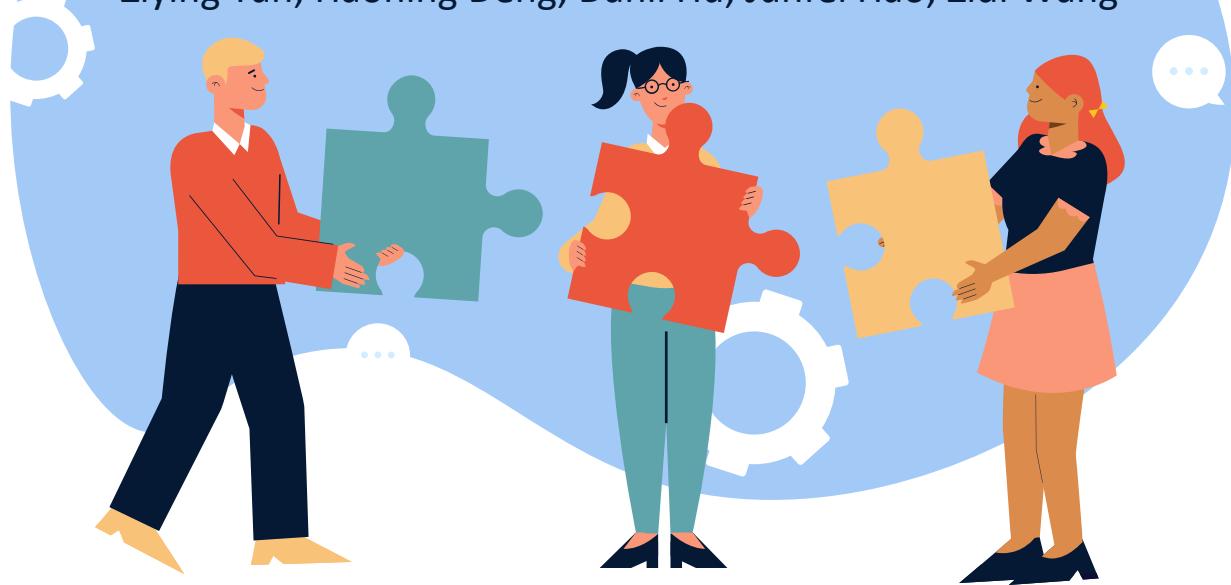


Google Merchandise Analysis

Ziying Yan; Haoning Deng; Danli Hu; Junfei Hao; Zidi Wang



Dataset & Methodology

451.6k

357.3k

1 Year

OBSERVATIONS

UNIQUE
CUSTOMERS

Aug 2016 - Aug 2017

Logistic Model

Linear Regression Model

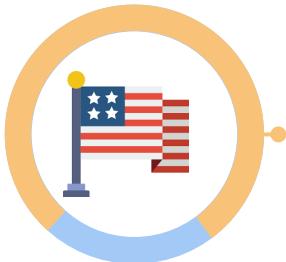
Random Forest

Google API

R

PYTHON

Customer Profile



United States:
54% total revenue



New York:
13% total revenue



California:
13.7% total revenue



55.4% of revenue came from users
using Chrome



Customers are more likely to
purchase during work hours,
especially 10 am, 2pm and 3pm



