

Deloitte Survey Analysis

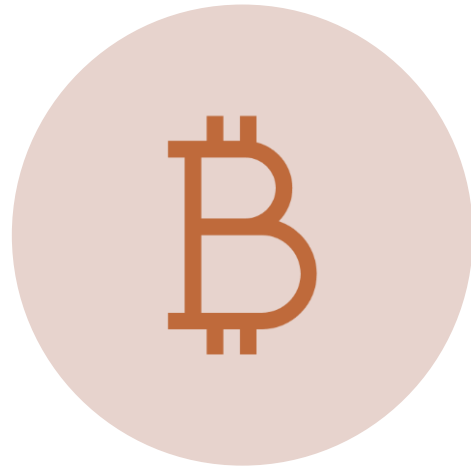
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Problems being solved?

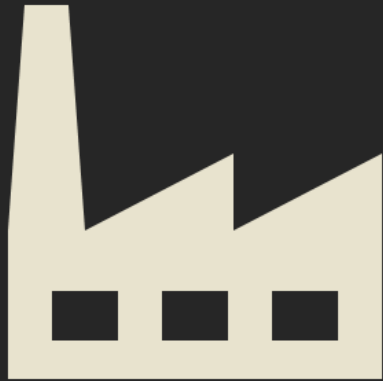


WHAT PRODUCTS AND
SERVICES COULD BE BUNDLED
TOGETHER?



