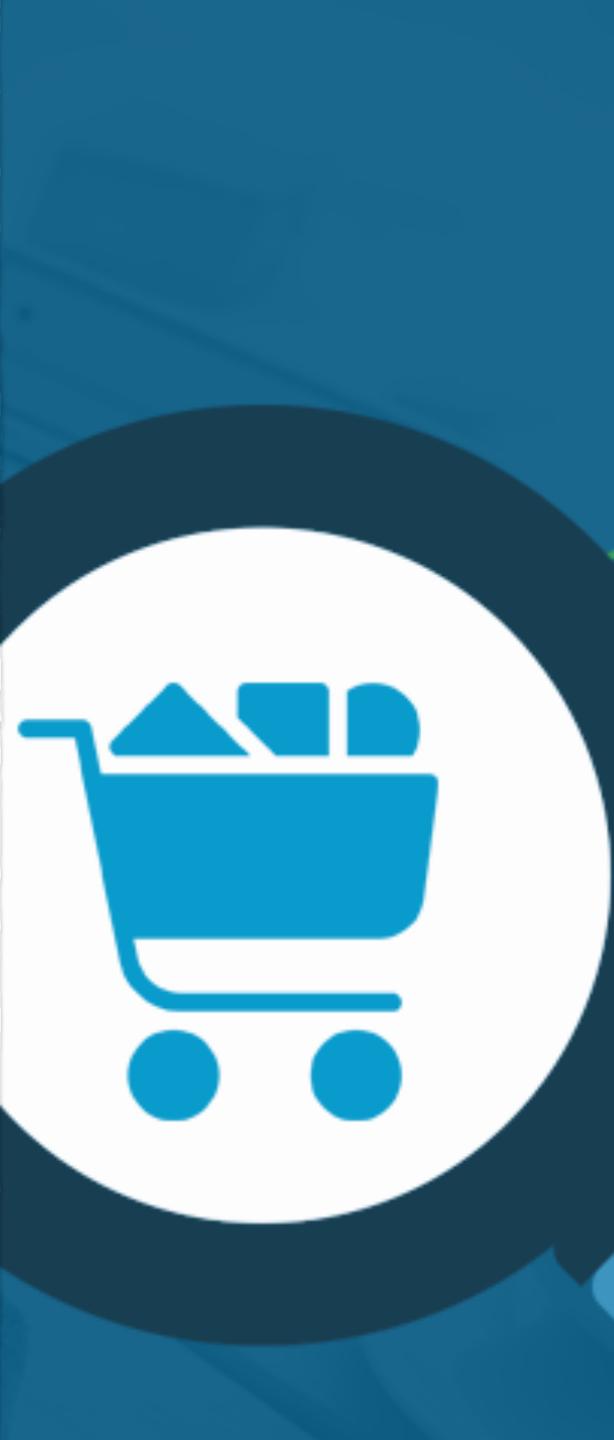


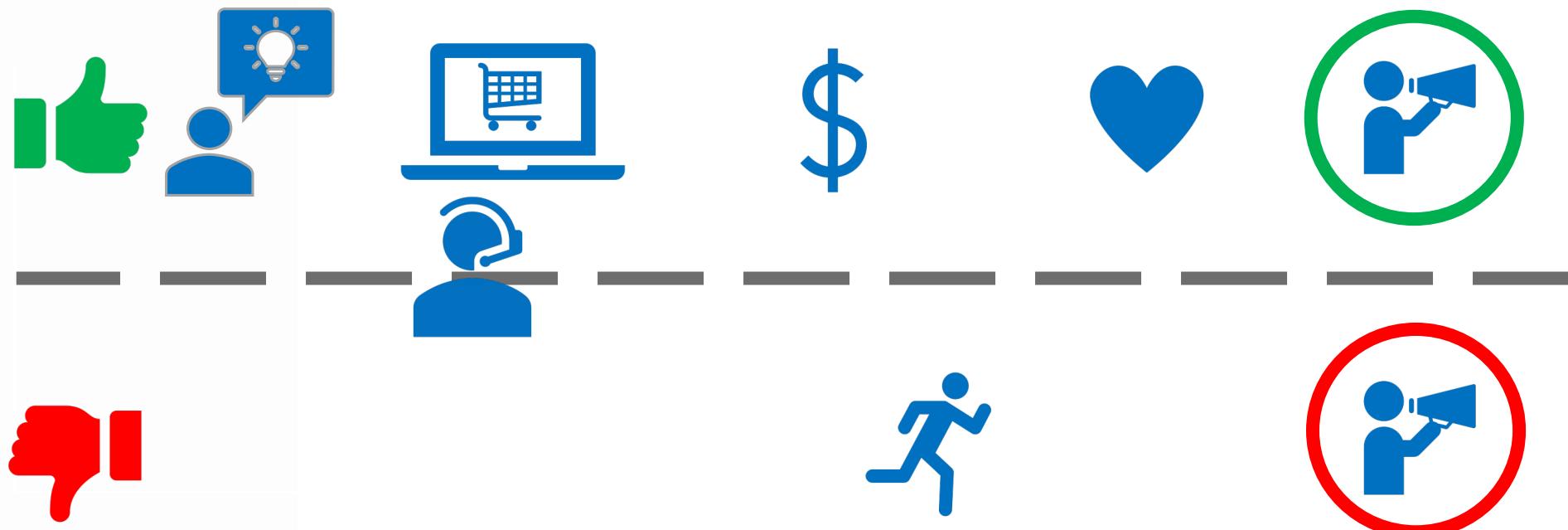


Connecting with Shoppers in the Digital Age

By: Kristen Tokunaga



Customer's Journey



Customer's Journey

- ❖ Ready Web Server
- ❖ Functional Web Pages
- ❖ Relevant & User-Friendly Web Design



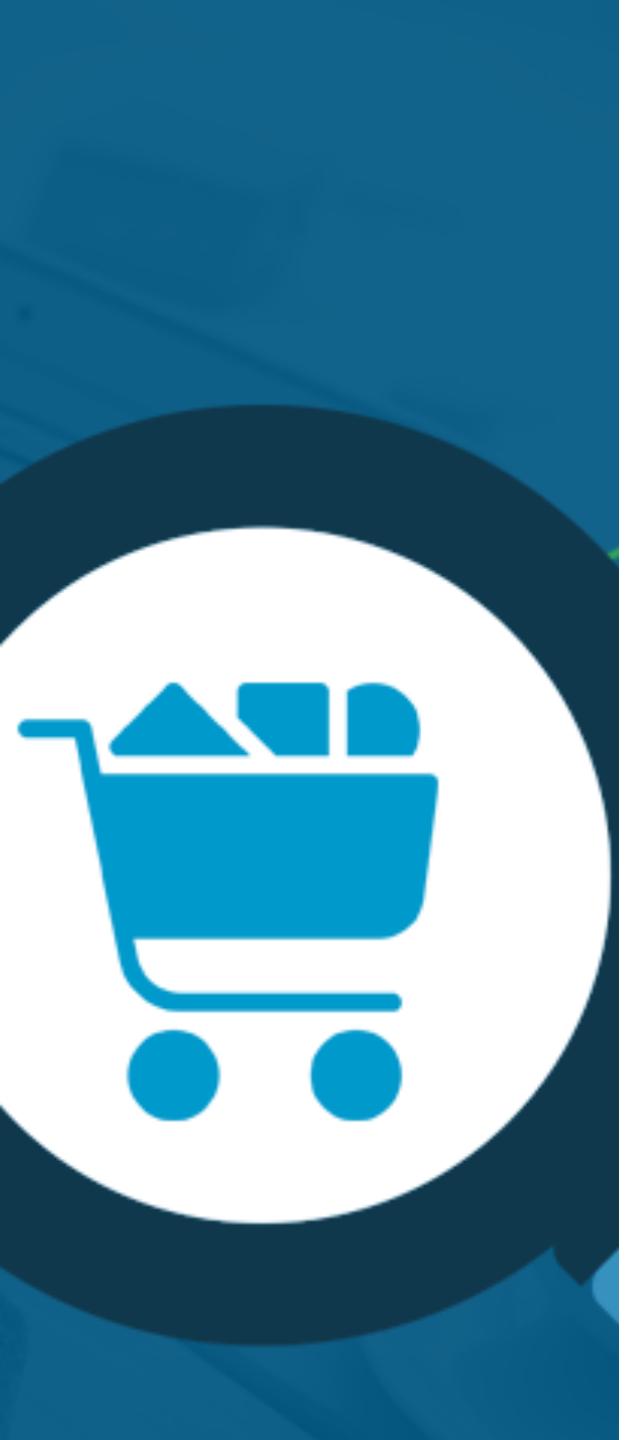
Methods

Data

Source:
UCI “Online
Shoppers Purchasing
Intention” Dataset

Sample Size:
12,330 Sessions

Period:
~11 Months



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pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



seaborn





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Metrics

Predict: Purchase

- Features:
- Time (Month, Weekend, Special Day)
 - Region
 - Operating Systems
 - Browser
 - Traffic Type
 - Visitor Type
 - Page Values
 - Pages Visited/Duration
 - Bounce Rates
 - Exit Rates