Approximately 95%
purchased through laptop

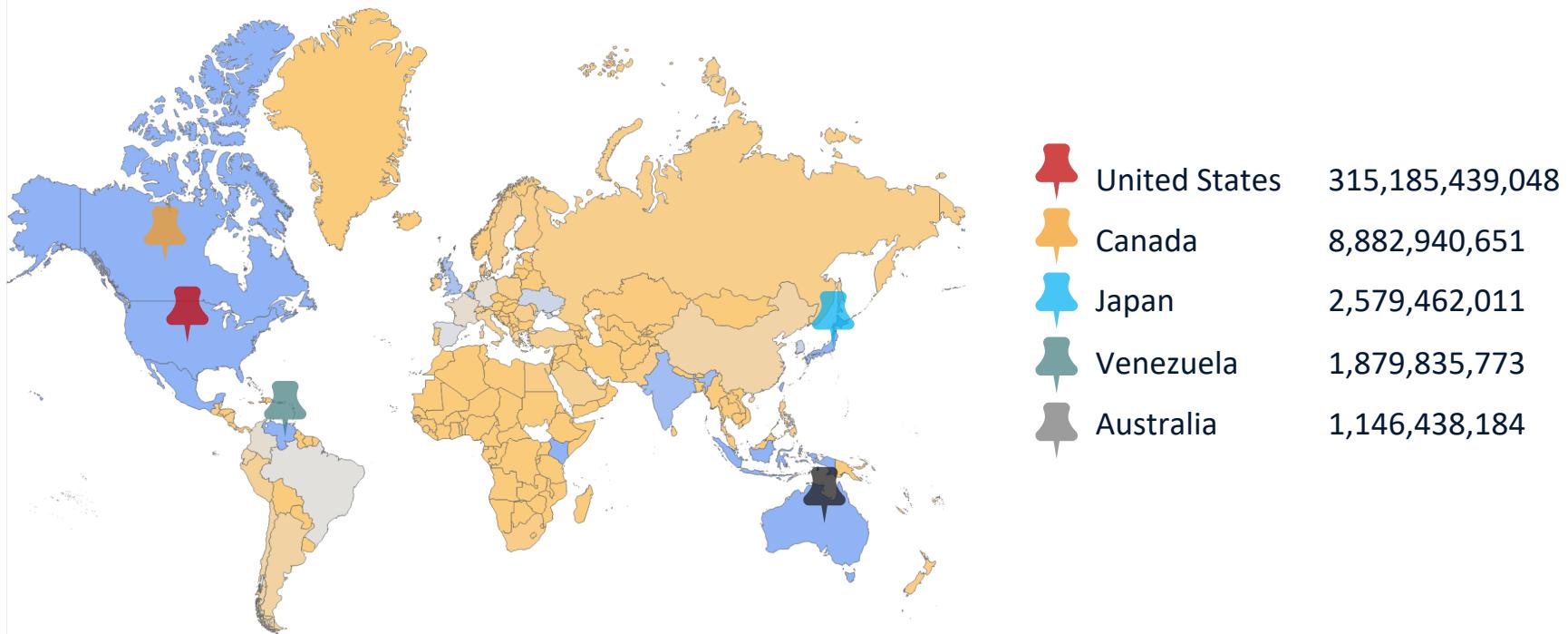


Customers are more likely to purchase
on weekdays instead of weekends

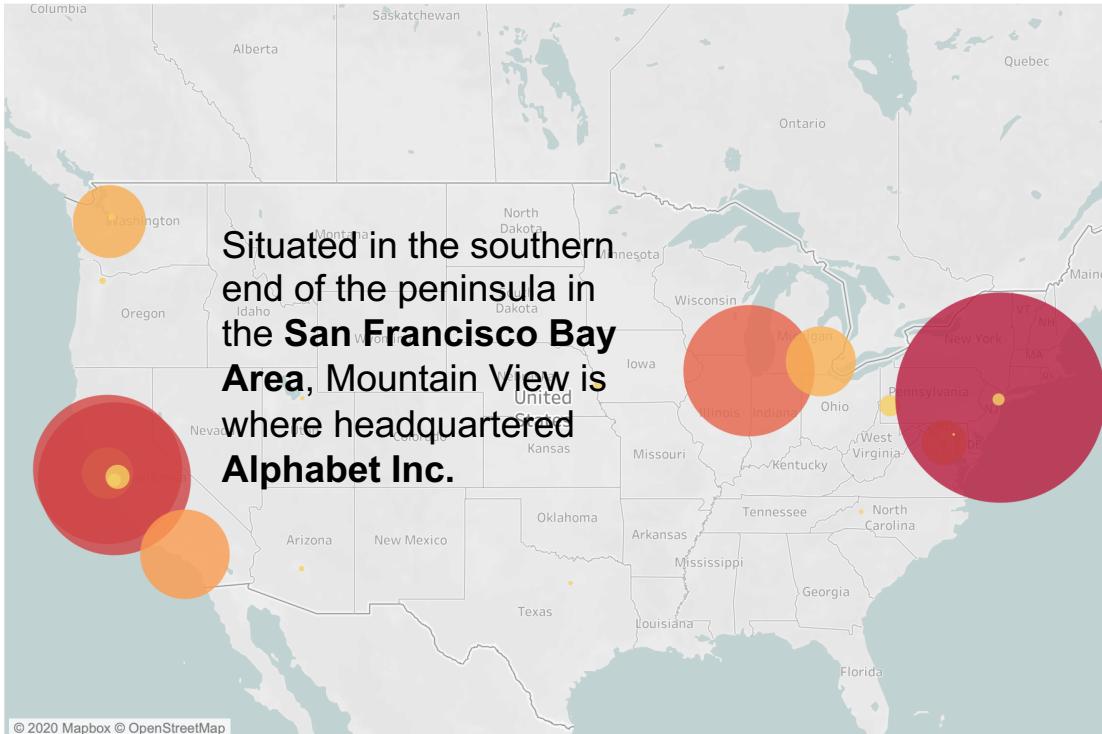


40% of customers purchased in the
way of referral