CONSUMER INCLINATION
TOWARDS AD-BASED
STREAMING SERVICES

Beneficiaries



Smartwatch & Fitness
Band Manufacturers



Subscription Service
Providers



Advertising Agencies

Data Preparation



Initial Shape

2000+ rows every year
190+ columns every year



Dropping Additional Columns

Curtailment of excessive columns



Imputation of Null Values

Null values replaced with -9999



Outlier handling

Age greater than 100 and less than 10
Income not disclosed

Exploratory Data Analysis

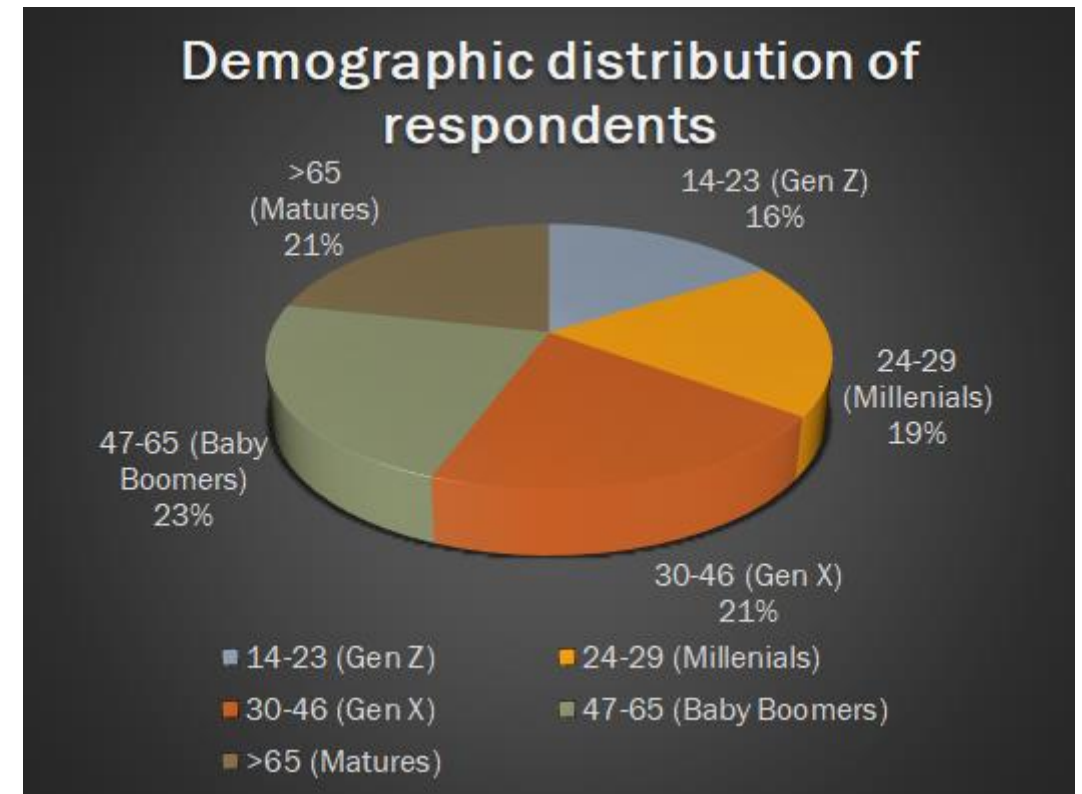
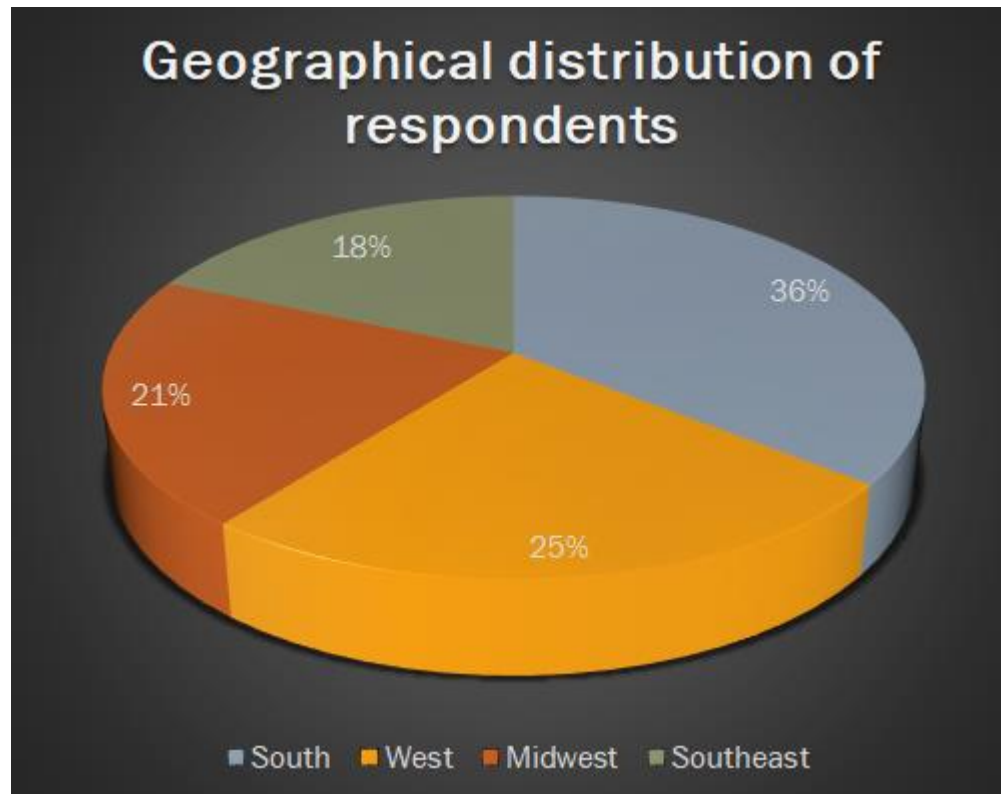


Equal distribution of Male & Female



67% of respondents are either employed or retired

Exploratory Data Analysis



Business Case 1

What products and services
should be bundled together?



Preliminary Steps Taken

1. Renaming of Consumer features columns

i.e. Questions converted to Age , State , Gender

2. Adding default Quantity to all records as 1

3. Converting categorical data (**Yes / No**) to binary values **(1/0)**

index	Age		State	Gender	Ethnicity	Household Income	Children in Household?	Employment status
0	0	31	Illinois	Female	White or Caucasian (Non-	50,000to99,999	Yes	Unemployed

Questions of survey considered



Products currently owned by users



Subscriptions that users currently purchase



Products that users will buy in the future , that they do not currently have

Top 5 products and subscriptions

Top 5 products currently owned

1. Laptop Computer
2. Smartphone
3. Flat panel television
4. Desktop computer
5. Tablet

Top 5 subscriptions currently purchased

1. Home Internet
2. Pay TV
3. Mobile voice
4. Mobile data plan
5. Landline telephone

Determining future products

Steps Taken :

1. Filter the data frame with combination of any product and subscription among the top 5.
1. Determine the future product that these users will buy
1. Rank the future products by frequency and determine the most likely products that will be purchased

Conclusion: Smartwatch and Fitness bands are the most likely products to be purchased in the future.