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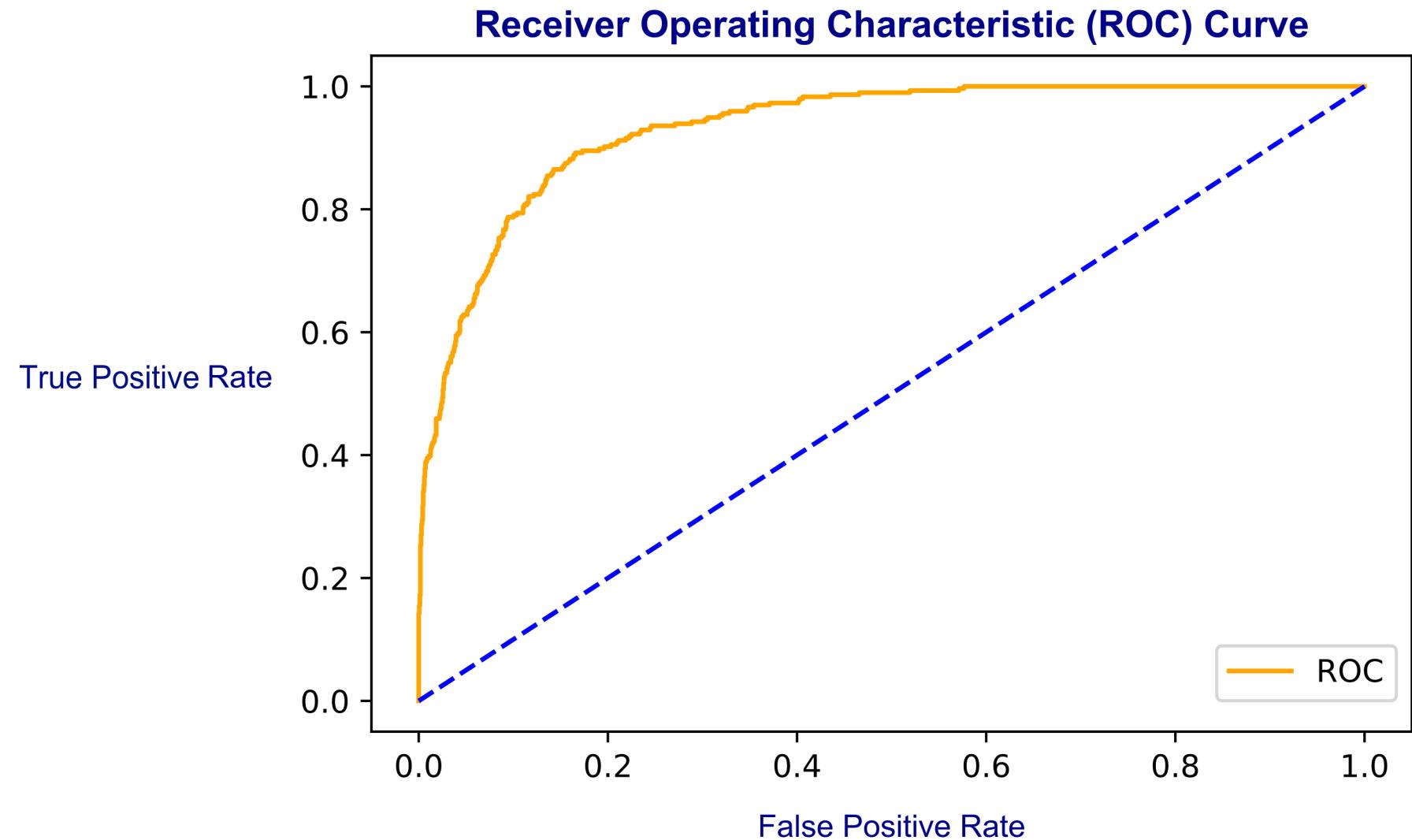
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