The U.S. has the highest total revenue



Top 4 cities contribute to 1/3 of total revenue



New York

13.326%
of the total revenue

Mountain View

7.053%
of the total revenue

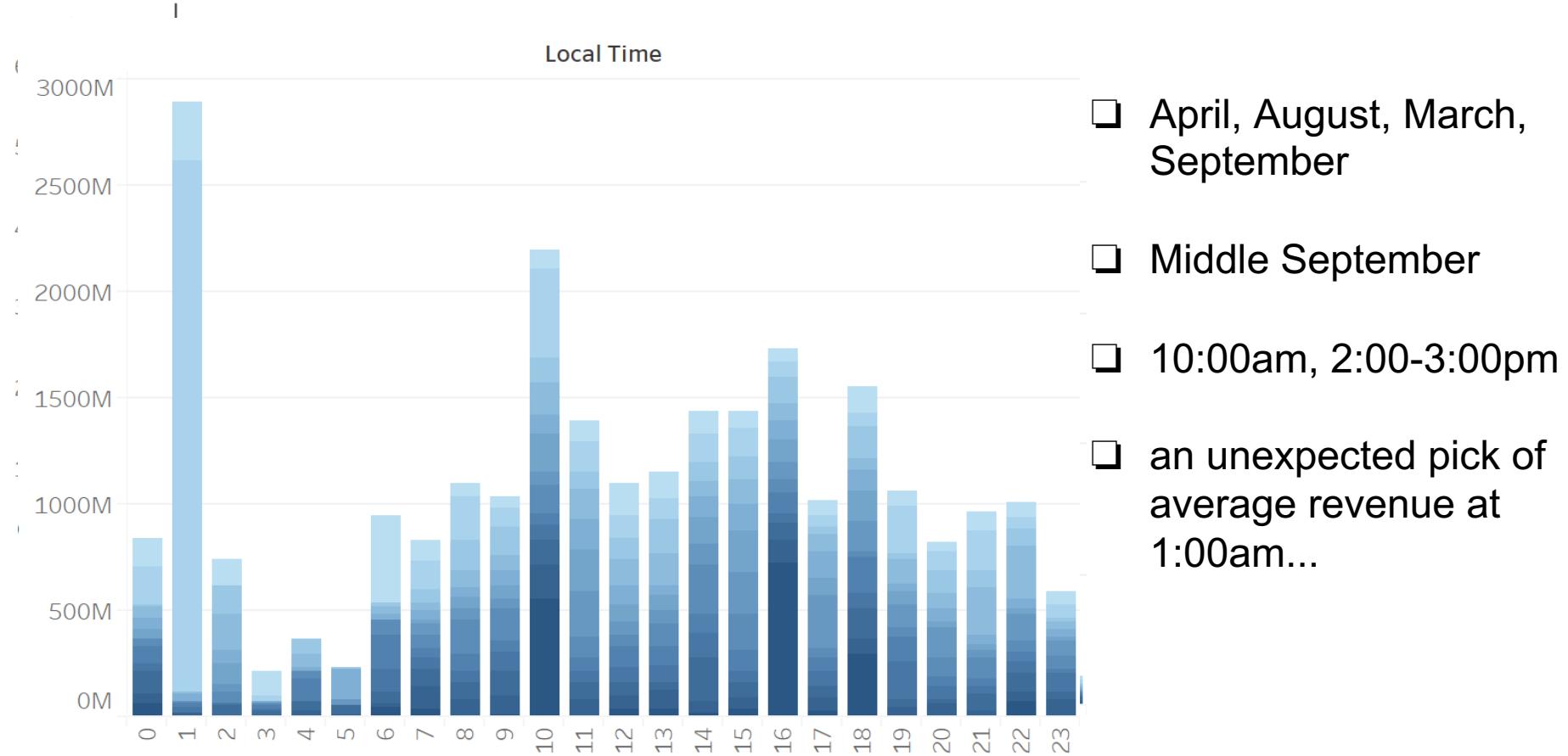
San Francisco

6.708%
of the total revenue

Chicago

5.120%
