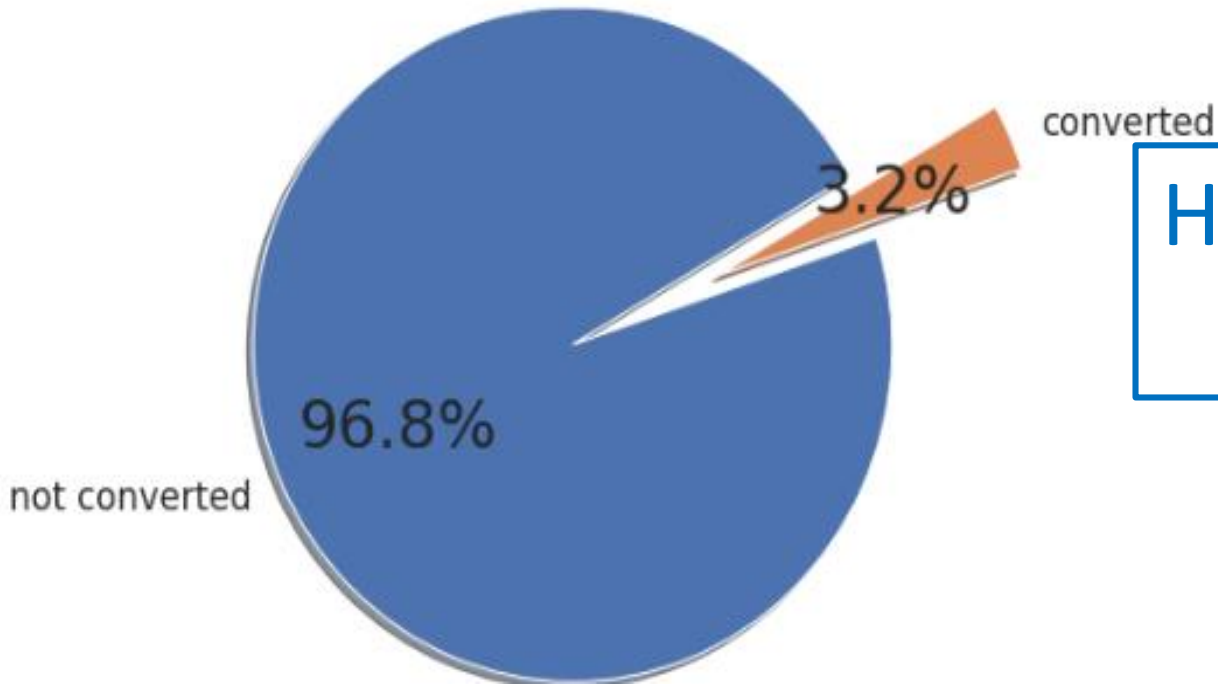


Conversion rate optimization

Nghiem Trang

Example presentation of Machine Learning work
(public data)

How to increase conversion rate ?