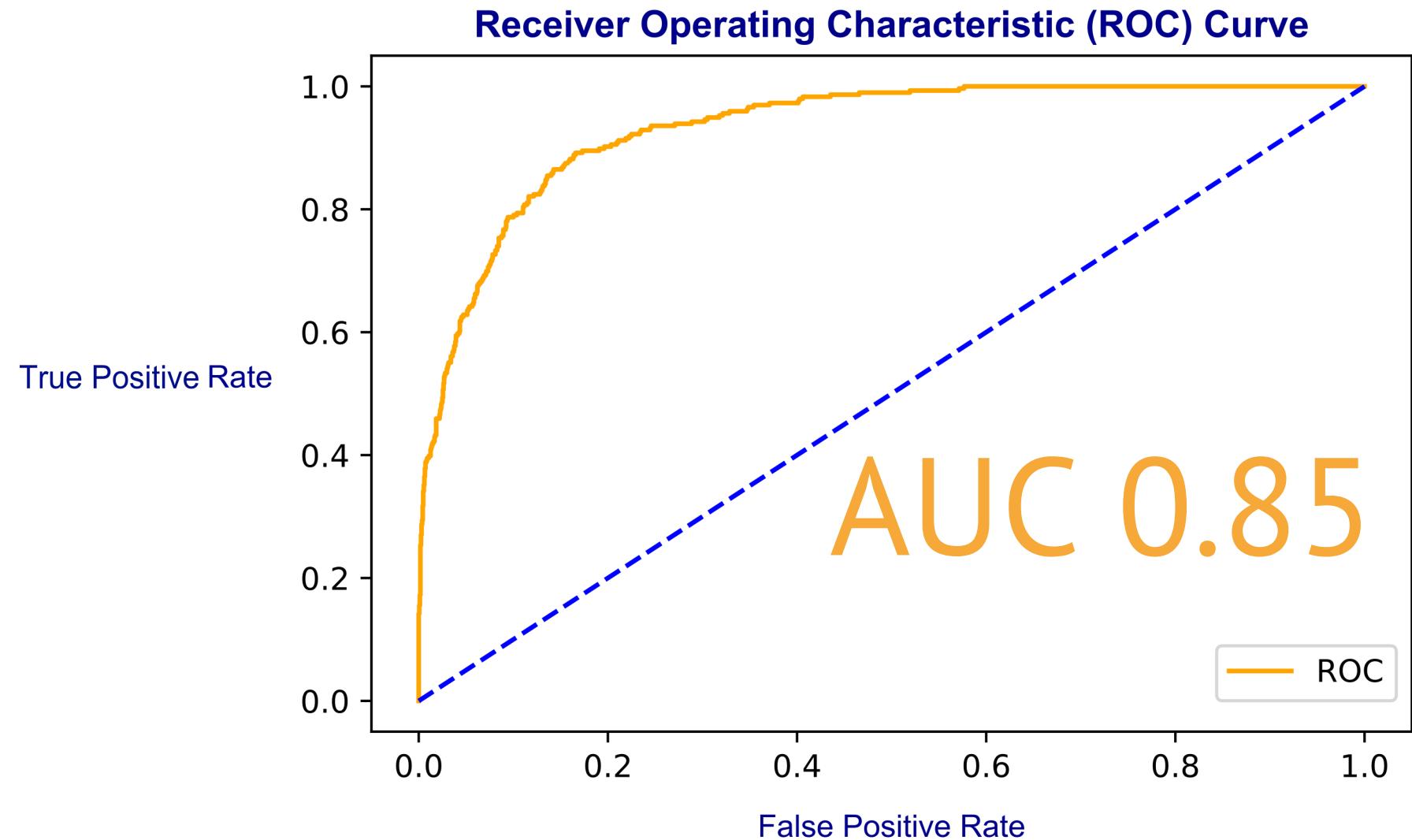
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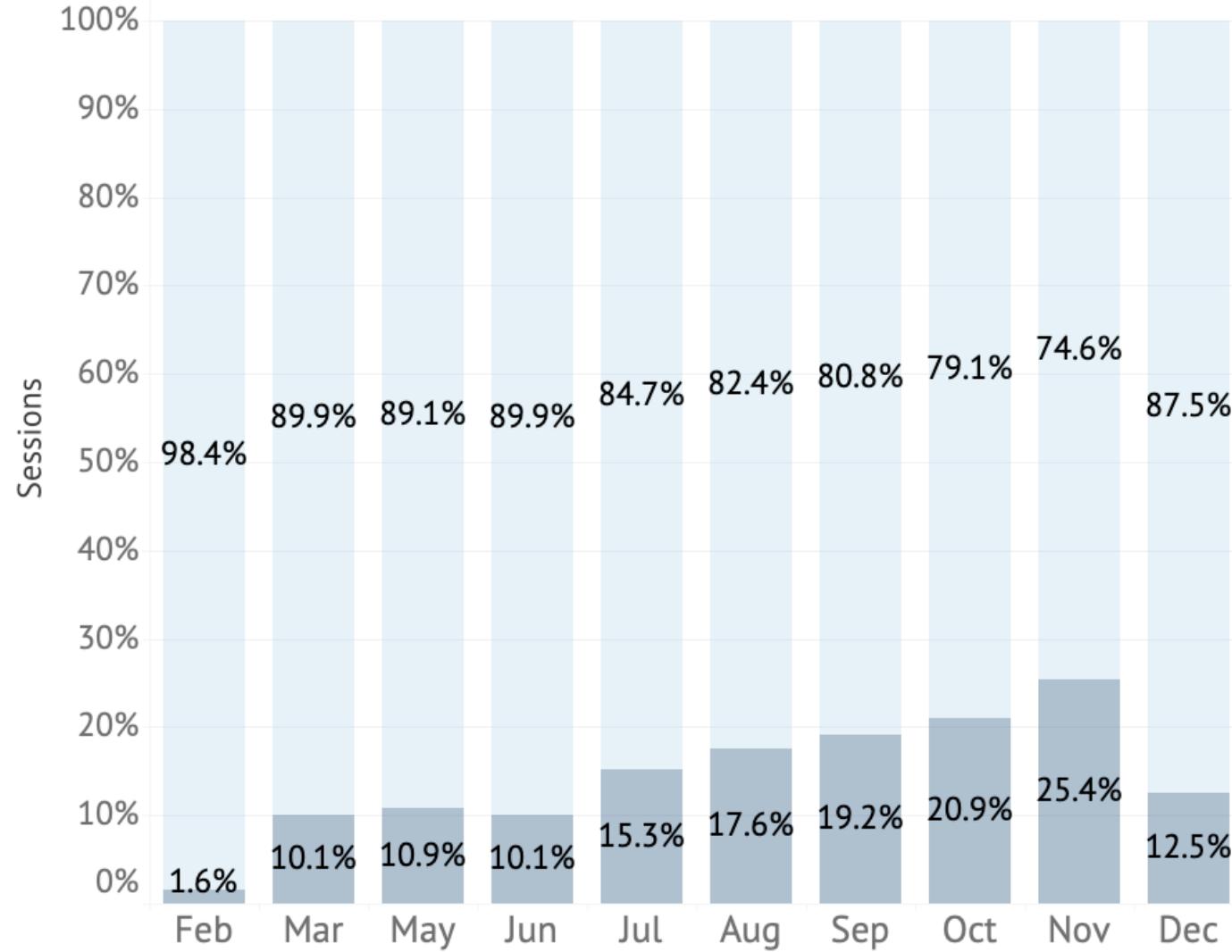
Results