Gender based bundling

Top 3 products used	
Male	Female
1. Laptop Computers	1. Laptop Computers
2. Smartphone	2. Smartphone
3. Desktop computer	3. Flat panel television

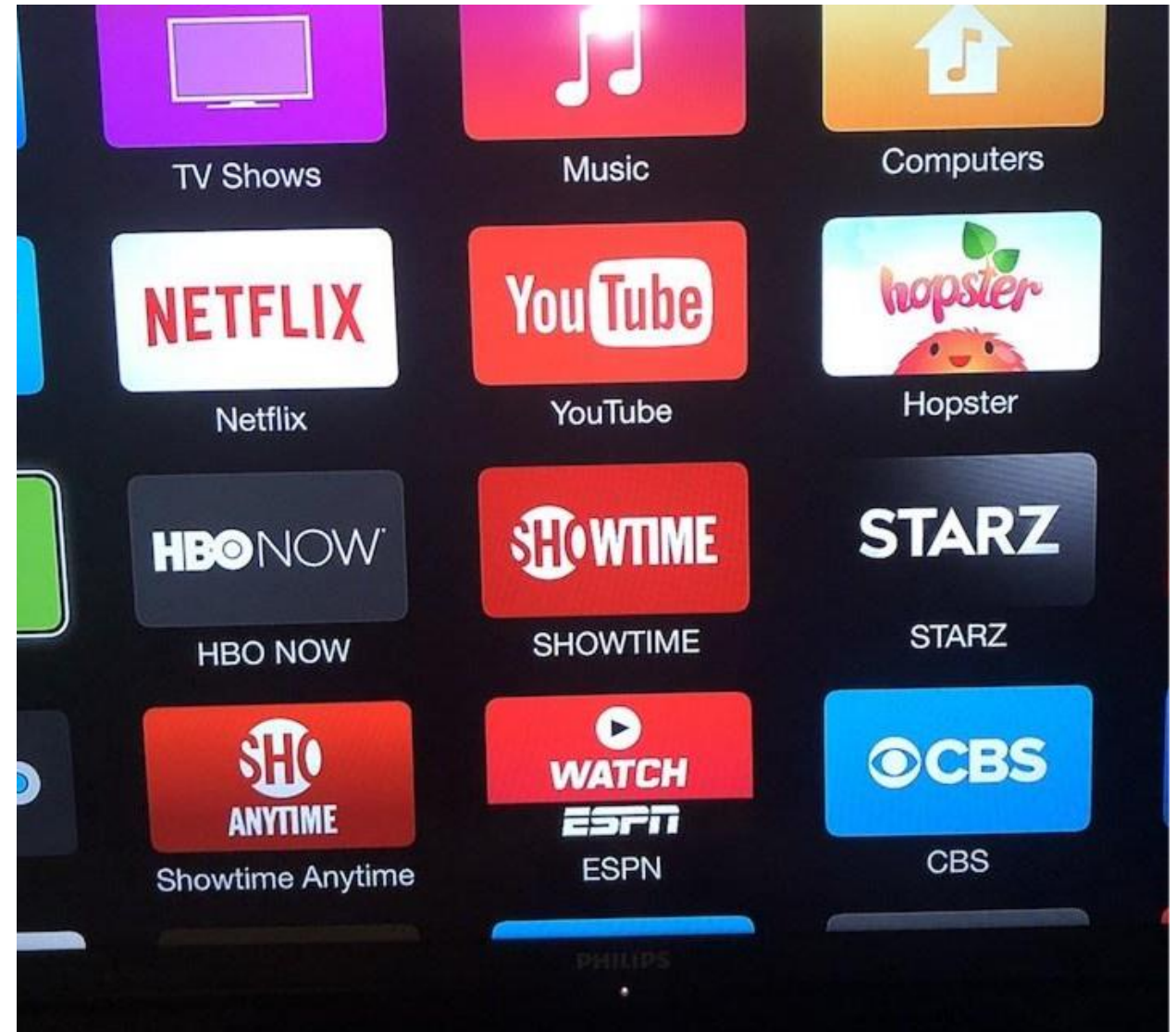
Top 3 subscriptions used	
Male	Female
1. Home Internet	1. Home Internet
2. Pay TV	2. Pay TV
3. Mobile data plan	3. Streaming video service

