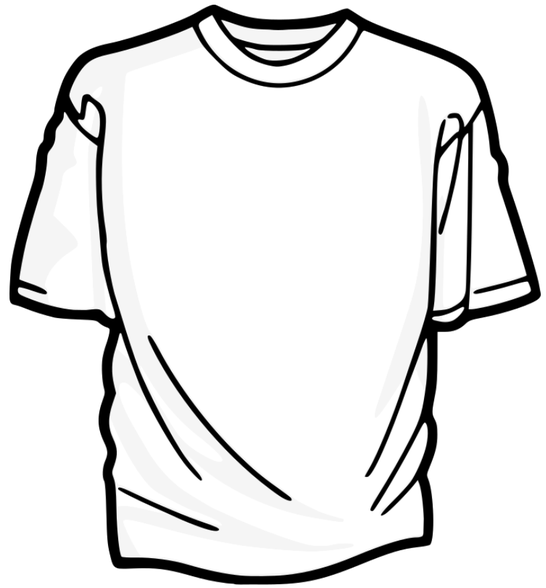

PRODUCT SIZE RECOMMENDATION

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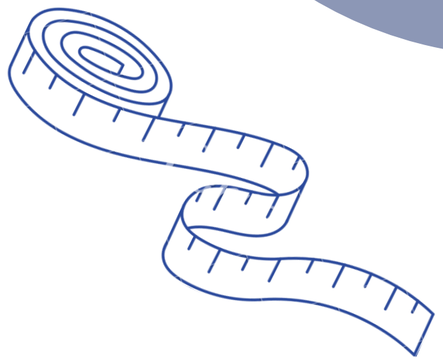
INTRODUCTION & PROBLEM STATEMENT

Problem Statement:
Tackle the problem faced by customers regarding cloth sizes while shopping



- **Main goal:** Help people find their suitable size that fits them
- Model that can predict the size of clothing
- Train model based on collected dataset of body measurements and corresponding clothing sizes
- Various algorithms can be used like logistic regression, random forest, etc. Mainly classifier algorithms
- Use the training set to make predictions on new data
- Evaluate performance on testing set

EXISTING BODY OF WORK

- *Relatively new concept so only a few researches available*
- *One of the method uses common classification problem*
- *Other prediction models include KNN, Random Forest*
- *A recent method learns the latent properties of customers and products using skip-gram models.*
- *A research also suggests using logistic regression to give ordinal categories for improved model fitting*

OUR APPROACH

1

DATA CLEANING

Remove null values or missing values and scale the features using data imputation

2

EXPLORATORY DATA ANALYSIS

Visually understanding the data using different plots. Find correlation between various variables

3

ENCODING

Dealing with categorical data and applying ordinal encoding on ordinal data like 'fit' and one hot encoding on nominal data like 'body type'