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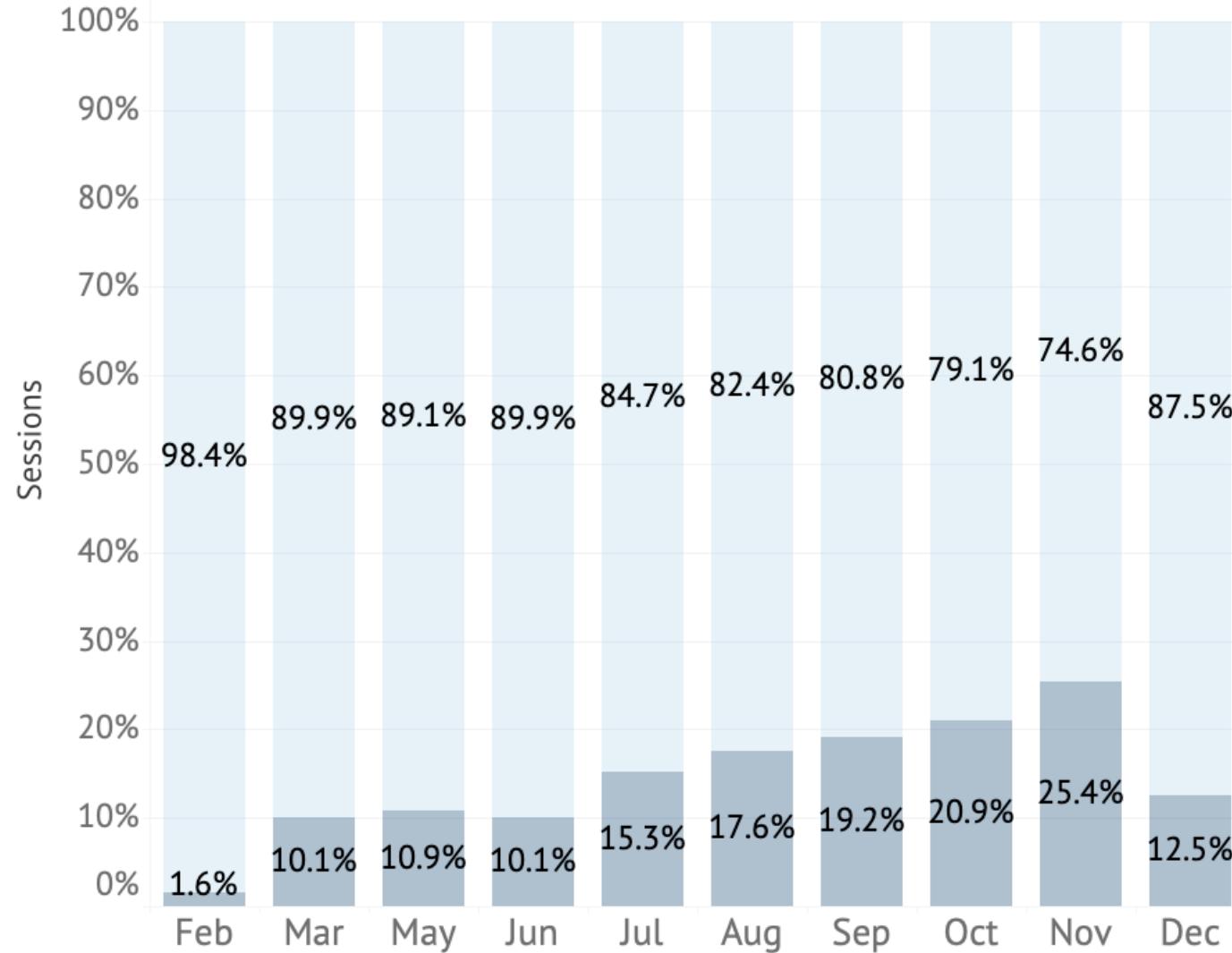


