



Predicting Customer Satisfaction for Rent the Runway

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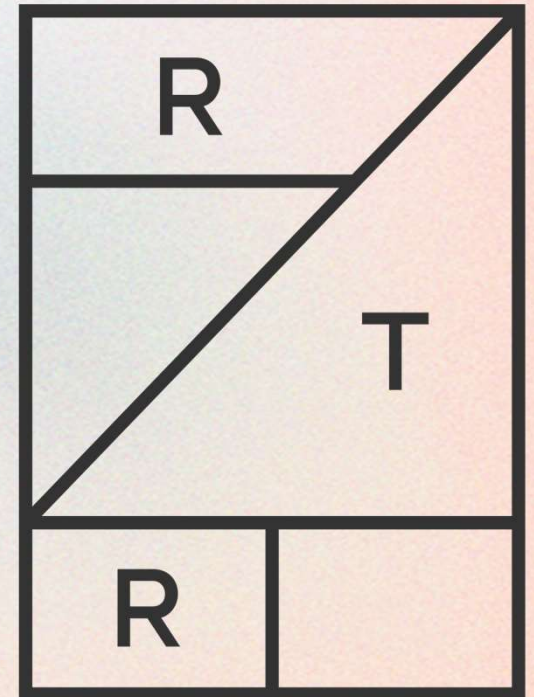
01 BACKGROUND

Rent the Runway is an e-commerce platform that allows users to rent, subscribe, or buy designer apparel and accessories.

It was founded by Jennifer Hyman and Jennifer Fleiss, who launched the company in November 2009.

The membership plans are:

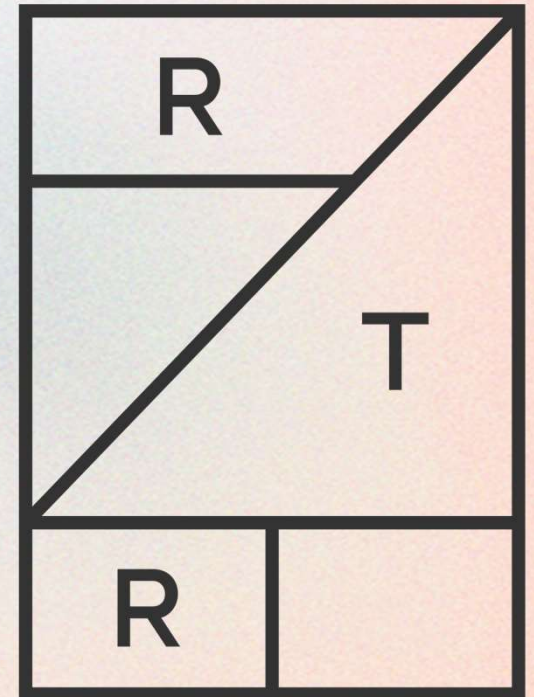
- \$ 94 per month for 4 items
- \$ 144 per month for 8 items
- \$ 235 per month for 16 items



01 BACKGROUND

According to Salesforce Research:

- 33% of Americans say they'll consider switching companies after just a single instance of poor service.
- If the company's customer service is excellent, 78% of consumers will do business with them again after a mistake.



01 PROBLEM STATEMENT

The customer success department at Rent the Runway would like to use existing feedback, together with customer data, to predict which customers have a higher chance of not being satisfied with their rentals, even if they do not leave a review.

Those customers then can be reached out to directly with “Win Back” promotions to ensure repeat service and a chance for a positive rental experience to take place in the future.



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02 DATA COLLECTION



Rixo
Multi Printed Holly Dress
\$277 original retail ?
\$30 – \$36 to rent ?

ZIP CODE
20037

SIZE
M / US 8, Regular

FREE BACKUP SIZE
No Thanks

SIZE & FIT

DELIVERY + RETURN DATES
☒ 4-DAY RENTAL
☐ 8-DAY RENTAL

Add To Bag

Product Details
Multi printed silk (100% Silk). Sheath. Sleeveless. Scoop neckline.
55" from shoulder to hemline. Imported.

The website offers 7,980 different dresses. All the data for the dresses was scraped.

- Brand of the Dress
- Rental Price of the dress
- Retail price of the dress
- Product Details

02 DATA COLLECTION

Kaleigh
TOP CONTRIBUTOR

SIZE WORN: XSR
OVERALL FIT: TRUE TO SIZE
RENTED FOR: WEDDING

USUALLY WEARS: 4
HEIGHT: 5' 8"
AGE: 30
BUST SIZE: 32A
BODY TYPE: STRAIGHT & NARROW
WEIGHT: 122LBS

★★★★★
(5 out of 5 stars)
OCTOBER 28, 2021

90's Gwen Stefani Moment!

