



CUSTOMER ANALYTICS IN PYTHON

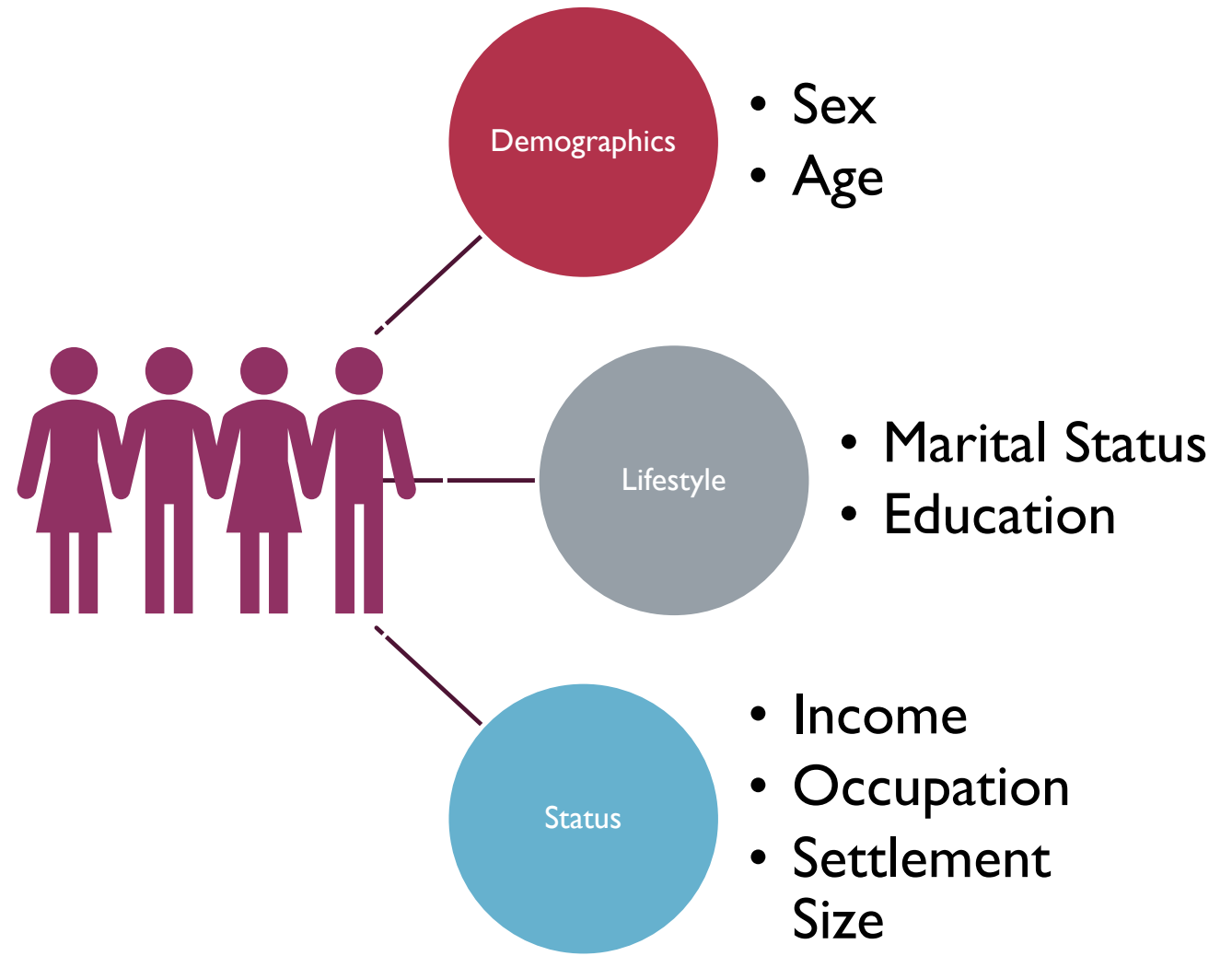
USMAN KHAN

METRO COLLEGE

AGENDA

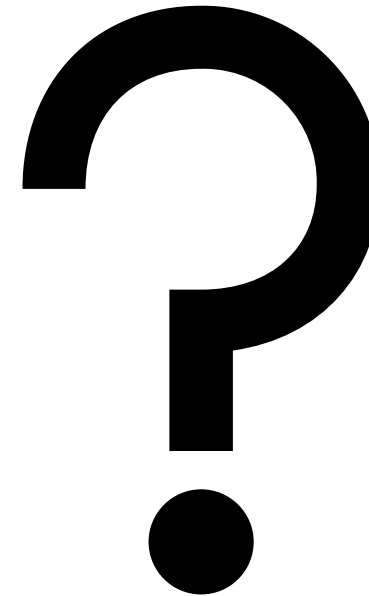
- Introduction
- Research Question
- Framework Implementation
- Business Issues
- Exploratory Data Analysis
- Raw Data Visualization and Heatmaps
- Hierarchical Clustering
- K-means Clustering
- Cluster Profiling
- K-mean Clusters Visualization