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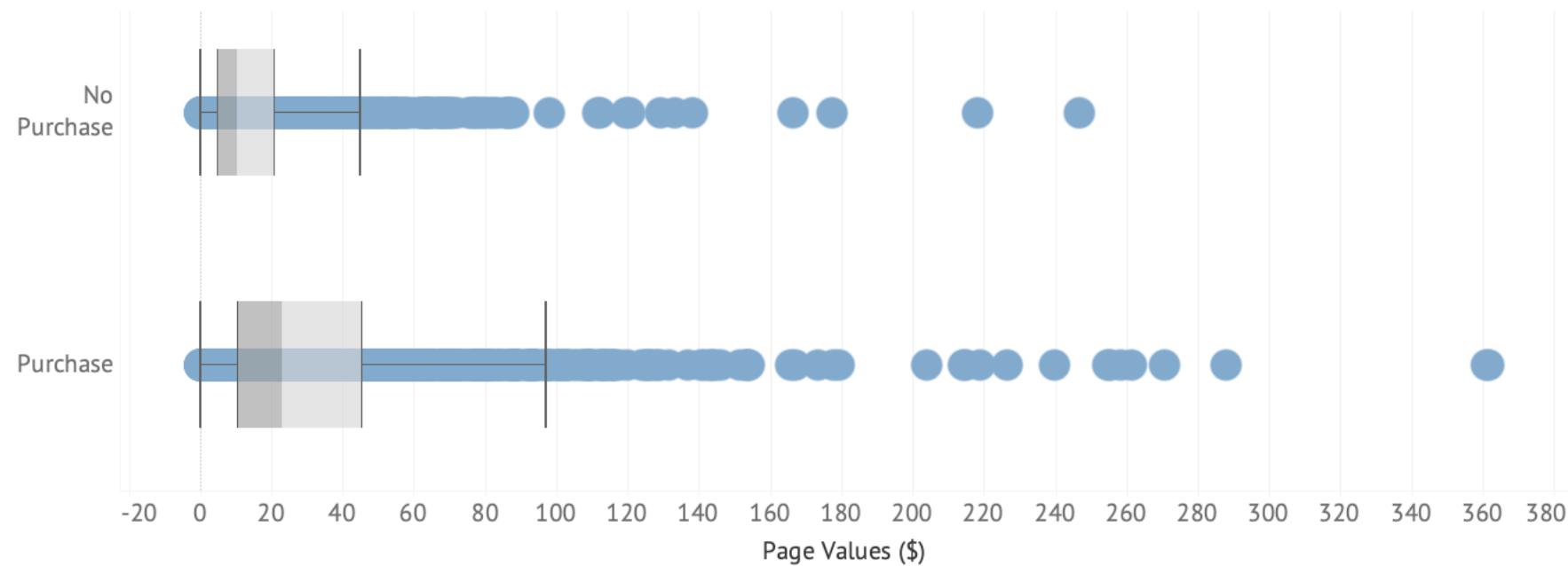
Results