Conclusion :

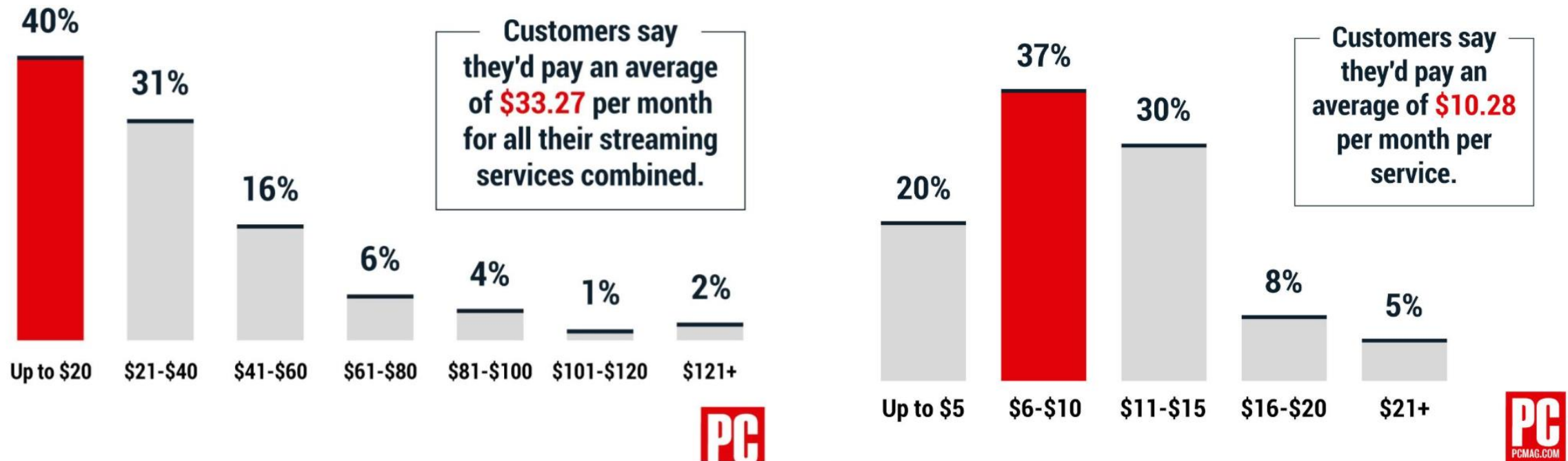
1. For everyone : Laptop Computer / Smartphone with Home Internet / Pay TV
2. Only Male : Desktop Computer with Home Internet / Pay TV / Mobile data plan
3. Only Female : Flat panel television with Home Internet / Pay TV / Streaming video service

Business Case 2

What is the consumer mindset towards ad-supported video streaming services at a lower cost?



Video Streaming Subscribers



More than half US households subscribe to streaming services generating more than 2 billion in subscription revenue

