Robot Hunt on Auction Site

by Emir from Team 6

Problem Definition

- Online auction sites are sites that make our lives easier.
- These sites have many benefits, but they have a small and important problem. And this problem greatly affects the number of people using the site.
- Bots on these sites are the biggest problem of the sites. Site owners need to get ahead of these bots.

What are these bots?
What do they do?

Features by which we can detect bots

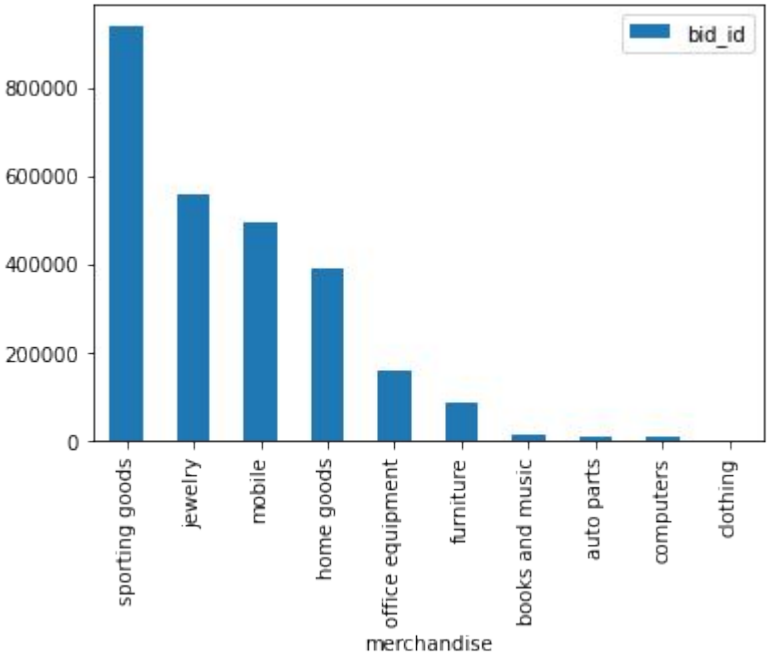
- Merchandise preferred by user
- Number of actions taken by the user on the site
- The number of different devices the user has logged into the site
- The number of countries the user has logged into the site
- Number of different url-ips that the user has logged into the site
- Average and minimum response time of the user to the offers made
- Number of first bids made by the user and number of auctions won

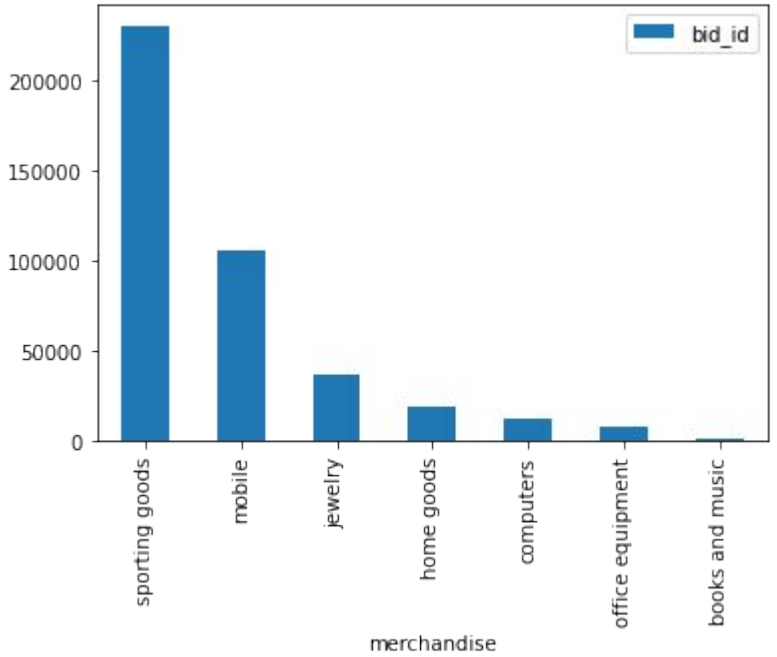
Let's explain it all, item by item

1910 & 103

We have 1910 human and 103 bots at our data.