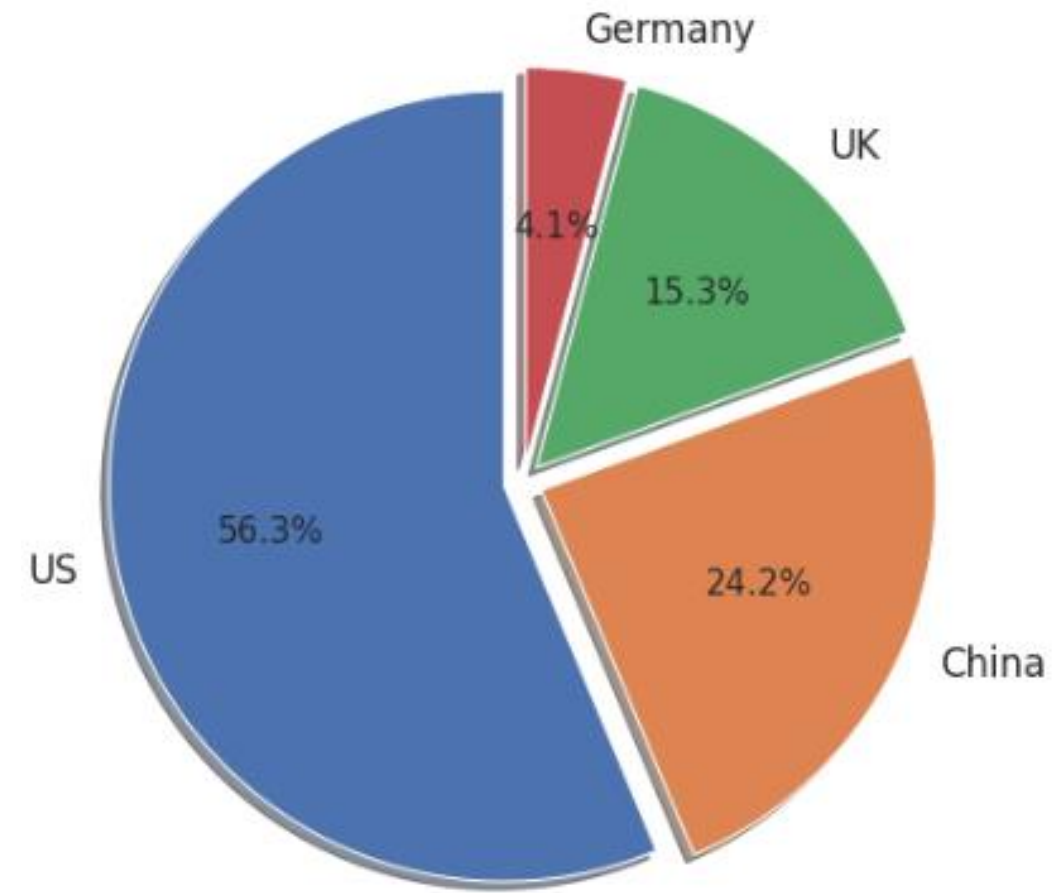


Poor performance

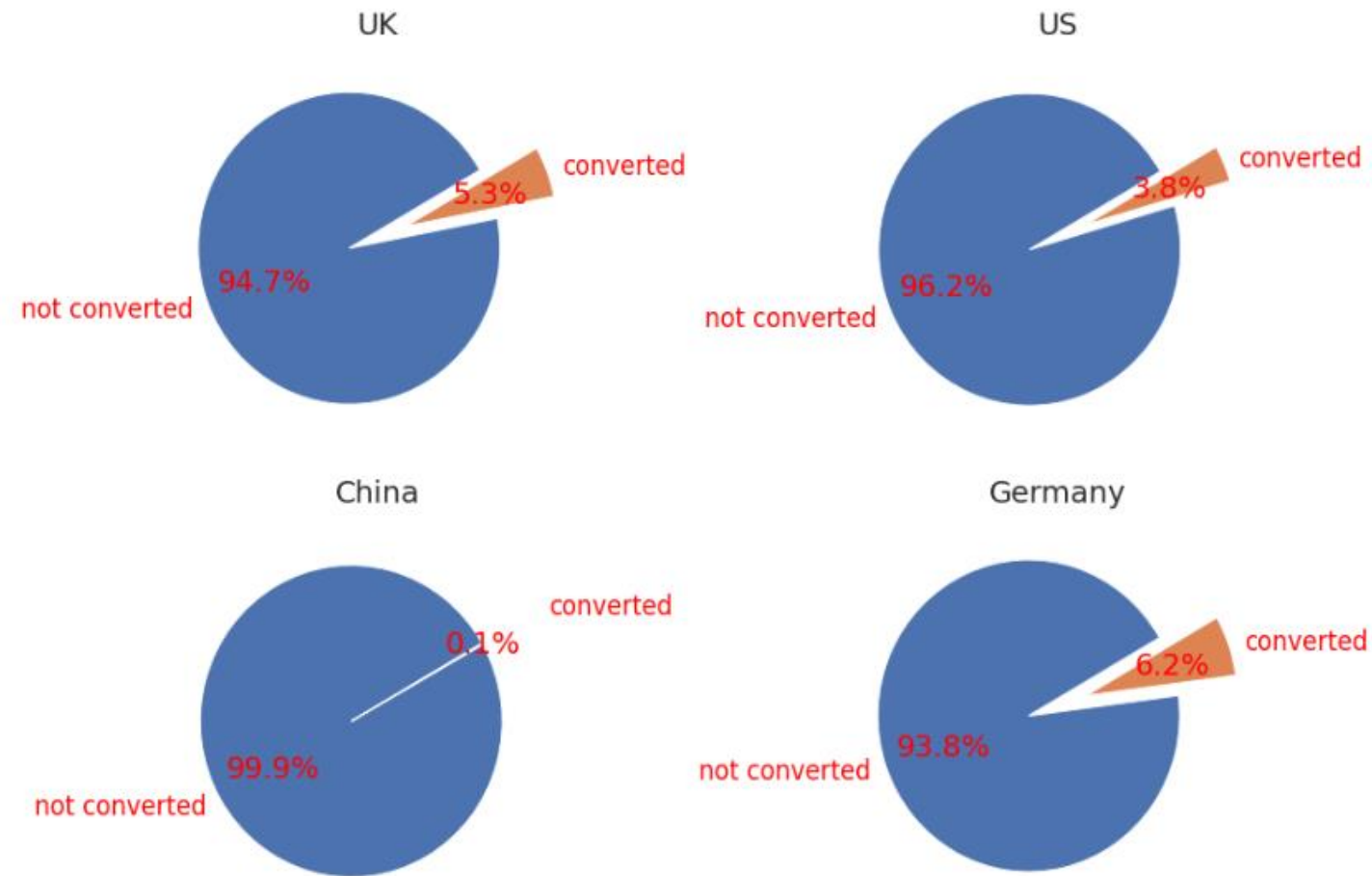
How to increase conversion rate ? (buying rate)

	Impact
Country (US, Chine, Germany, UK)	?
Source (Ads, Seo, Direct)	?
Total page visited	?
Target's age	?
Old vs. New Client	?