4

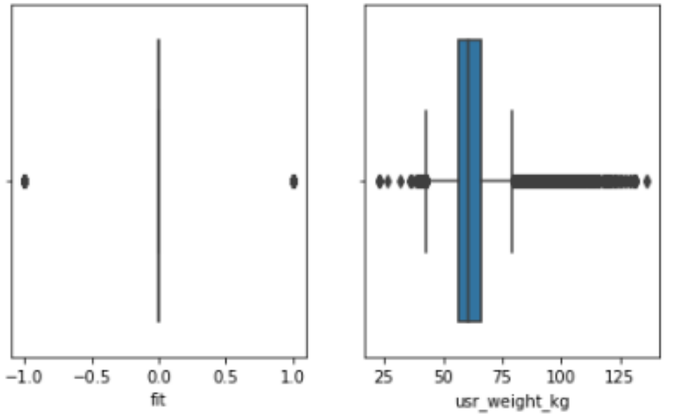
LOGISTIC REGRESSION

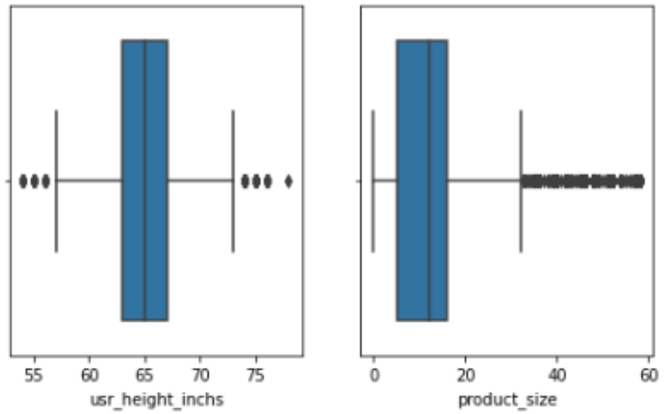
Capture fit semantics and use logistic regression algorith to predict the accuracy of the model

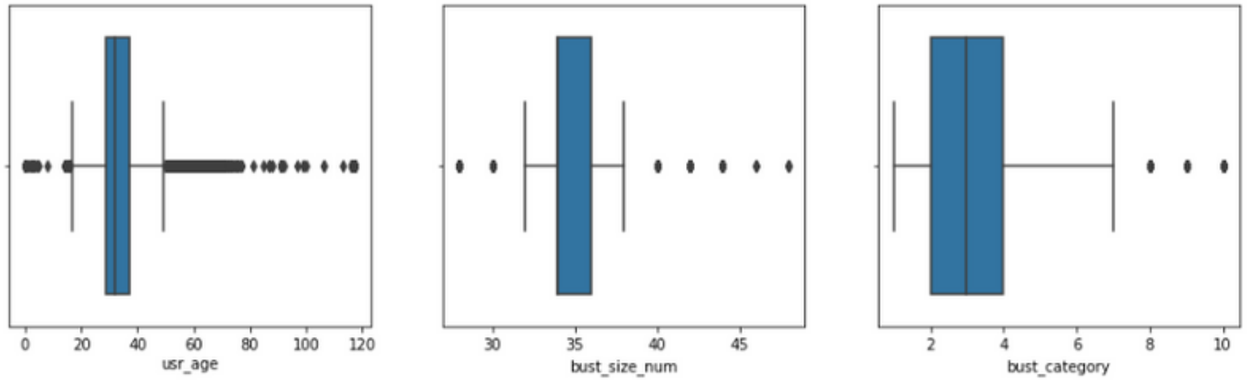
INITIAL RESULTS

```
def draw_boxplots(cols, data, per_line=4):
    n = len(cols)
    per_line = 4
    for i in range(0, n, per_line):
        n_plots = per_line if n - i >= per_line else n % per_line
        fig, axes = plt.subplots(1, n_plots)
        plt.subplots_adjust(wspace=0.2)
        fig.set_figwidth(15)
        fig.set_figheight(4)
        for j in range(n_plots):
            sns.boxplot(data[cols[i + j]], ax=axes[j])
        plt.show()

draw_boxplots(numeric_features, newdf)
```