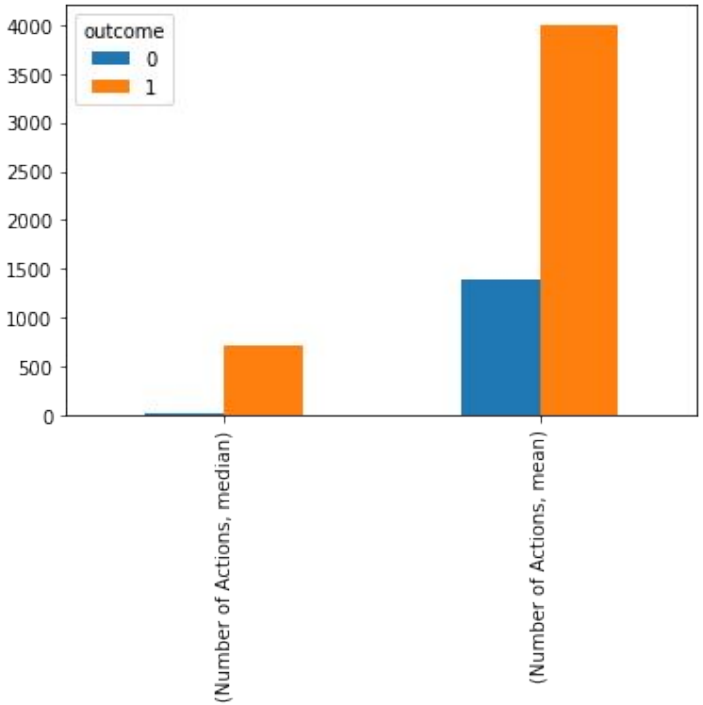
Merchandise preferred by user





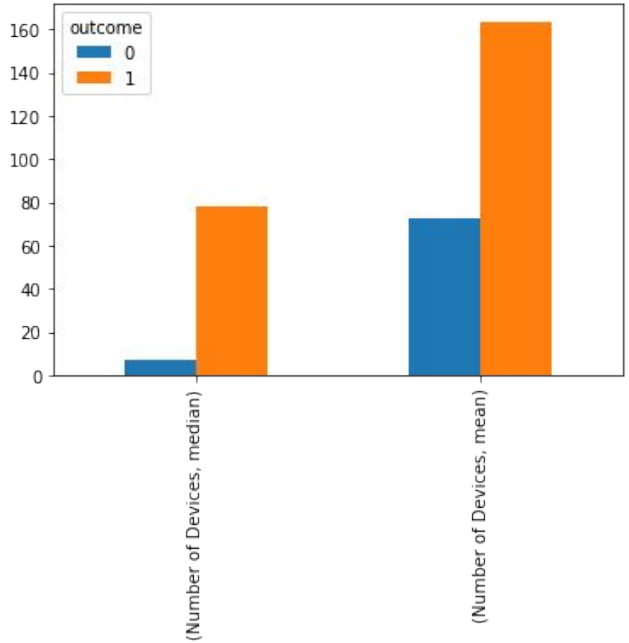
Number of actions taken by the user on the site

Robot	Median	Mean	Sum
1	78	4004.038	412416
0	14	1392.046	2658808



The number of different devices the user has logged into the site

Robot	Median	Mean	Sum
1	78	163.611	16852
0	7	72.824	139095



The number of countries the user has logged into the site

You can easily see that bots are entering from many different countries.

Robot	Median	Mean
1	13	26.33
0	3	12.4

Number of different url-ips that the user has logged into the site

Robot	Url Median	Url Mean	Url Min	Ip Median	Ip Mean	Ip Min
1	88	544.582	1	290	2387.796	1
0	4	330.097	0	10	572.430	0

Average and minimum response time of the user to the offers made

Robots are much faster than humans.

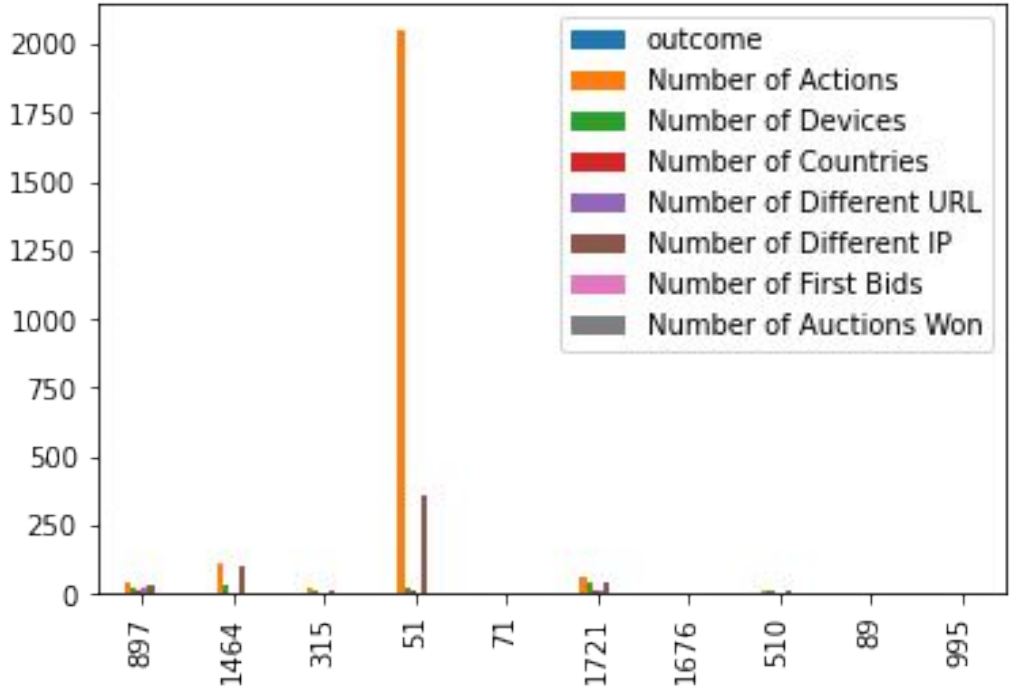
Robot	Mean Time Mean	Mean Time Median	Min Time Mean	Min Time Median
1	3.891 * 10^10	1.527 * 10^10	2.299 * 10^7	0
0	7.476 * 10^10	6.727 * 10^10	1.587 * 10^9	0
	X2 Faster	X4 Faster	X50 Faster	

Number of first bids made by the user and number of auctions won

Robot	Number of First Bids Median	Number of First Bids Mean	Number of Auctions Won Median	Number of Auctions Won Mean
1	1	7.893	1	7.834
0	0	2.603	0	2.627

As we can deduce from here, those who have abnormally high such features are robot users.

Let's Look some users graph



Let's see if users are robots with their ids

ID	Robot
897	0
1464	0
315	0
51	1
71	0
1721	0
1676	0
510	0
89	0
995	0

As you can see, the variables of the robot one are suspiciously high

We developed 2 different machine learning models using these features

95%

On Random Forest Method

93%

On Decision Tree Method

The decision tree did a better job catching bots, although the random forest method was more effective at detecting whether members were human or robots in proportion.

Thanks For Listening