of the total revenue

Customers prefer specific times



Advertisements encourage purchase



googleplex.com
51.85%



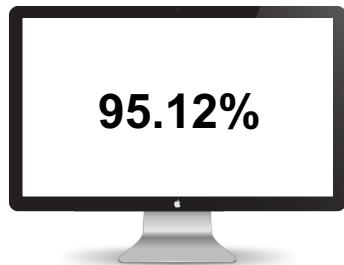
google.com
32.91%



video ad
96.94%

Devices affect Total Revenue

Type



2.77%



7.74%

Browser

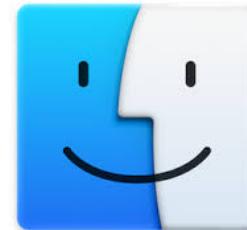


7.03%



1.78%

Operating System



29.75%



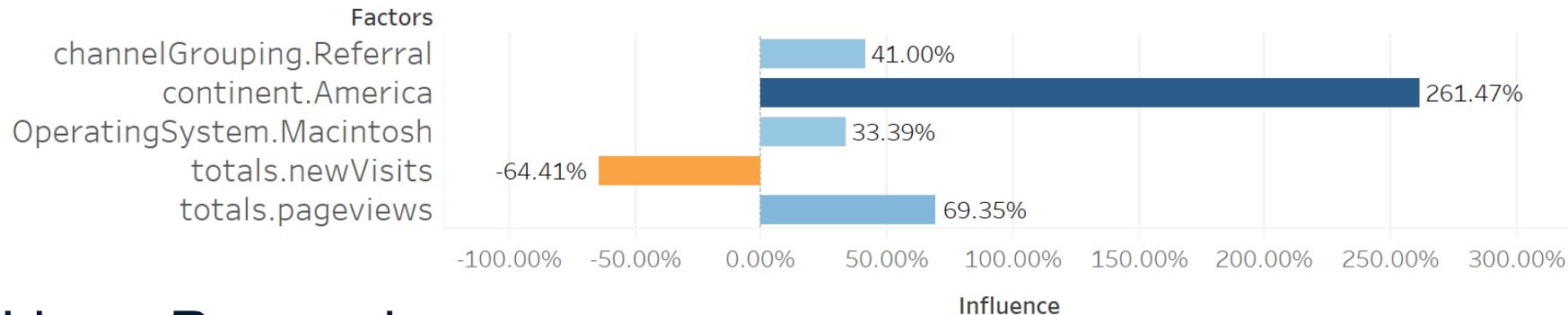
8.58%



page view 24

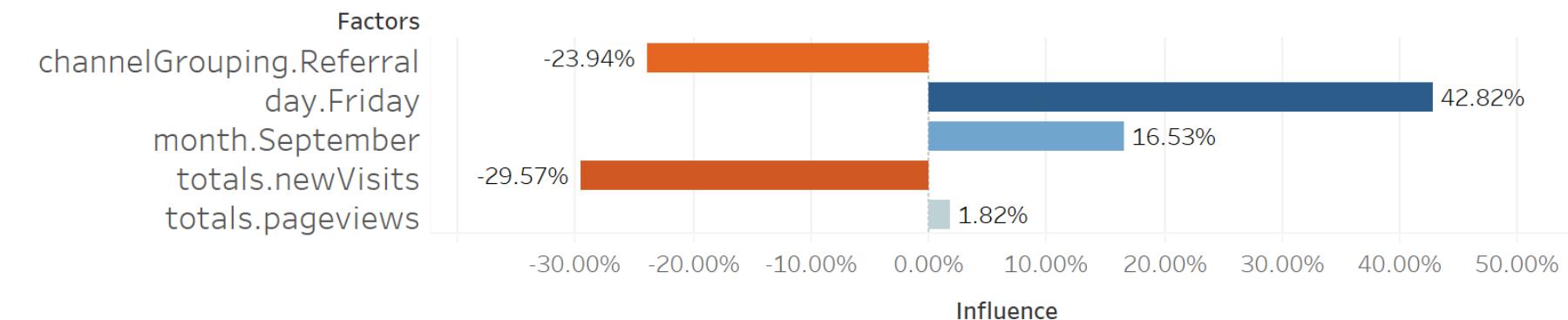
Logistic Regression

Whether to make the purchase or not