Country vs. Conversion



Main marketing target : US, China

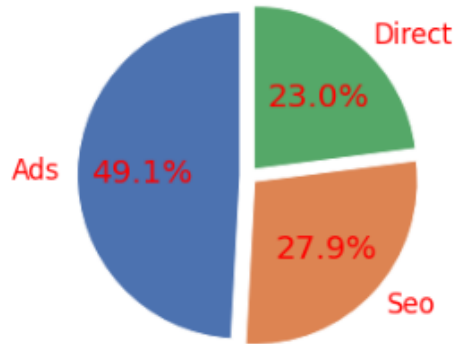


New marketing target ?
Germany, UK -> US

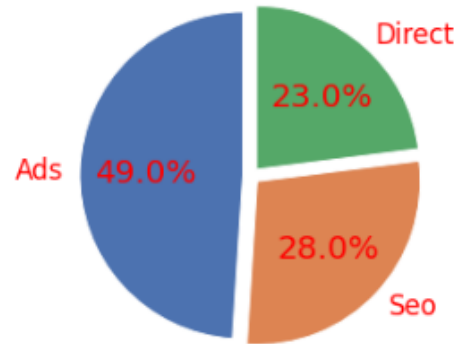
Source vs. Conversion

Source vs. country

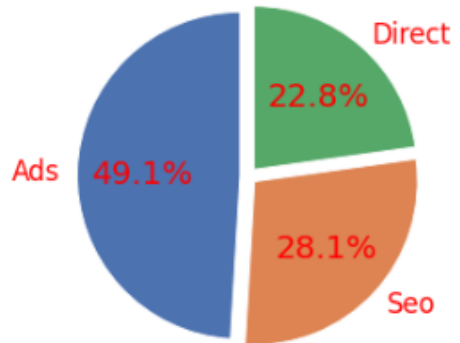
UK



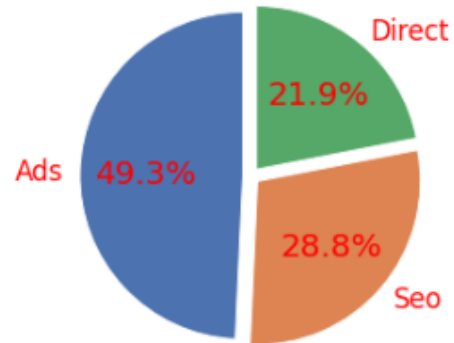
US



China

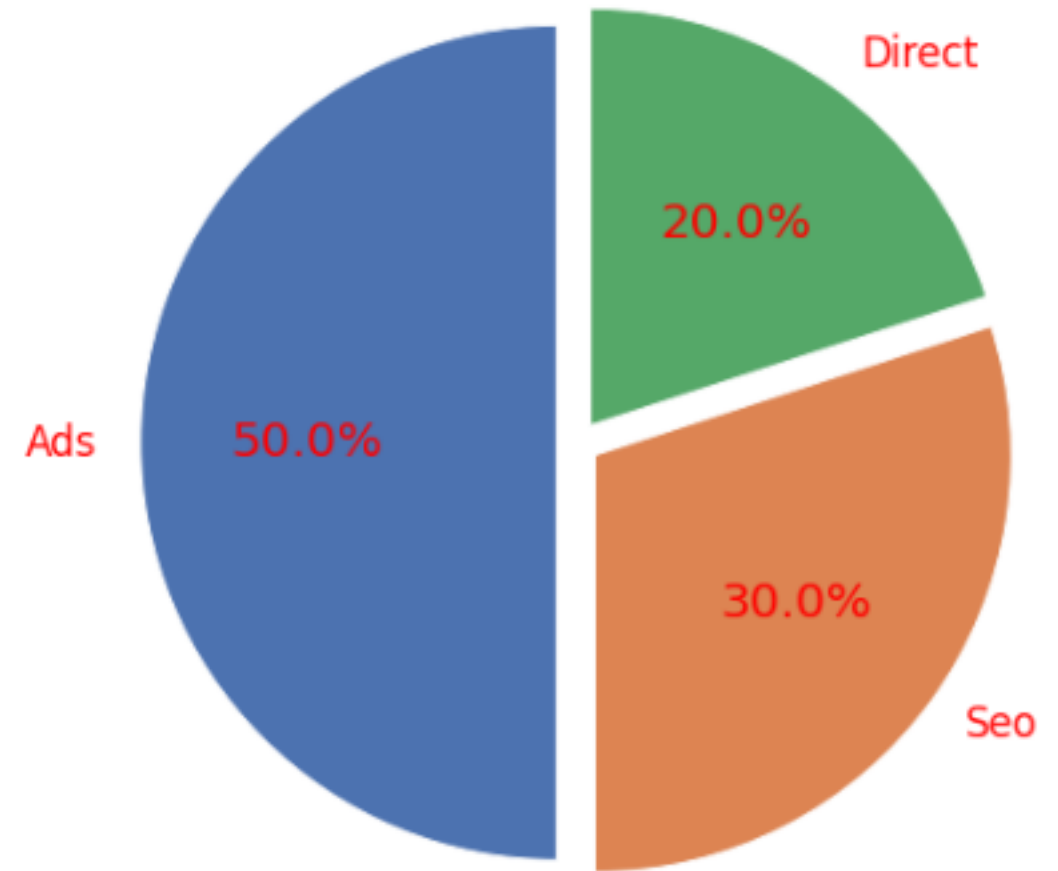


Germany



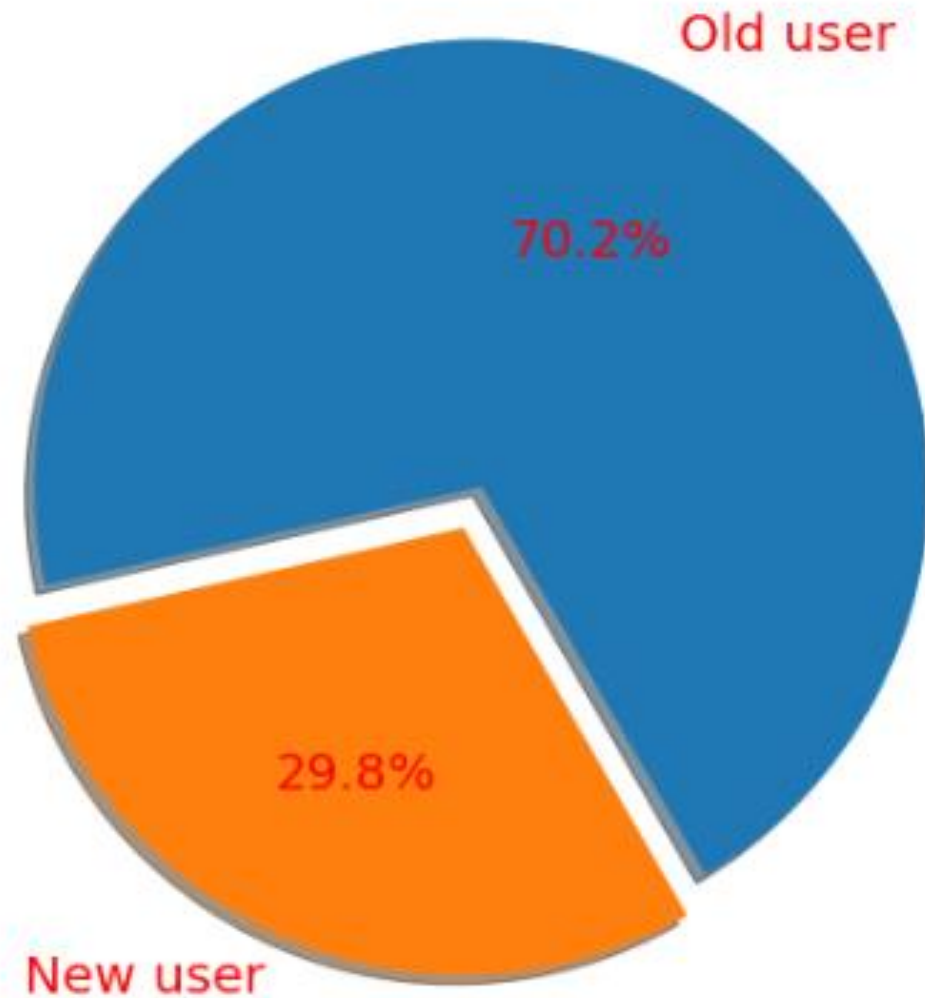
Ratio of reached people by sources
is very closed for all countries

