# Conversion Rate for e-commerce

An e-commerce company hosts a website where users can make purchases. The company would like to improve its 'conversion rate' (i.e. the likelihood a user will make a purchase in any given session).

We have information about users in individual sessions (user country, age of user, marketing channel source, total number of pages the user visited in that session and whether the user was new or had previously created an account), as well as whether the user 'converted' in that session.

From examining the data, several patterns become apparent. Firstly, significantly more users did not 'convert', compared to those that did. Relatively speaking, users in Germany were more likely to convert whereas users in China were the least likely to convert. However, there were far fewer users in Germany compared to the US and China (Figure 1).
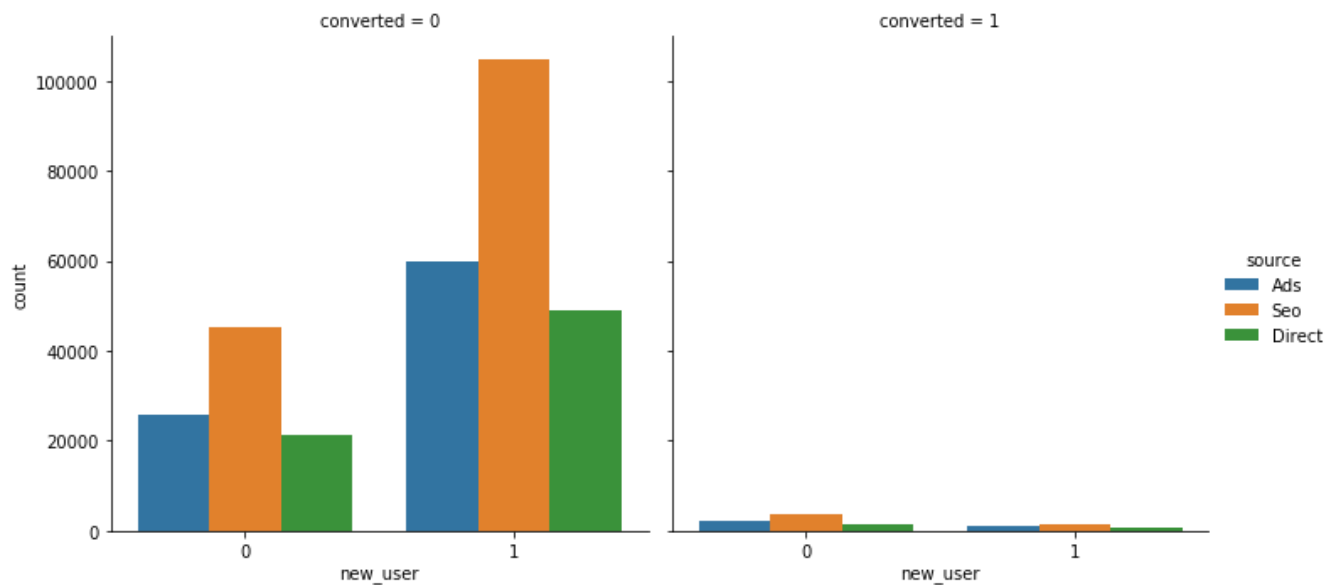
Figure 1
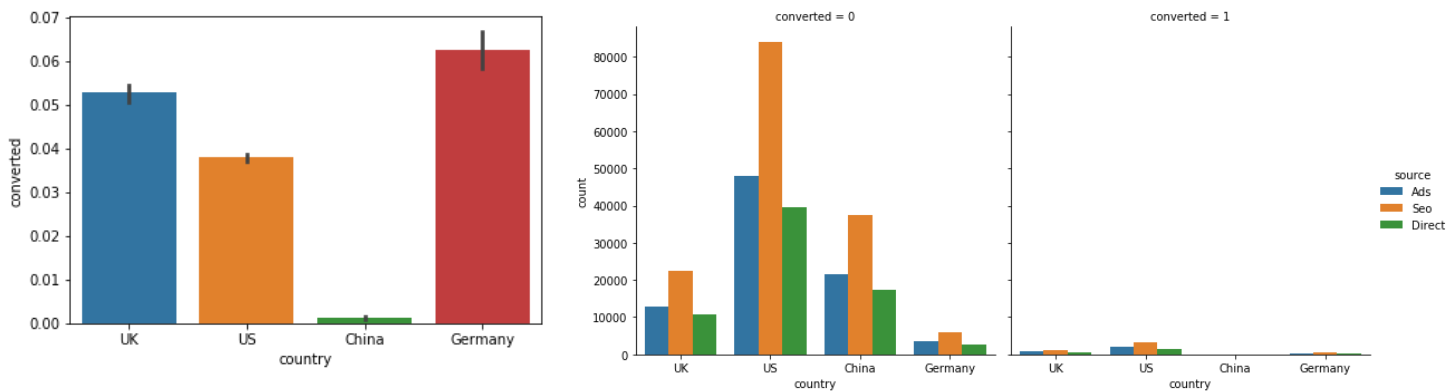
Secondly, as demonstrated in Figure 2, the age of users that converted was skewed towards a younger population.

Figure 2
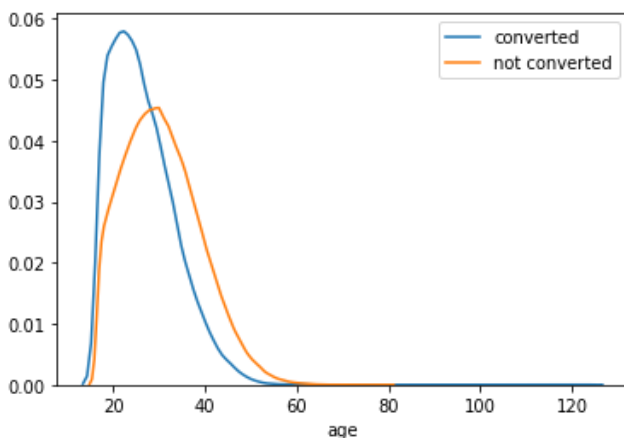
Additionally, the majority of users on the site were 'new', i.e. had created an account in this session. However, most of these users did not convert in the same session in which they created their account (Figure 3).

Figure 3

Building the Model

Using the user data, I built a logistic regression model to try to predict which users would 'convert'.

Using the test data set, the classification metrics indicate that the model could be vastly improved upon. Although the precision, recall and F1-score were > 0.99 in predicting users that didn't convert, these values were considerably lower for predicted values of those who did convert. It is also notable that the data is heavily skewed. i.e. markedly fewer users actually converted during their session.

	Precision	Recall	F1-score	Support
Not converted	0.99	1.0.0	0.99	91871
Converted	0.86	0.68	0.76	2989

Recommendations

Given the provided data, I'd make the following recommendations to the product and marketing teams:

1. Increase marketing towards user populations in Germany
2. Target marketing towards those in the 20-30 age group