Higher percentage of sessions resulted in purchases in August to November



Results

Sessions that resulted in a purchase included visits to pages with higher Page Values





Results

Dashboard Demo



Recommendations

- ❖ Timing of Visits
 - ❖ Investigate Early-Year Trends
 - ❖ Prepare for November



Recommendations

- ❖ Timing of Visits
 - ❖ Investigate Early-Year Trends
 - ❖ Prepare for November
- ❖ Where Customers Are Coming From
 - ❖ Optimize System Compatibility
 - ❖ Track Sources of Traffic
 - ❖ Monitor Your Target Demographic(s)



Recommendations

- ❖ **Timing of Visits**
 - ❖ Investigate Early-Year Trends
 - ❖ Prepare for November
- ❖ **Where Customers Are Coming From**
 - ❖ Optimize System Compatibility
 - ❖ Track Sources of Traffic
 - ❖ Monitor Your Target Demographic(s)
- ❖ **Where Customers Are Looking**
 - ❖ Direct Customers to High–Value Pages



Future Work

- ❖ Features
 - ❖ Customer Demographics
 - ❖ Page-Level and Product-Specific
 - ❖ Year-Over-Year
 - ❖ Patterns (Website Changes, Sales, Recommenders)
 - ❖ Product Returns



Future Work

- ❖ Features
 - ❖ Customer Demographics
 - ❖ Page-Level and Product-Specific
 - ❖ Year-Over-Year
 - ❖ Patterns (Website Changes, Sales, Recommenders)
 - ❖ Product Returns
- ❖ Real-Time Modeling
 - ❖ Recommender Systems
 - ❖ Sales & Promotions
 - ❖ Site Troubleshooting and Updates
- ❖ Cost-Benefit Analysis