- PCA – Dimension reduction
- Segmentation Validation through PCA
- Clear Segment Visualization

DATA I HAVE ...

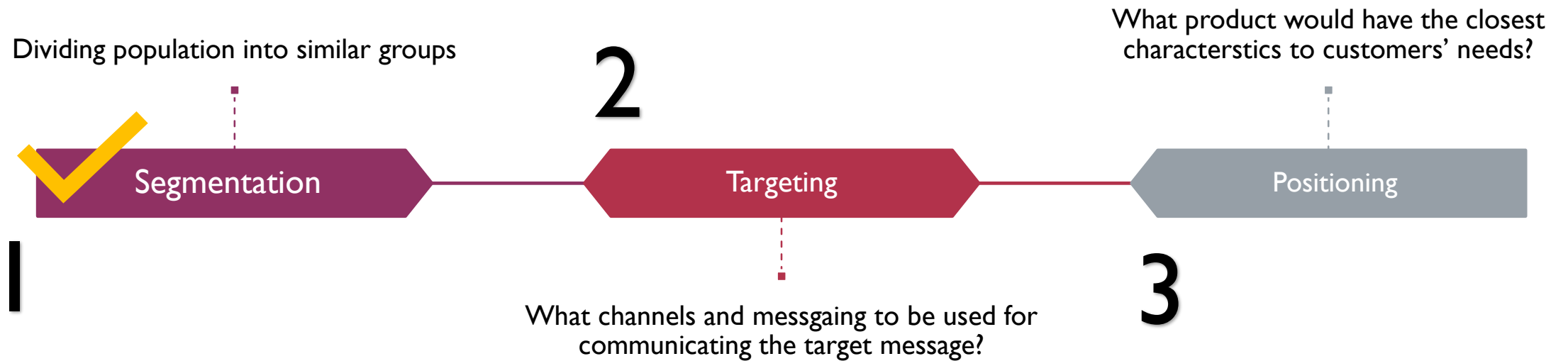


WHAT IS THE RESEARCH QUESTION

- How to improve overall marketing of the brand for increasing sales based on customers' buying behavior?



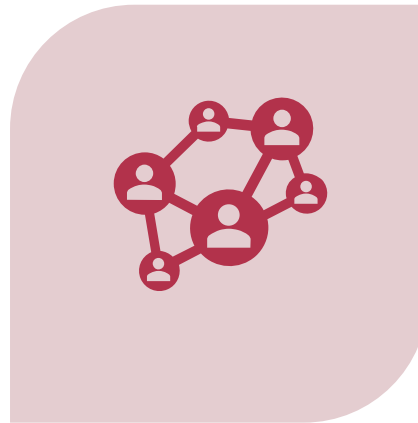
METHDOLOGY: STP FRAMEWORK FOR KYC



WHAT WILL I ACHIEVE...