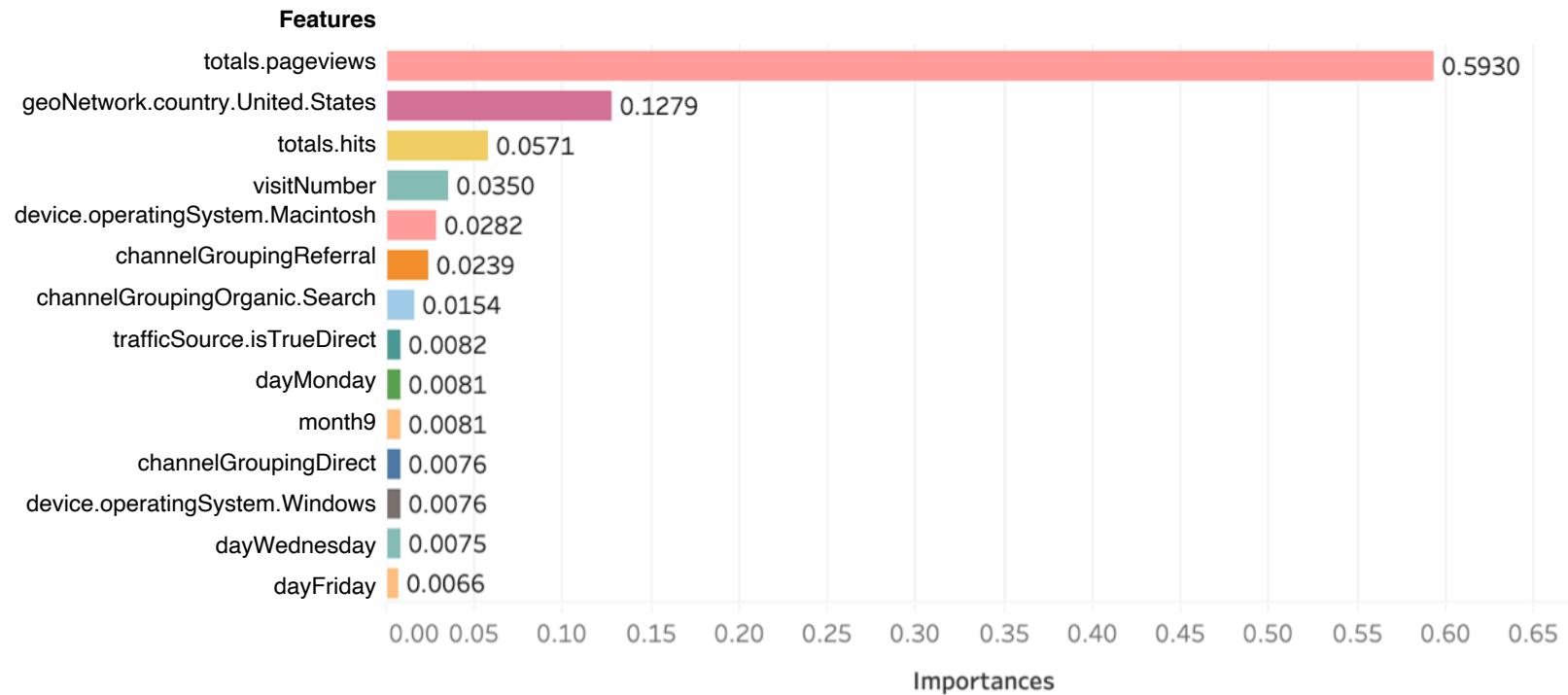


Linear Regression

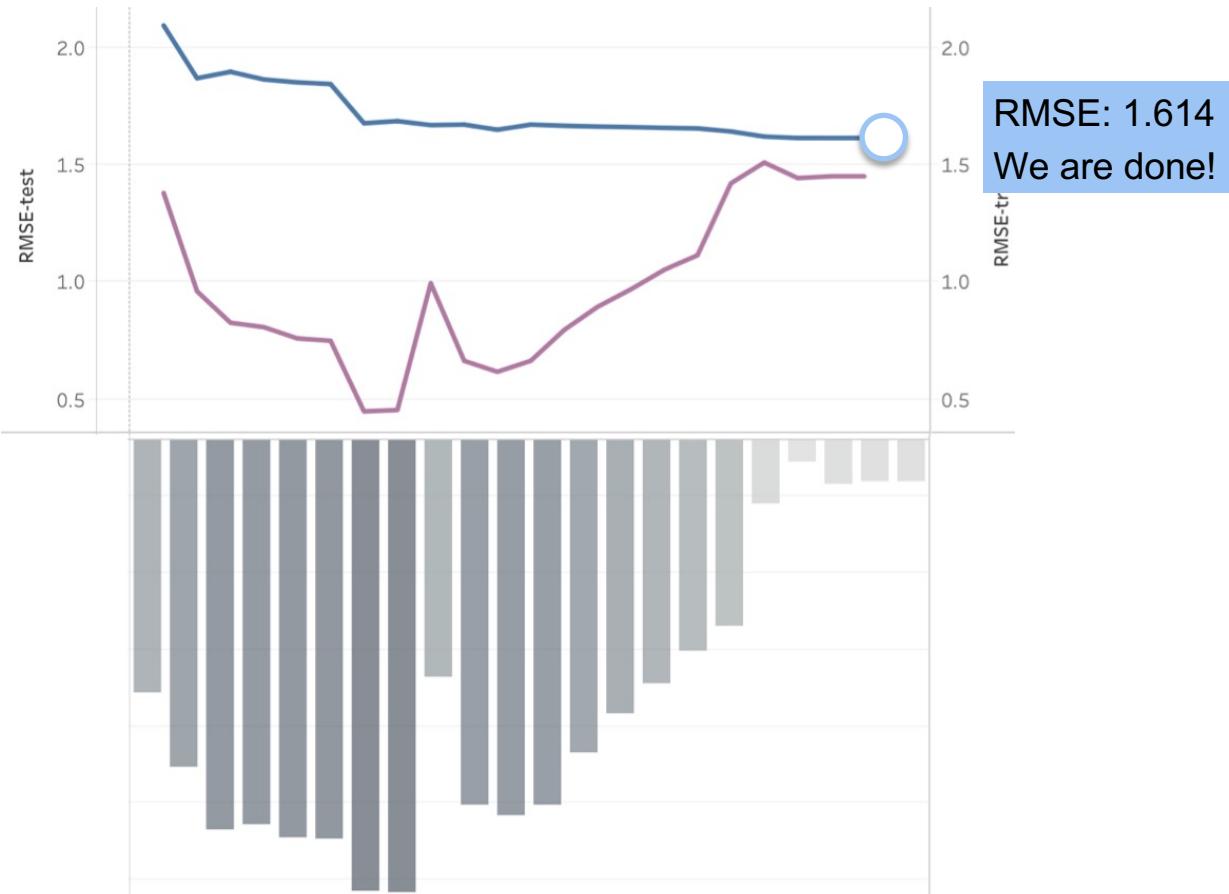
How much do consumer purchase



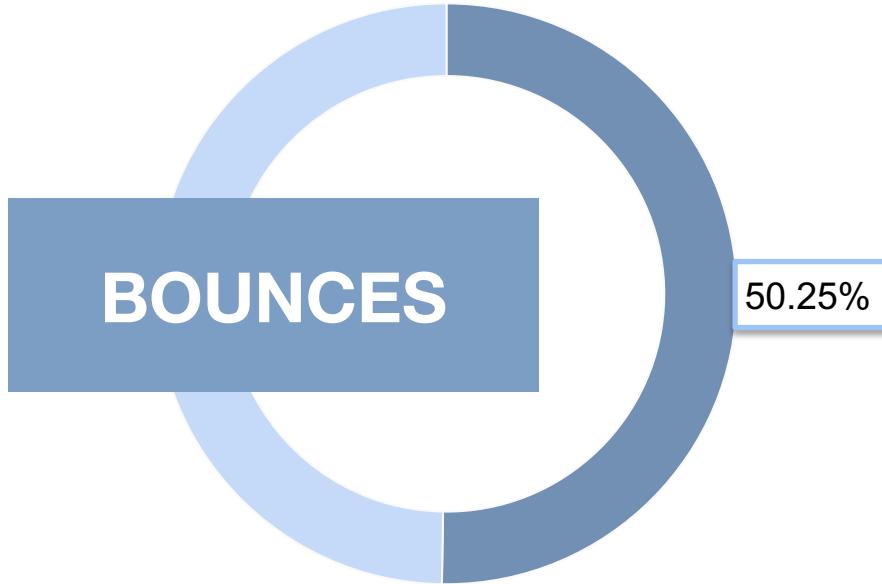
Forecast-feature importance



Forecast-RMSE



What can be improved



How about
Marketing Campaign?