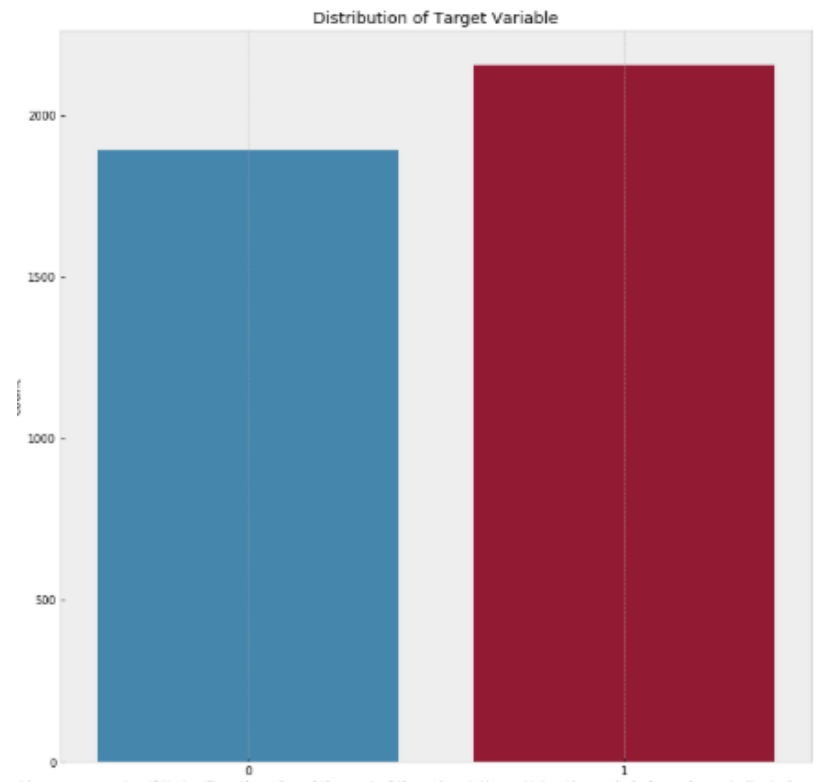
Classification Model

Target Variable

Q39r4 - I would be willing to view advertising with my streaming video programming if it significantly reduced the cost of the subscription.

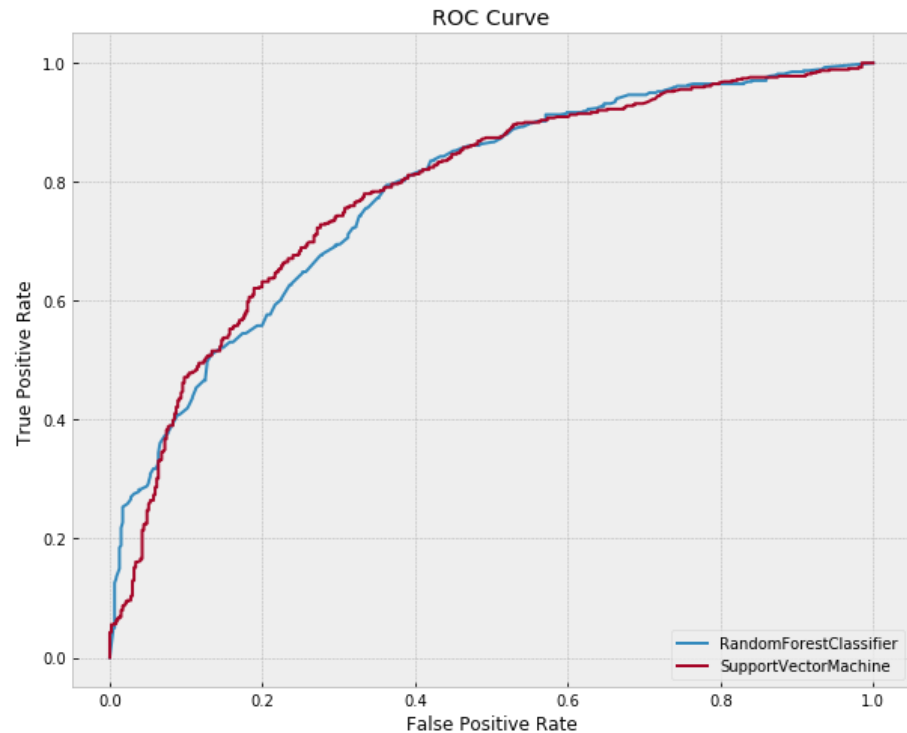
Conversion of rating variables into binary variables (0,1) to get crisp classification

This graph shows distribution of the above target variable



Classification Model

Performance Evaluation Using ROC Curve For Support Vector Machine Model



Feature Variables

1. Customer Detail (Age, Region, Employment, Income, Number of Children)
2. Video Streaming Habits
3. Willingness to pay in exchange of zero ads
4. Willingness to provide more information to get targeted advertising

Model Accuracy: 72.23%

Business Case 3

Hyper Ad Targeting

Can we segment and target customers based on their preferences to view advertisements across different media channels?