ANALYSE PREVIOUS DATA TO
FIND OUT PATTERNS

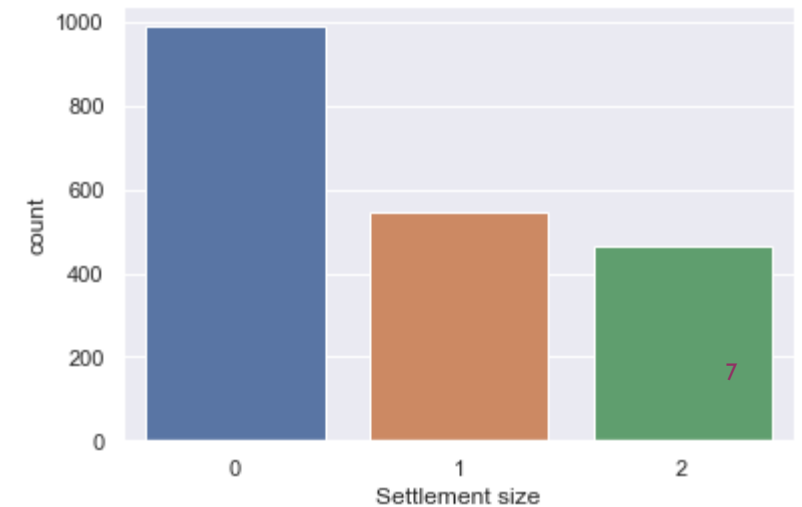
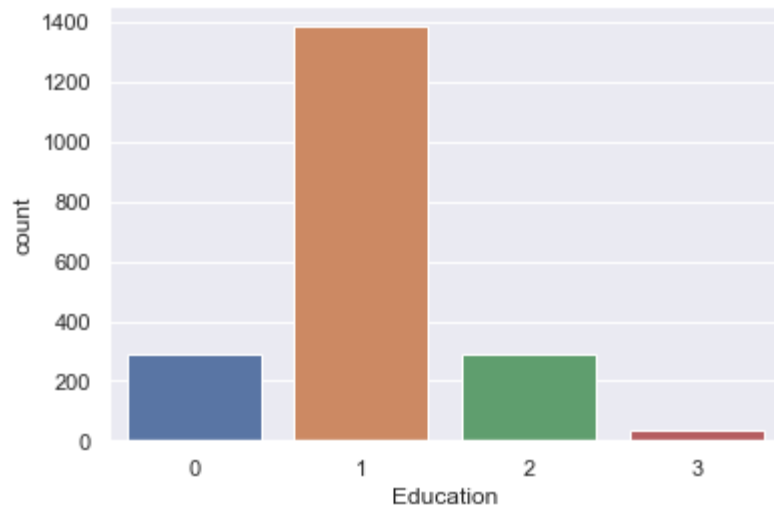