Campaign
Metro - DMA
Ad Content
Video Ad



Thank you!

channelGrouping Social 0.0048 0.05 0.09 0.027 0.11 0.048 0.076 1 0.17 0.0275 0.046 0.018 0.25 0.017 0.011 0.03 0.030 0.03 0.007 0.12 0.07 0.048 0.05 0.030 0.21 0.005 0.015 0.10 0.21 0.06 0.10 0.20 0.005 0.017 0.07 0.061 0.11 0.021 0.02 0.038 0.04 0.046 0.04 0.035 0.0440 0.057 0.01 0.01 0.096 0.012 0.012 0.072 0.13 visitNumber 0.0659 0.035 0.16 0.21 0.49 0.031 0.46 0.17 1 0.01 0.04 0.046 0.028 0.008 0.020 0.025 0.02 0.008 0.76 4.650 0.02 0.051 0.04 0.050 0.04 0.077 0.000 0.030 0.07 0.01 0.050 0.02 0.000 0.002 0.01 0.08 0.07 0.030 0.015 0.07 0.43 0.045 0.47 0.0440 0.048 0.035 0.094 0.015 0.05 0.03 0.44 0.046

ratingSystemAndroid 0048013025 0031314 013-0450 0340 0340-013 1-0048020039 0012 0060 0290 096 00548 208 0014 00480204 078 008022 002-014 1-0078 00098022 014 03450180 011 017 0063 007 016 002 00850179 014 01990 0750 0750 0080000
ratingSystemBlackBerry 009802001004 0080140 002 038 00580004 018 004 1-0035004578-09 042 0022 008 04930058-056 002048 0048 0051002008 0150 00200313 014 00480328 0028 019 0008 0048 0048 0028 0022 0013 00500200408 005 007018 00100000000

operatingSystem	Linux	0.010.007#0.050.000#0.018-0.012	0-0.030#0.020#0.004#0.028#0.012#0.014#0.016#0.000#0.015	1	0.052#0.024#0.020#0.009#0.002#0.005#0.048#0.004#0.008#0.010#0.017#0.035#0.001#0.016#0.012#0.017#0.030#0.020#0.015#0.014#0.015#0.028#0.009#0.011#0.016#0.006#0.015#0.006#0.011#0.012
operatingSystem	Macintosh	0.010.001#0.16#0.012	0.016#0.050#0.026#0.018#0.006#0.013#0.019#0.001#0.040#0.05	1	0.054#0.026#0.030#0.016#0.009#0.007#0.011#0.020#0.025#0.013#0.050#0.020#0.010#0.027#0.04#0.028#0.040#0.030#0.045#0.014#0.042#0.015#0.013#0.023#0.032#0.006#0.013#0.025#0.028#0.034

work.continent.Africa	0.0190	0.058	0.080	0.026	0.130	0.023	0.070	0.0012	0.180	0.022	0.0140	0.012	0.028	0.0059	0.0210	0.010	0.029	0.0052	0.010	0.020	0.0070	0.020	0.020	0.0059	0.0180	0.0094	0.0240	0.0059	0.0031	1	0.0490	0.0490	0.0450	0.010	0.0059	0.030	0.0130	0.0260	0.0180	0.0640	0.0180	0.0160	0.0180	0.0040	0.0049	0.0048
work.continent.Americas	0.0380	0.017	0.31	0.31	0.55	0.18	0.16	0.061	0.68	-0.024	0.140	0.0404	0.22	0.080	0.0014	0.13	0.17	0.44	0.0022	0.08	0.002	0.0070	0.159	0.0098	0.0083	0.19	0.0340	0.14	0.043	-1	-0.16	-0.15	-0.04	0.91	0.7	0.71	0.44	-0.15	0.55	0.02	0.19	0.25	0.59	0.06	0.53	0.37

work continent.Europe	0.0015	0.060	0.040	0.019	0.016	-0.034	0.042	0.002	0.010	0.036	0.015	0.010	0.008	0.059	0.021	0.015	0.055	0.040	0.020	0.041	0.002	0.001	0.048	0.048	0.036	0.076	0.018	0.006	0.058	0.016	0.040	0.010	0.045	-0.15	1	0.04	0.11	-0.05	0.047	0.25	0.031	0.054	0.045	0.020	0.080	0.064	0.006	-0.12			
work continent.Oceania	0.0012	0.020	0.018	0.004	0.053	0.018	0.007	0.020	0.018	0.006	0.018	0.012	0.002	0.001	0.008	0.046	0.023	0.010	0.020	0.040	0.018	0.001	0.006	0.020	0.015	0.018	0.016	0.008	0.050	0.006	0.050	0.040	0.038	0.010	0.040	0.043	0.04	1	0.010	0.050	0.006	0.030	0.018	0.000	0.020	0.016	0.020	0.010	0.040	0.060	0.02

