your filenames.

Acknowledgment

This latex template was created by Lukas Schmelzeisen for the tutorials of "Web Information Retrieval".

LA^TE_X

Currently the code can only be build using **LuaLaTeX**, so make sure you have that installed. If on Overleaf, there's an error, go to settings and change the **L**A^TE_Xengine to **LuaLaTeX**.