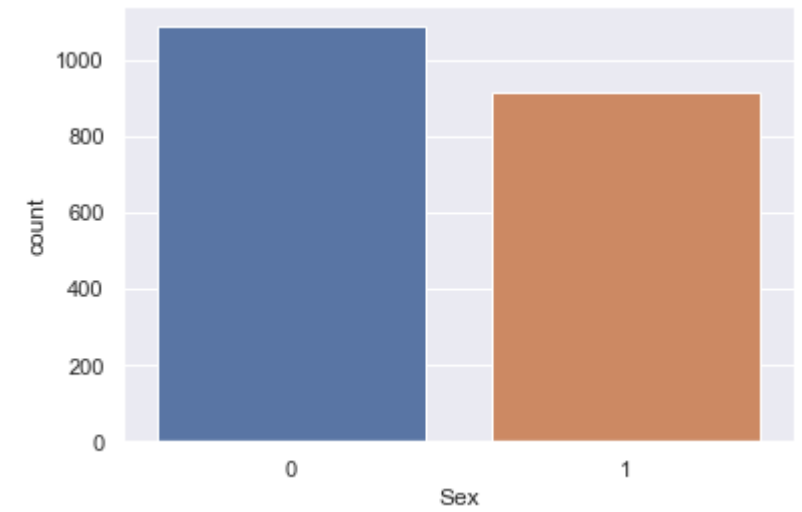
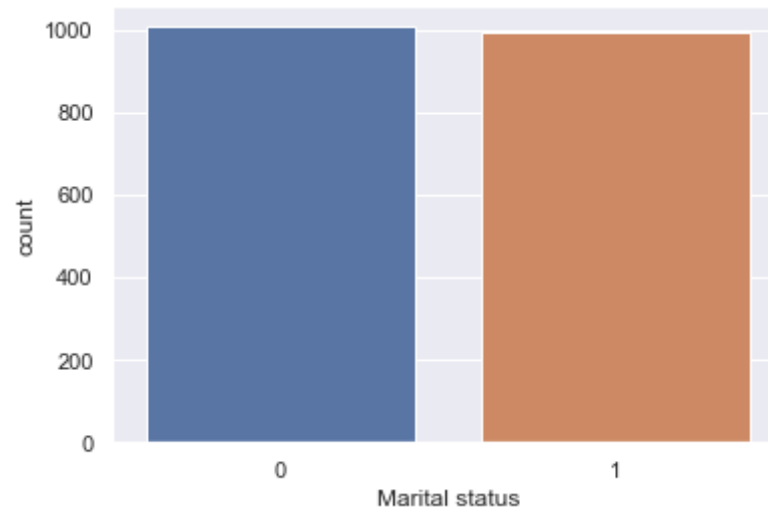
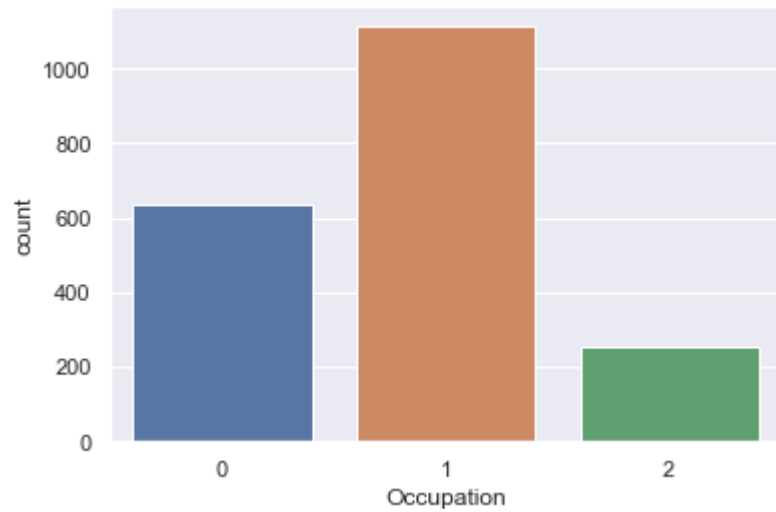