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totals.hits 0.050 0.016021.018 0.042 0.15 0.02-0.049 0.045 0.02 0.006 0.004 0.050 0.038 0.014 0.047 0.14 0.420 0.006 0.038 0.020 0.001 0.050 0.04 0.006 0.001 0.020 0.070 0.010 0.050 0.012 0.012 0.07 0.035 0.050 0.060 0.018 1 0.99 0.05 -0.15 0.041 0.039 0.014 0.019 0.043 0.045 0.041 0.06
totals.pageviews 0.036 0.032022.019 0.045 0.13 0.054-0.044 0.045 0.02 0.070 0.049 0.050 0.038 0.014 0.054 0.15 0.420 0.006 0.038 0.020 0.001 0.050 0.040 0.007 0.001 0.061 0.066 0.016 0.006 0.013 0.073 0.0330 0.042 0.006 0.011 0.099 1 0.16 -0.15 0.043 0.041 0.015 0.02 0.044 0.047 0.042 0.061
```

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totals newVisits 0.003 0.050 0.040 0.050 0.150 0.15 0.17 0.040 0.040 0.01 0.020 0.020 0.04 0.050 0.060 0.01 0.050 0.020 0.030 0.040 0.010 0.10 0.14 0.024 0.040 0.050 0.01 0.15 0.040 0.01 0.013 0.13 0.15 0.15 0.19 0.07 0.01 0.079 0.1 0.013 0.019 0.070 0.035 0.01 0.15

day Friday 0.0110 0.026 0.18 0.17 0.34 0.1 0.042 0.057 0.040 0.068 0.083 0.003 0.120 0.080 0.028 0.087 0.1 0.28 0.064 0.018 0.020 0.060 0.063 0.40 0.000 0.030 0.54 0.12 0.027 0.018 0.036 0.65 0.032 0.048 0.050 0.039 0.59 0.041 0.043 0.034 0.007 0.1 0.19 0.030 0.048 0.29 0.27 0.23 0.17

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day Thursday 0.266509 0.2 0.2 0.38 0.07 0.041 0.12 0.5 0.05 0.058 0.070 0.01 0.10 0.16 0.009 0.008 0.040 0.048 0.054 0.068 0.2 0.29 0.069 0.084 0.08 0.024 0.008 0.05 0.20 0.40 0.009 0.06 0.06 0.09 0.04 0.04 0.010 0.012 0.018 0.019 0.059 0.040 0.040 0.011 0.063 0.043 0.04 0.03 0.07 0.029 0.22 0.02 0.038 1 0.31 0.27 0.16
day Tuesday 0.266505 0.21 0.19 0.35 0.06 0.042 0.12 0.53 0.05 0.058 0.070 0.01 0.10 0.16 0.009 0.008 0.040 0.048 0.054 0.068 0.2 0.29 0.069 0.084 0.08 0.024 0.008 0.05 0.20 0.40 0.009 0.06 0.06 0.09 0.04 0.04 0.010 0.012 0.018 0.019 0.059 0.040 0.040 0.011 0.063 0.045 0.04 0.03 0.07 0.027 0.22 0.01 0.035 1 0.31 0.29 0.18
day Wednesday 0.266505 0.16 0.15 0.35 0.06 0.042 0.12 0.53 0.05 0.058 0.070 0.01 0.10 0.16 0.009 0.008 0.040 0.048 0.054 0.068 0.2 0.29 0.069 0.084 0.08 0.024 0.008 0.05 0.20 0.40 0.009 0.06 0.06 0.09 0.04 0.04 0.010 0.012 0.018 0.019 0.059 0.040 0.040 0.011 0.063 0.045 0.04 0.03 0.07 0.027 0.22 0.01 0.035 1 0.31 0.29 0.18

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