Absolutely loved this body con slip dress. I rented simple because it was so fun and wound up wearing to a sunny fall wedding. The bright plaid pattern is so unique and brought lots of compliments. I totally rent this again and pair with sneaks for a casual vibe.

COMMENT



Each item on the website contains a review section where a consumer can describe their experience with that dress.

All the current dress reviews 208,747 were scraped from the website.

- Size of the Rented Garment
- Overall Fit of the Garment
- Rented for What type of Event
- Height of customer
- Age of customer
- Size Usually Worn by Customer
- Bust Size
- Body Type
- Weight of Customer
- The rating (out of 5 stars) the customer left for the dress

02 DATA CLEANING

Clean the mis-entered customer measurements.

Fix typos in the data set.

Example: “sleeves” spelled as : “sleees”, “sleves”, “slevees”, “slevves”

Turn the product details into features:

Example: Blue printed cotton (69% Cotton, 27% Nylon, 4% Spandex). Hourglass. Sleeveless. Square Neckline. 45" from shoulder to hemline. Imported.

Dress Style: Hourglass

Sleeves: Sleeveless

Neckline: Square Neckline

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03 DATA INSIGHTS

Sara is our representative customer.
She is :

36 years old

5'4" and 140 pounds

Size 10

Renting mostly for work and for
everyday wear



03 DATA INSIGHTS

About 40% of the rentals were done for work or everyday and 60% were for special events like weddings or vacations.

More joyous events (weddings, vacations, dates) yield higher number of positive ratings than the everyday events.

03 TARGET FEATURE

Break down of Satisfaction Ratings:



Binarize the Satisfaction Ratings:

Satisfied: 83%

Not satisfied: 17%

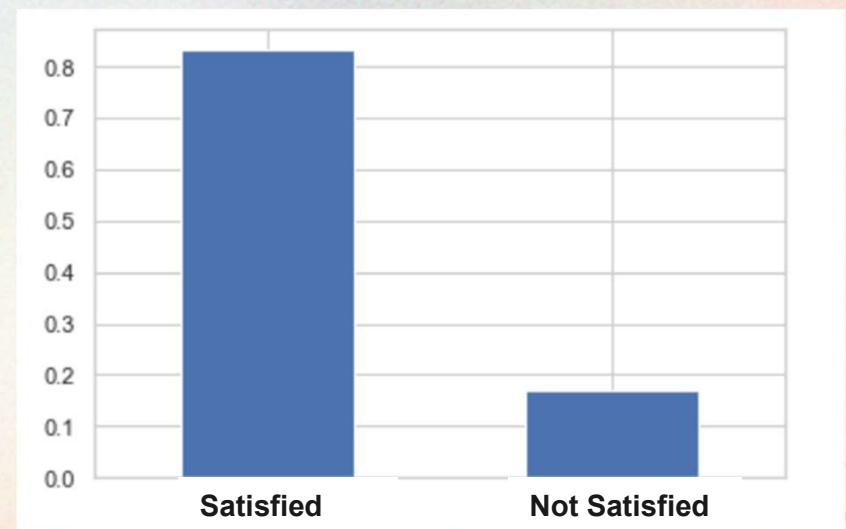


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03 FEATURE SELECTION

Using a Chi Squared test , we selected features that exhibit the most dependence with Customer Satisfaction.

Brand of the Dress

Type of Customer

Rented for event

Dress Style

Weight

Season the dress
was rented

Neckline Style

Age

Number of Reviews

Size of Dress

BMI

Overall Fit

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03 OVERVIEW OF APPROACH

Because we are more interested in people *who are not satisfied with the rental*, we made them our positive class.

1 : Not satisfied with Rental
0 : Satisfied with Rental

Accuracy

The percentage of respondents classified correctly as being satisfied with the rental or not not being satisfied with the rental.

Recall

The percentage of respondents who were not satisfied with the rental who were classified correctly.

AUC

Measure of overall classification performance

Precision

The percentage of respondents were classified as not satisfied with the rental who were not satisfied with the rental.

05 MODELS

Logistic Regression Model

Accuracy: 0.84
AUC: 0.53
Precision: 0.62
Recall: 0.08

XGBoost Model

Accuracy: 0.87
AUC: 0.66
Precision: 0.74
Recall: 0.35

Random Forest Model

Accuracy: 0.87
AUC: 0.66
Precision: 0.73
Recall: 0.35

Neural Network

Accuracy: 0.87
AUC: 0.87
Precision: 0.62
Recall: 0.76

06 CONCLUSIONS

We set out to study existing product reviews to try to anticipate which customers will not be satisfied with their purchase.

We built a model that classifies whether a customer will be happy with a purchase or not with 87% accuracy and is able to find 76% of customers who are not satisfied with the purchase.