Converted vs. Source



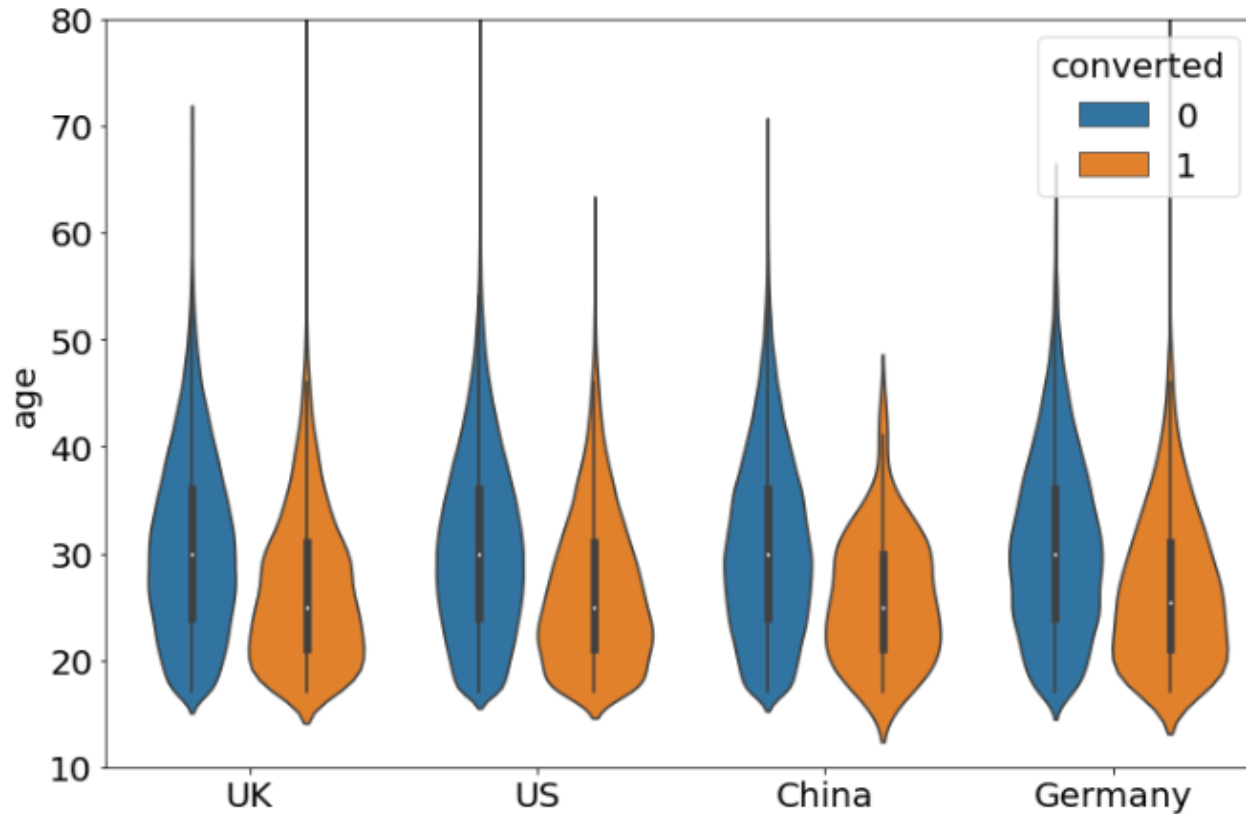
Ads play an important role
(50%)