Market Segmentation

Feature Variables For Clustering

Willingness to pay for following media channels in exchange of advertising:



News



Sports



Online Games



Music



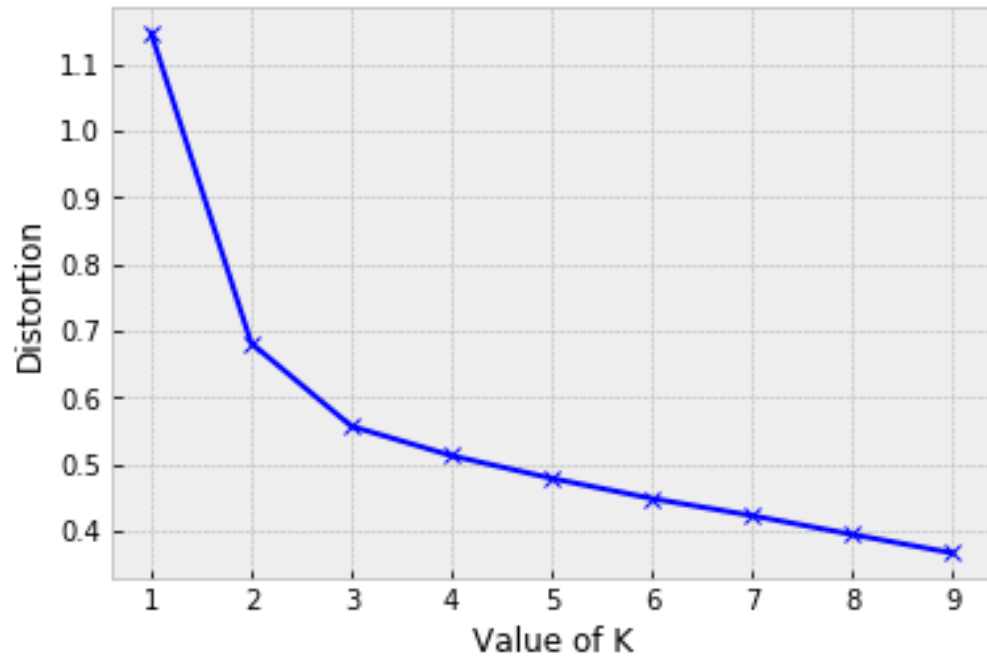
TV Shows



Movies

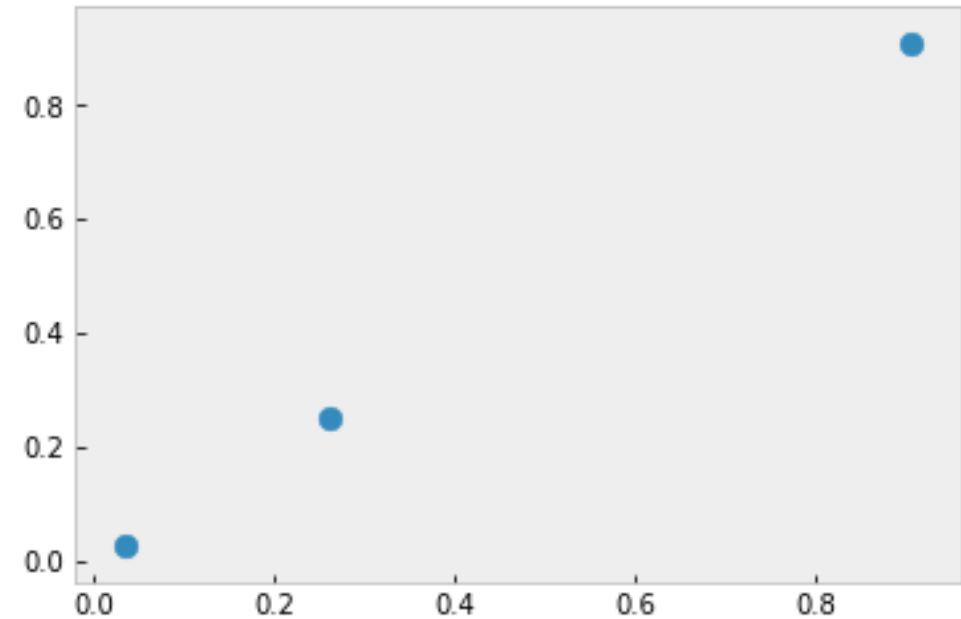
Market Segmentation

The Elbow Method to select the optimal K



Optimal Number of Clusters: 3

Scatter Plot indicating Clusters

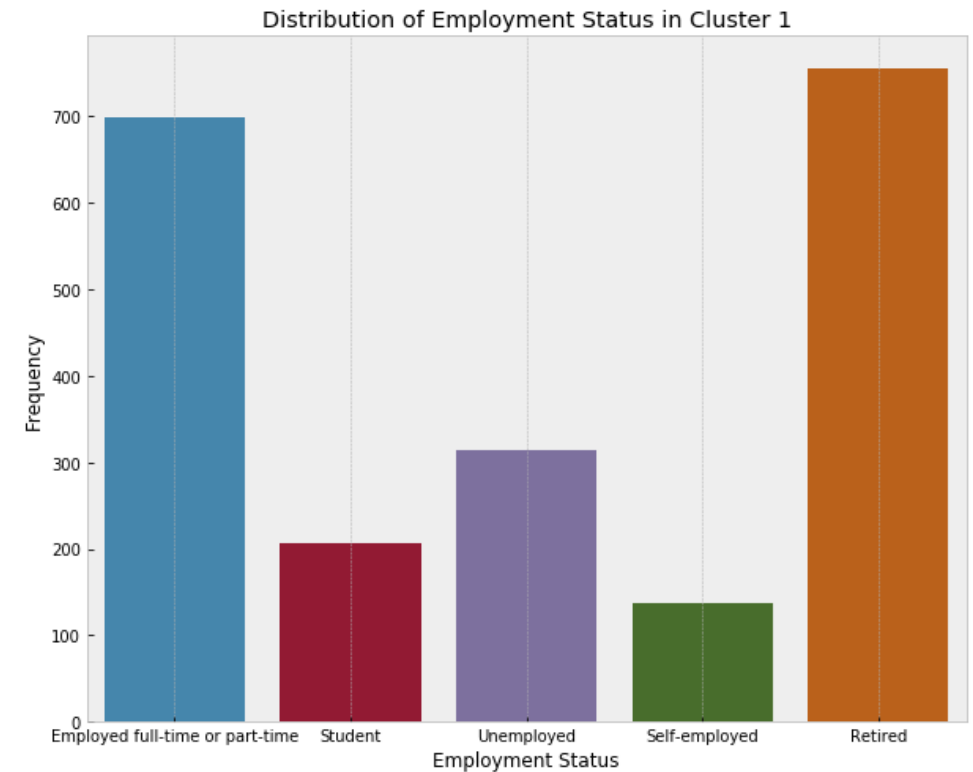


Scatter plot to display distinct cluster centers

Business Insights

Frequency count of unique group of consumer behavior

	Q39r1 - I would rather pay for news online in exchange for not being exposed to advertisements. - Using the scale below, please indicate how much you agree or disagree with the following statements. If the question does not apply to you, choose "N/A."	Q39rNEW1 - I would rather pay for sports information online in exchange for not being exposed to advertisements. - Using the scale below, please indicate how much you agree or disagree with the following statements. If the question does not apply to you, choose "N/A."	Q39rNEW2 - I would rather pay for games online in exchange for not being exposed to advertisements. - Using the scale below, please indicate how much you agree or disagree with the following statements. If the question does not apply to you, choose "N/A."	Q39rNEW3 - I would rather pay for music online in exchange for not being exposed to advertisements. - Using the scale below, please indicate how much you agree or disagree with the following statements. If the question does not apply to you, choose "N/A."	Q39rNEW4 - I would rather pay for TV shows online in exchange for not being exposed to advertisements. - Using the scale below, please indicate how much you agree or disagree with the following statements. If the question does not apply to you, choose "N/A."	Q39rNEW5 - I would rather pay for movies online in exchange for not being exposed to advertisements. - Using the scale below, please indicate how much you agree or disagree with the following statements. If the question does not apply to you, choose "N/A."	clust_labels
0	0	0	0	0	0	0	1601
1	0	0	0	0	0	1	159
3	0	0	0	1	0	0	75
2	0	0	0	0	1	0	67
4	0	0	1	0	0	0	50
9	1	0	0	0	0	0	44
5	0	0	1	1	0	0	35
6	0	1	0	0	0	0	27
7	0	1	0	1	0	0	15
10	1	0	0	1	0	0	15



Conclusion: Using these segments, group of customers can be targeted across different media channels

Thank You

HAPPY TO ANSWER QUESTIONS!