IMPLEMENTING KNOW YOUR
CUSTOMER FRAMEWORK

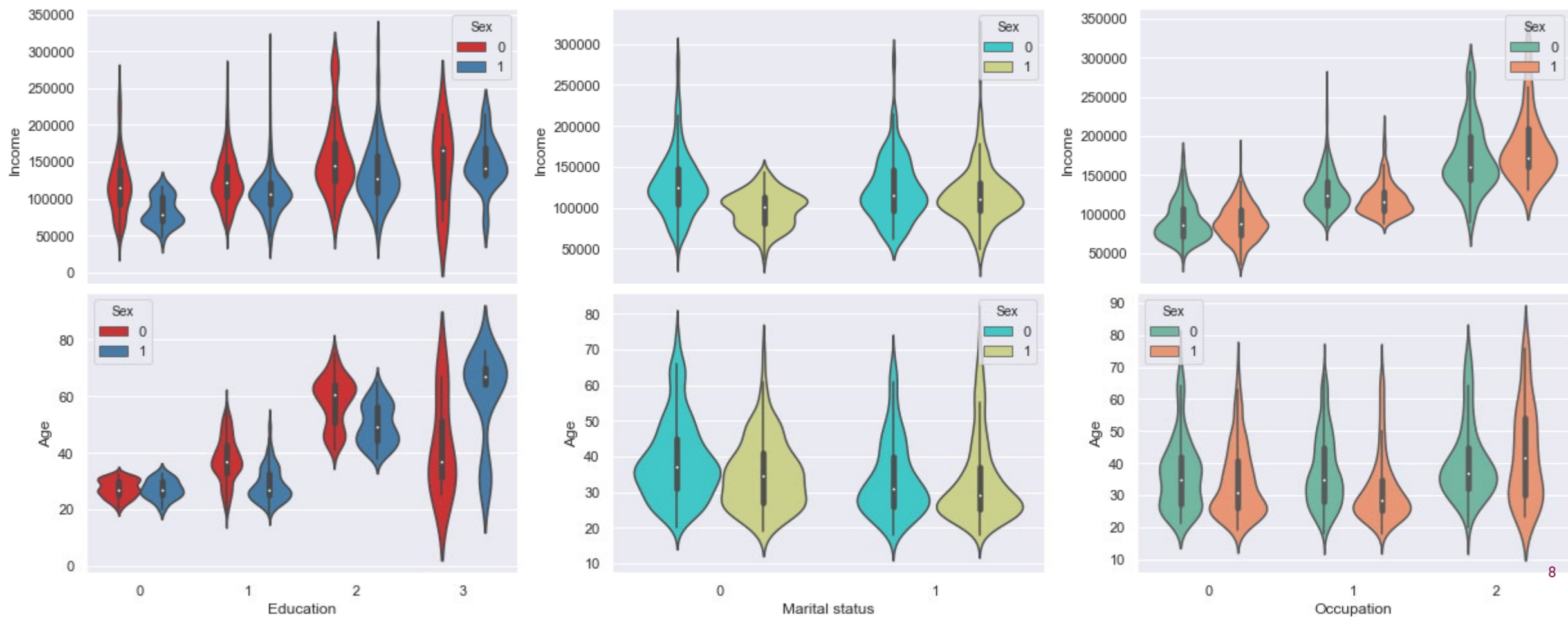


HOW TO IMPROVE TARGET
MARKETING

EXPLORATORY DATA ANALYSIS – CATEGORICAL VARIABLES