Users vs. conversion

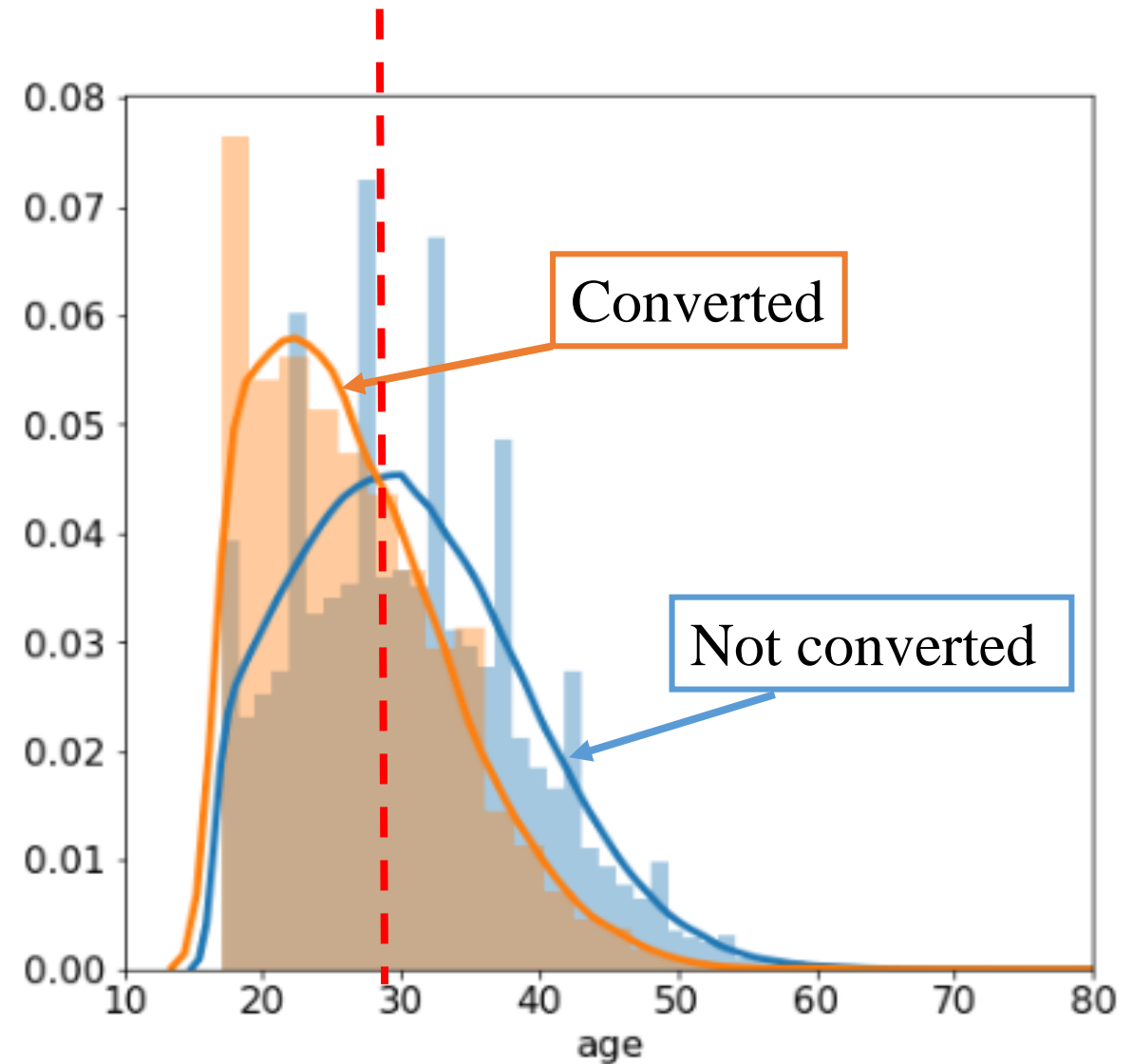


70% of buyers are old users

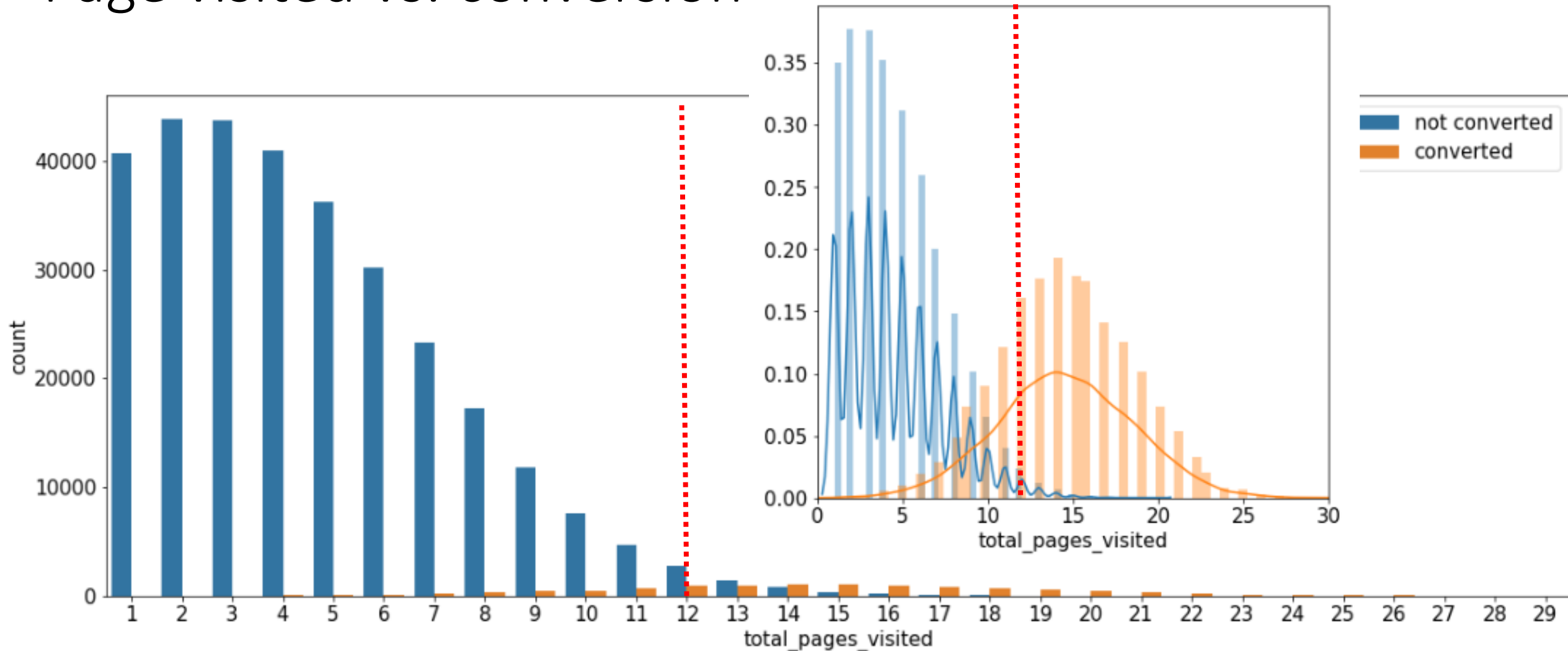
Age vs. Conversion



Age distribution is almost the same
for all countries

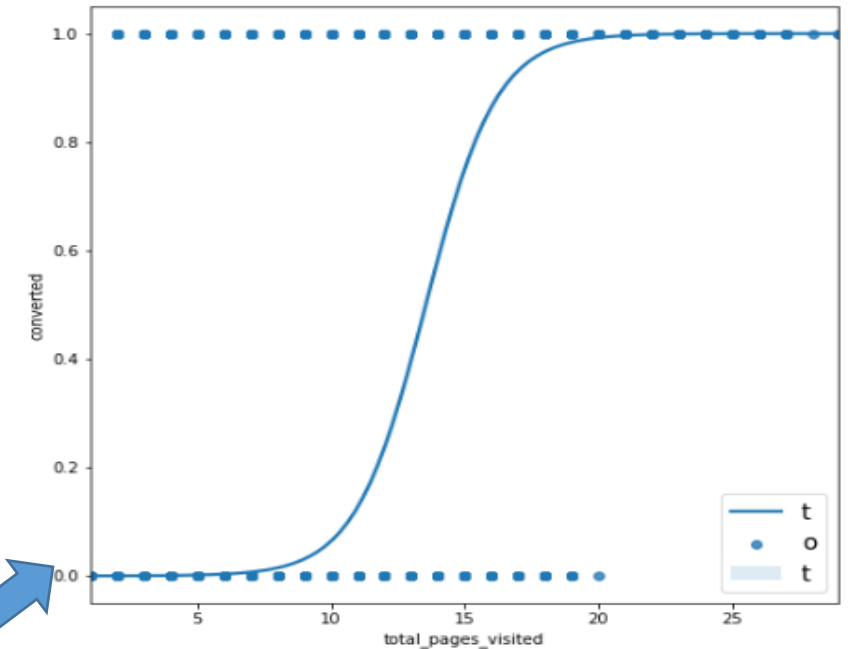
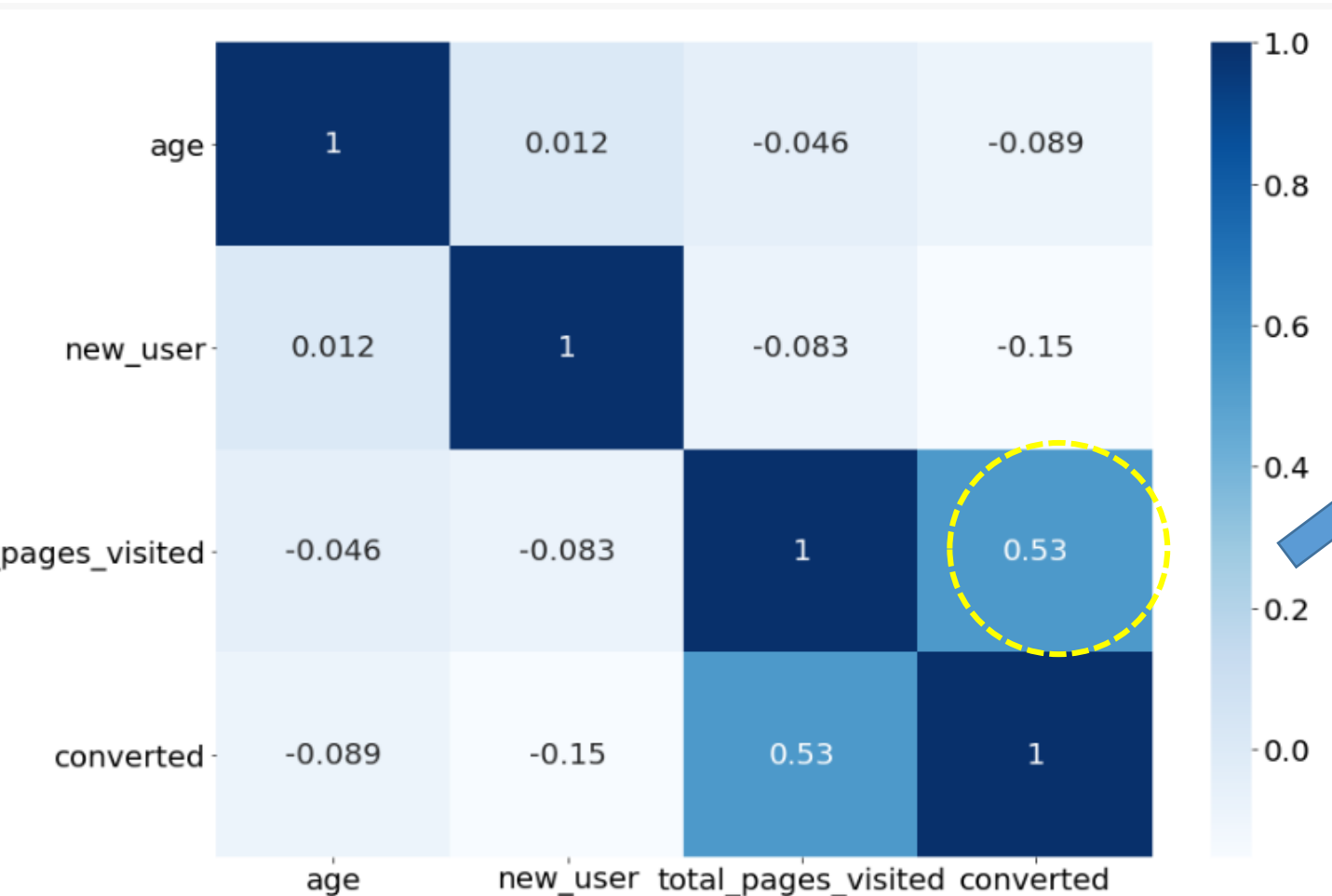


Page visited vs. conversion



