



**BUMK746**  
**Team 6**



# What Will Your Next **H&M** Customer Spend?

## **BUSINESS PROBLEM:**

*What is the expected average order value (AOV) of a customer's next purchase, based on their previous product category purchases?*

# Why This Matters for **H&M**



# Our Data: Every Purchase Tells a Story

**10 Million+**

Observations

**Thousands**

of real **H&M**  
customer journeys

**50k sample**

observations  
analysed

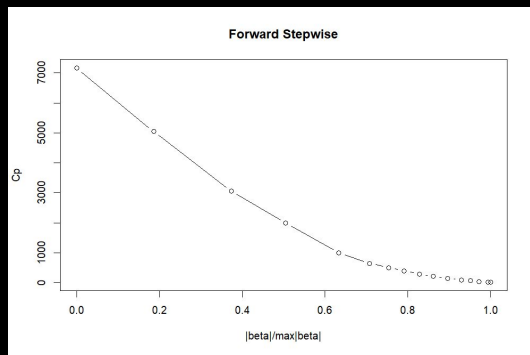
A word cloud of data attributes. The words are arranged in a cluster, with some in red and some in white. The words include: history, frequency, order, next, purchase, membership, customer, values, age, status, customerid, type, garment, journeys, and buy.

history frequency  
order next  
purchase membership  
customer values  
age  
status customerid type  
garment journeys buy

**WHAT DRIVES  
THE MOST SPEND?**

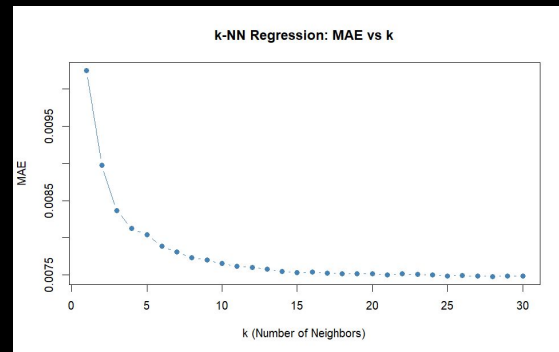
**H&M**

# Modeling Approach



## Forward Stepwise Linear Regression

- **Baseline model** for interpretability
- Simple, parsimonious
- Stepwise selection using Mallows'  $C_p$
- **All 16 features selected**



## k-NN Regression

- Simple, non-parametric benchmark
- **Customer similarity logic**
- Different groups of K were tested
- The optimal k: **28**

**Why this model?**

**Approach & Result**

# Modeling Approach

## Decision Tree Regression

- Interpretable “if-else” rules
- Capture threshold effects
- **Cost-complexity pruning**  
(Mallow’s  $C_p$ )
- Pruned at  $cp = 0.0007$

## Random Forest Regression

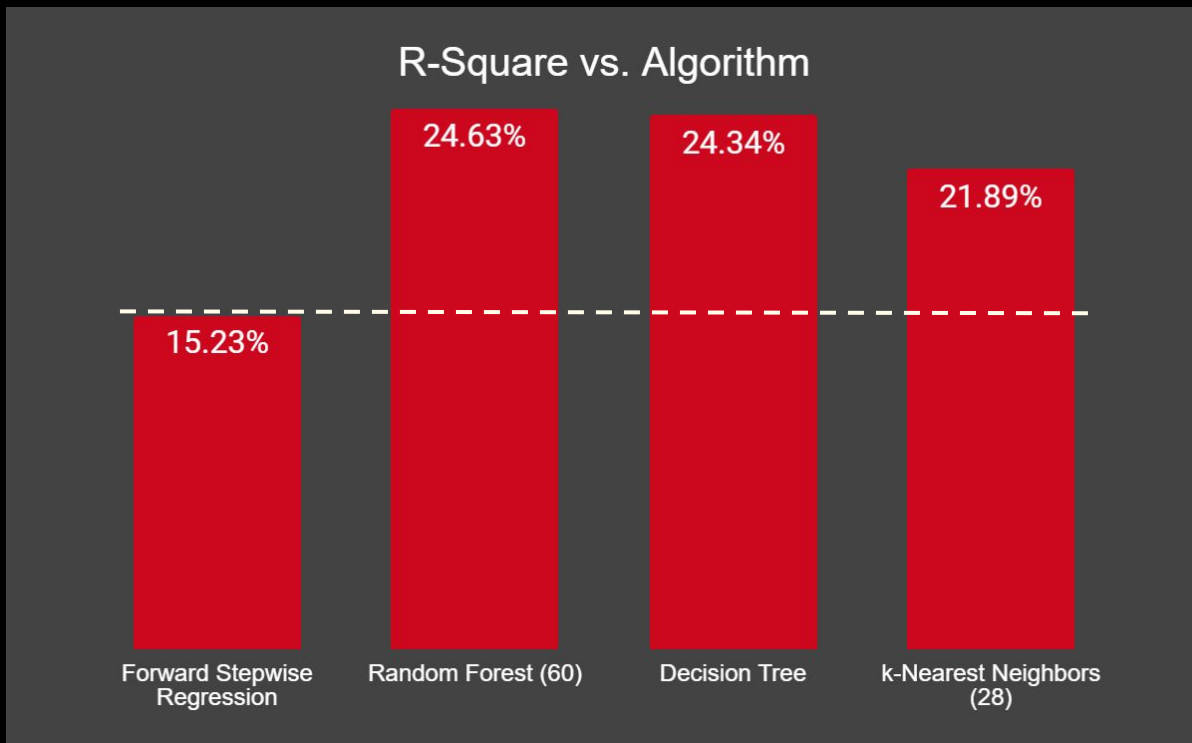
- Capture complex interactions
- Reduce overfitting through  
**ensemble averaging**
- Tested number of trees
- Pruned at best number: 60

Why this model?

Approach & Result

# Model Performance – Who Wins?

Random Forest outperforms regression by nearly 10-percentage points





# Random Forest

- 
- A collage of various clothing items and accessories, including dresses, sweaters, skirts, shoes, and hats, arranged in a grid-like fashion. The items are mostly in neutral tones (black, white, grey, beige) with some colorful floral and abstract patterns. A red 'H.M.' logo is visible in the lower right quadrant.

# How **H&M** Can Use These Insights



# What **H&M** Should Do Next - **Predict** **Personalise** **Prosper**



- Personalize marketing
- Optimize inventory
- Segment customers
- Integrate models
- Monitor & adapt

# A Personal H&M Ai Assistant - Personalised Marketing



**H&M ASSISTANT**

Hi Julia, we noticed you loved our Flowery Spring Collection fits! Your next H&M find is waiting: unlock an exclusive offer on new arrivals we think you'll love our new summer tank tops. [Tap here](#) to see your personalized picks! 🛍️⭐

**THANK YOU**