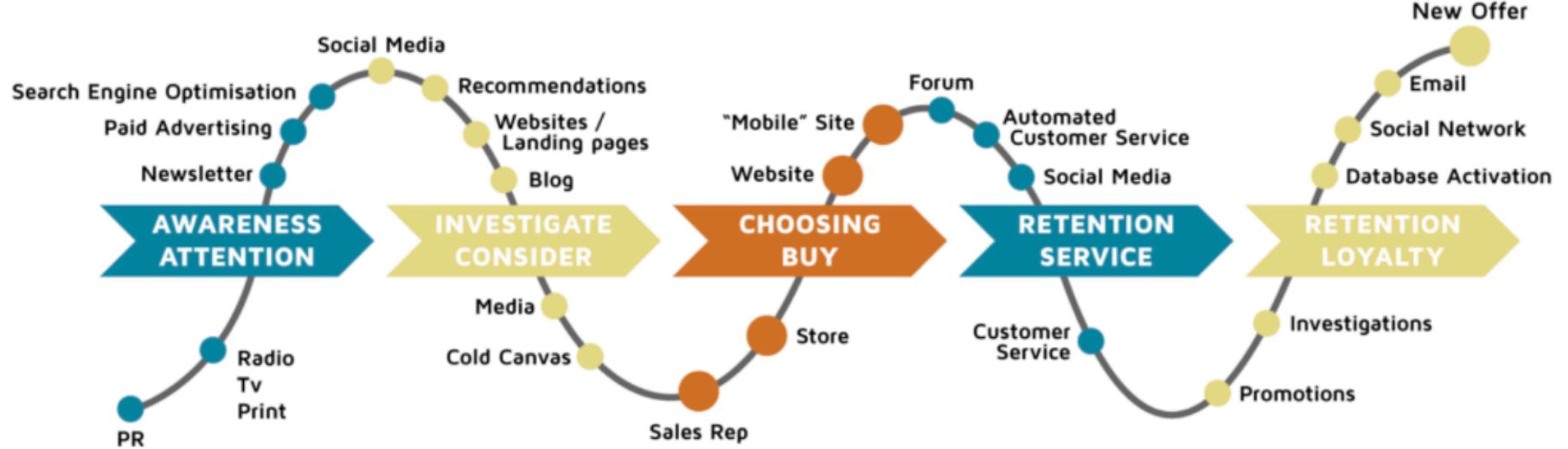


Questions?

Appendix



[DIGITAL TOUCHPOINTS]



[PHYSICAL TOUCHPOINTS]

Appendix

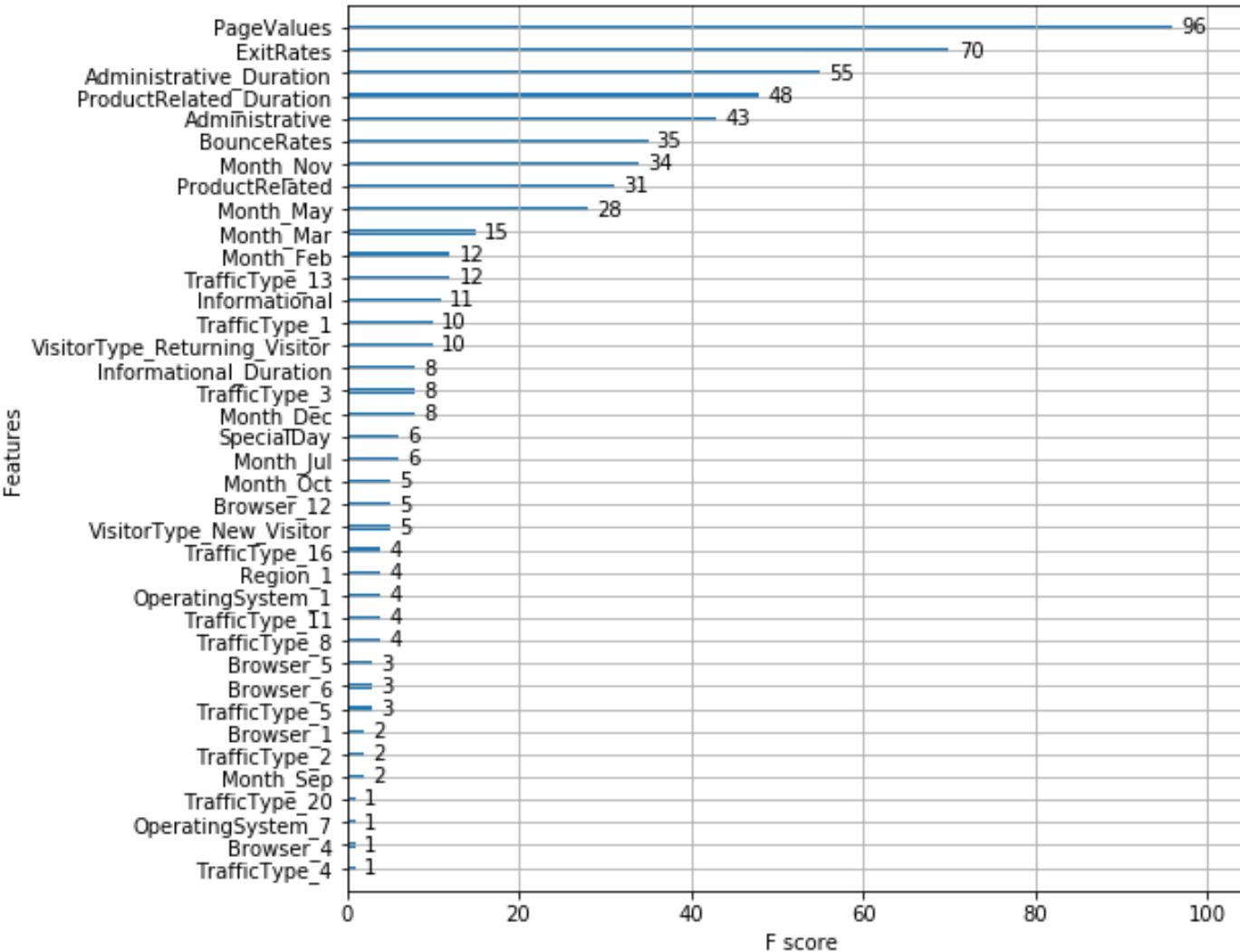
Independent Variable	Type	Description
Administrative	Int	Number of pages visited by the visitor about account management
Administrative Duration	Int	Total amount of time (in seconds) spent by the visitor on account management related pages
Informational	Int	Number of pages visited by the visitor about website, communication, and address information of the shopping site
Informational Duration	Int	Total amount of time (in seconds) spent by the visitor on informational pages
Product Related	Int	Number of pages visited by visitor about product-related pages
Product Related Duration	Int	Total amount of time (in seconds) spent by the visitor on product-related pages