Higher conversion rate when visiting website
more than 12 times

Correlation with conversion



Very high correlation between total_pages_visited and conversion

-> Should advertise & improve user experience on website

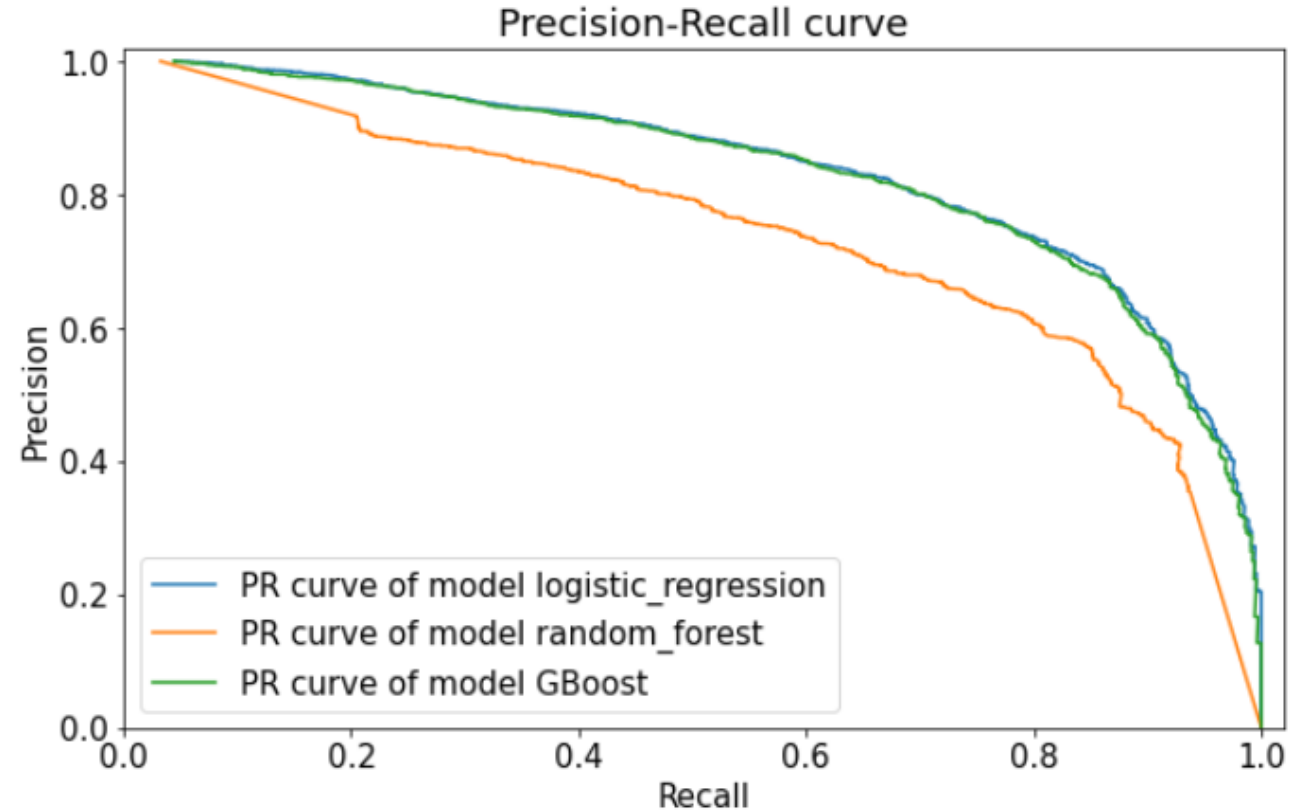
Machine Learning : Prediction of conversion