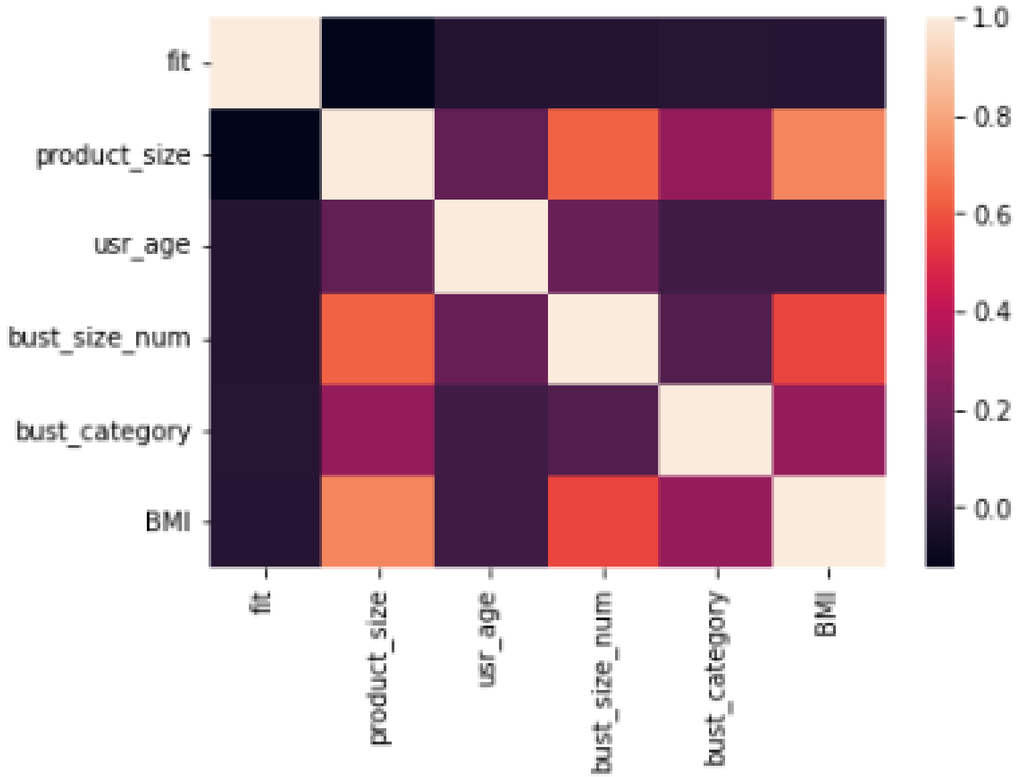


INITIAL RESULTS

```
cleaned_df_scaled = newdf[numeric_features].copy()
cleaned_df_scaled = pd.DataFrame(scale(cleaned_df_scaled), columns=numeric_features)

corr_matrix = cleaned_df_scaled.corr()
sns.heatmap(corr_matrix)
corr_matrix
```

	fit	product_size	usr_age	bust_size_num	bust_category	BMI
fit	1.000000	-0.124194	-0.016582	-0.015816	-0.008531	-0.010379
product_size	-0.124194	1.000000	0.161174	0.627775	0.297101	0.716304
usr_age	-0.016582	0.161174	1.000000	0.177865	0.067199	0.068538
bust_size_num	-0.015816	0.627775	0.177865	1.000000	0.113405	0.563523
bust_category	-0.008531	0.297101	0.067199	0.113405	1.000000	0.295737
BMI	-0.010379	0.716304	0.068538	0.563523	0.295737	1.000000



INITIAL RESULTS

```
# split X and y into training and testing sets
from sklearn.linear_model import LogisticRegression
from sklearn.model_selection import train_test_split

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=16)

logisticRegr = LogisticRegression()
logisticRegr.fit(X_train, y_train)
```

```
predictions = logisticRegr.predict(X_test)
score = logisticRegr.score(X_test, y_test)
print(score*100,"%")
```

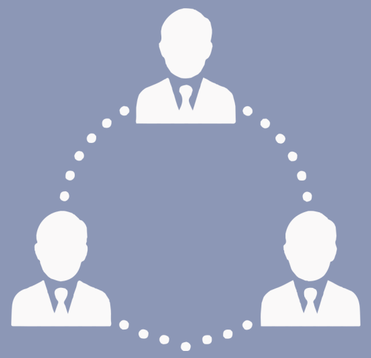
```
68.10769814182784 %
```

Accuracy of the model after applying Logistic Regression came out to be 68%. We aim to improve the accuracy for predicting future dataset

ROLE & FUTURE WORK

CONTRIBUTIONS

Aditi Vasa - Encoding and Report
Shrey Somani - EDA and Report
Vandan Shah - Regression and Presentation
Ronit Shah - Data Cleaning and Presentation



- Further we will implement more algorithms and compare which algorithm better suits the model and predicts the future data set accurately.
- We plan to do further EDA
- Other algorithms include QDA, Random Forest, Ridge Regresion, SVM, KNN etc

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