Appendix

Independent Variable	Type	Description
Bounce Rate	Float (%)	<u>Google Analytics Metric:</u> Percentage of visitors who enter the site from that web page and then leave (“bounce”) without triggering any other requests to the analytics server during that session <u>In this dataset:</u> Average bounce rate value of the pages visited by the visitor
Exit Rate	Float (%)	<u>Google Analytics Metric:</u> For all page views to the web page, the percentage that were the last in session <u>In this dataset:</u> Average exit rate value of the pages visited by the visitor
Page Value	Float (\$)	<u>Google Analytics Metric:</u> The average value for a web page that a user visited before completing an e-commerce transaction (or landed on the “goal page”) <u>In this dataset:</u> Average “Page Value” for all of the pages visited by the visitor during the session; updated when the visitor moves to another page <u>Calculated by:</u> $\frac{\text{Ecommerce Revenue} + \text{Total Goal Value}}{\text{Number of Unique Pageviews for Given Page}}$

Appendix

Feature Importances of an XGBoost classification model trained to predict if people will make a purchase.



Appendix

Average Website Maintenance Costs in 2019: Six Different Types of Websites

Your maintenance costs will depend on three primary factors: Hosting costs, tool costs, and personnel costs. We've broken down the average maintenance costs for six different types of websites below:

Appendix

How Much Does an eCommerce Website Cost in 2019?

Traditional eCommerce

	SMALL (SMALL CATALOG, NO CUSTOM PROGRAMMING, OFF-THE-SHELF THEME, LIGHT TRAFFIC)	MID (SMALL CATALOG, LIGHT CUSTOM PROGRAMMING, CUSTOMIZED THEME, MEDIUM TRAFFIC)	CUSTOM (SYSTEMS INTEGRATION, LARGE CATALOG, CUSTOM PROGRAMMING, CUSTOM DESIGN, HIGH TRAFFIC)
Licensing	< \$500	< \$5,000	\$5,000 – \$100,000
Hosting (monthly)	\$350	\$500	\$1,000-\$2,000+
Design	< \$3,000	\$5,000 – \$10,000	\$10,000-\$150,000+
Custom Development	< \$500	\$2,000 – \$5,000	\$10,000 – \$150,000+
Setup/Config	<\$3,000	\$2,000 – \$5,000	\$2,000 – \$10,000+
Training	\$500 – \$1,000	\$500 – \$2,000	\$500 – \$5,000+
Maintenance (monthly)	\$500+	\$1,000 – \$2,000	\$2,000 – \$5,000+
TOTAL SETUP*	<\$11,000	\$15,500 – \$29,000	\$30,500 – \$422,000+
TOTAL ANNUAL*	< \$12,000	\$18,000 – \$30,000	\$36,000 – \$84,000

* Totals do not include other items important to the success of your site such as marketing and content creation, including product descriptions and product photos.