Models of classification:

- Logistic Regression
- Random Forest
- Gradient Boosting

Attention for imbalanced data :

- + Class weight
- + Evaluation metrics : Precision-Recall curves (do not use ROC)
- + Decision threshold

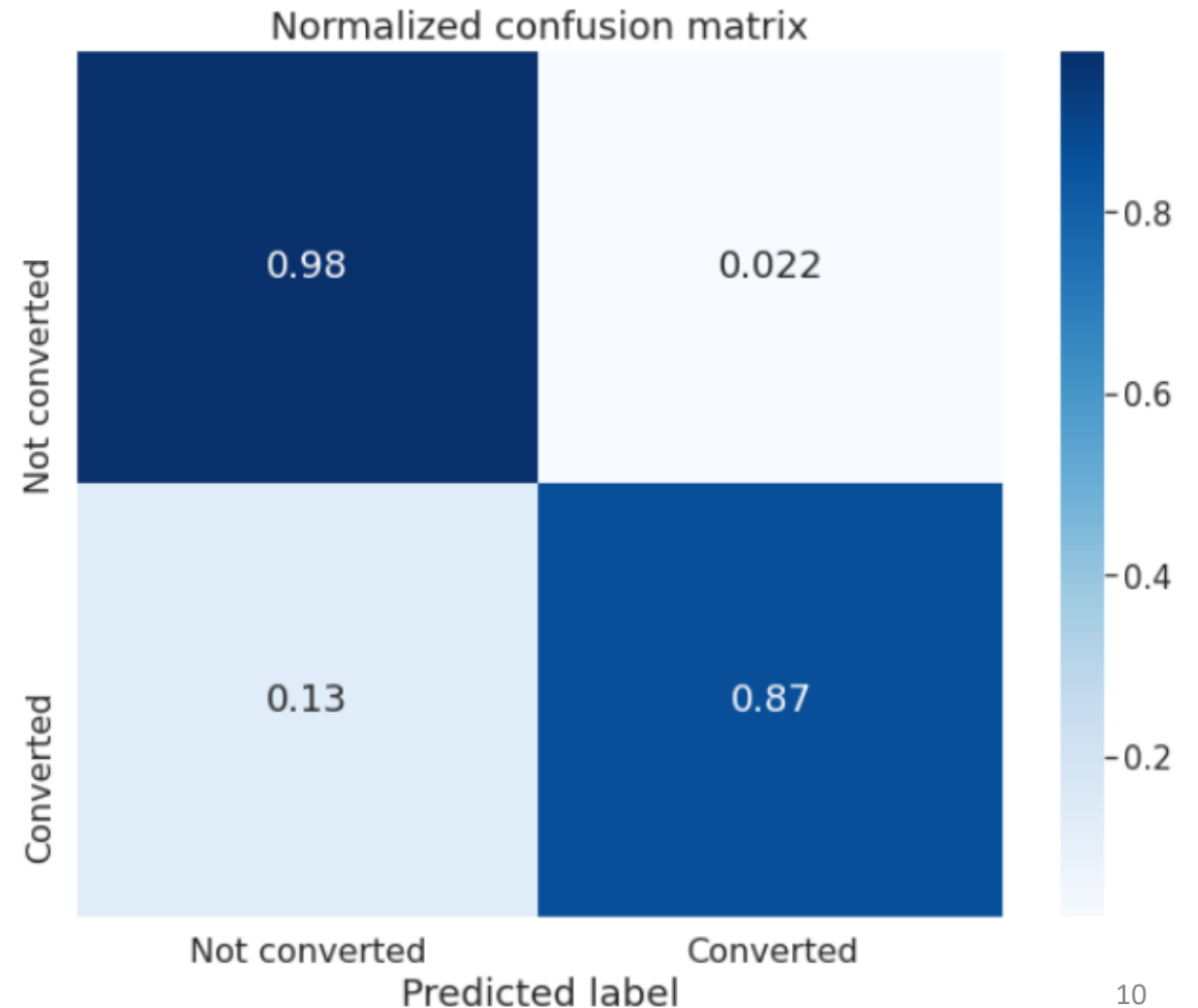
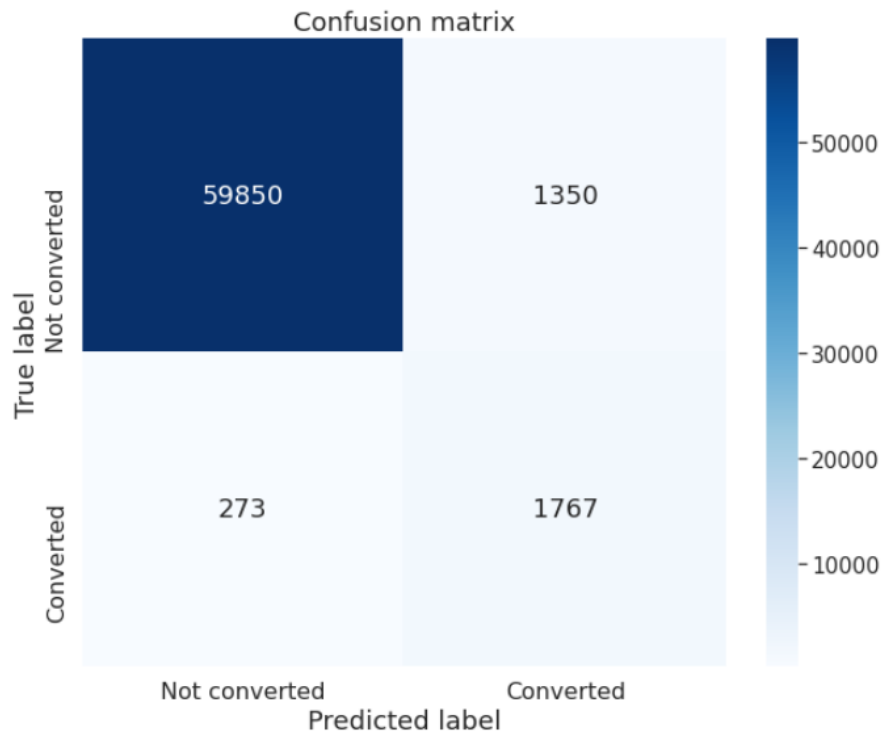


Choice : Logistic Regression
(best score, fastest running time)

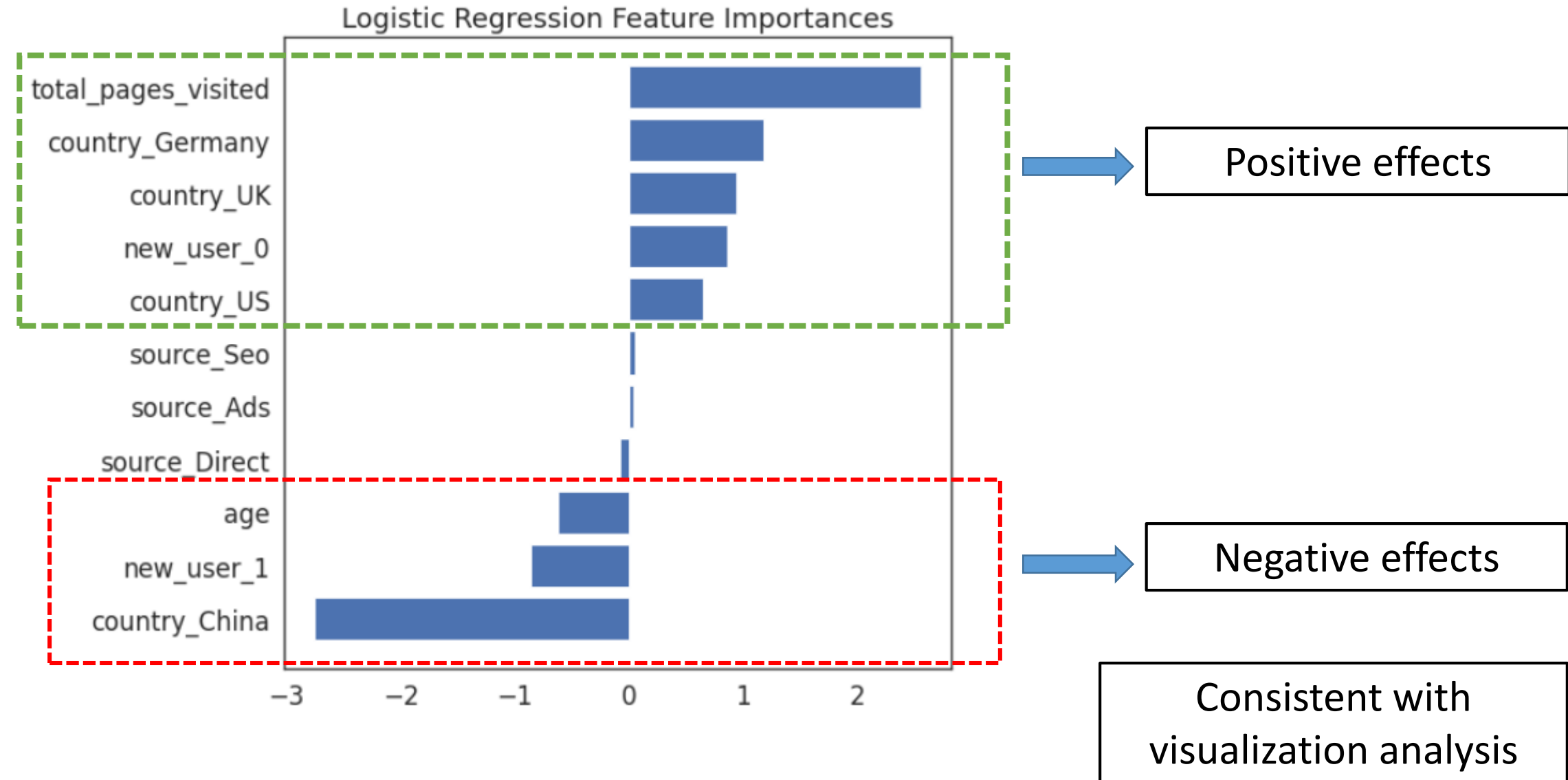
Machine Learning : Prediction results

Logistic regression : threshold = 0.8

Choice : Logistic Regression
(best score, fastest running time)



ML : Model's coefficient vs. recommendation



Discussion - Suggestions

- Countries with high conversion rate : **Germany (6.8%), UK (5.3%), US (3.8%)**

Try to understand the low rate in China

- Conversion from : **ads – 50%**, seo – 30%, direct – 20%
- More sells when **visiting website more than 12 times**
Try to reduce the visiting times (reduce ads cost) -> A/B testing
- **Younger people (18-29 yo)** -> higher potential
- 70% of **Old users** buy products