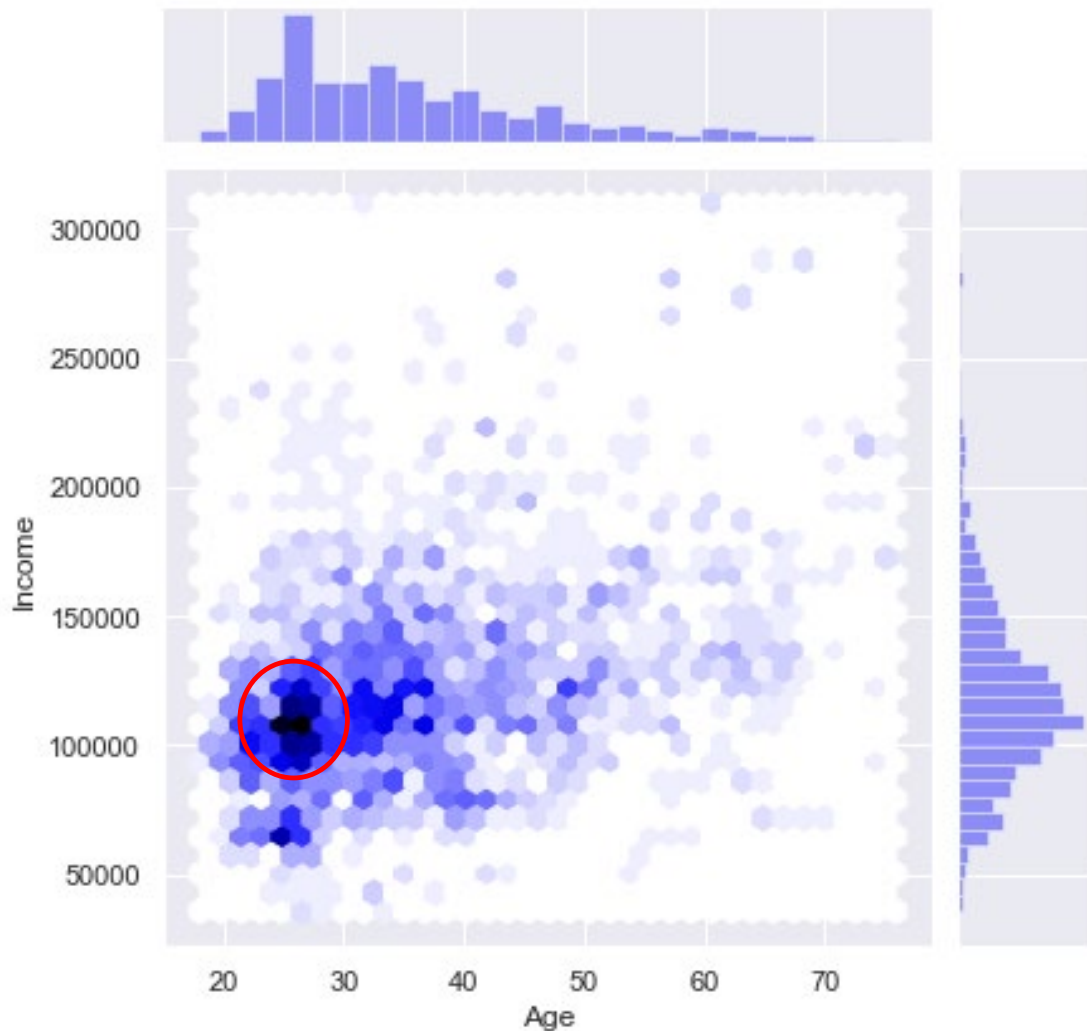
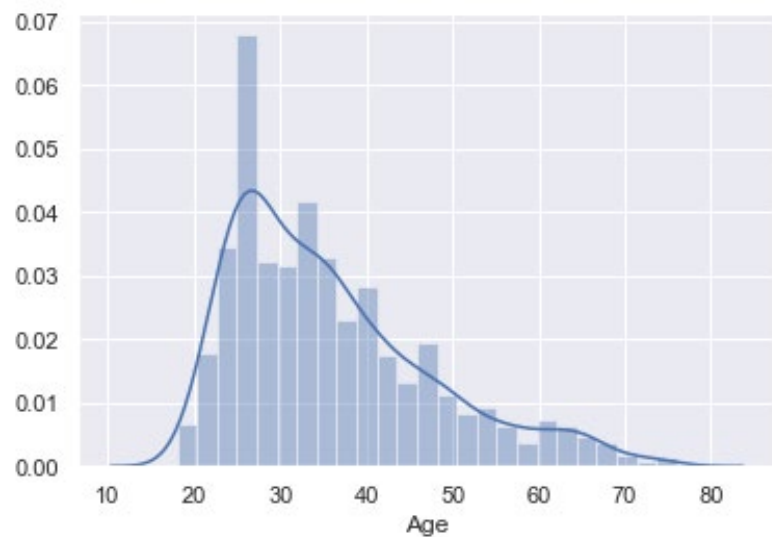
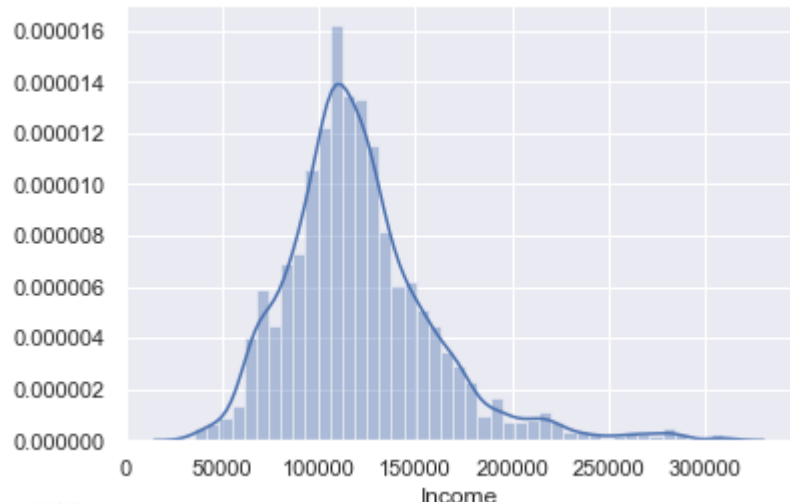


EDA : CATEGORICAL & CONTINUOUS VARIABLES

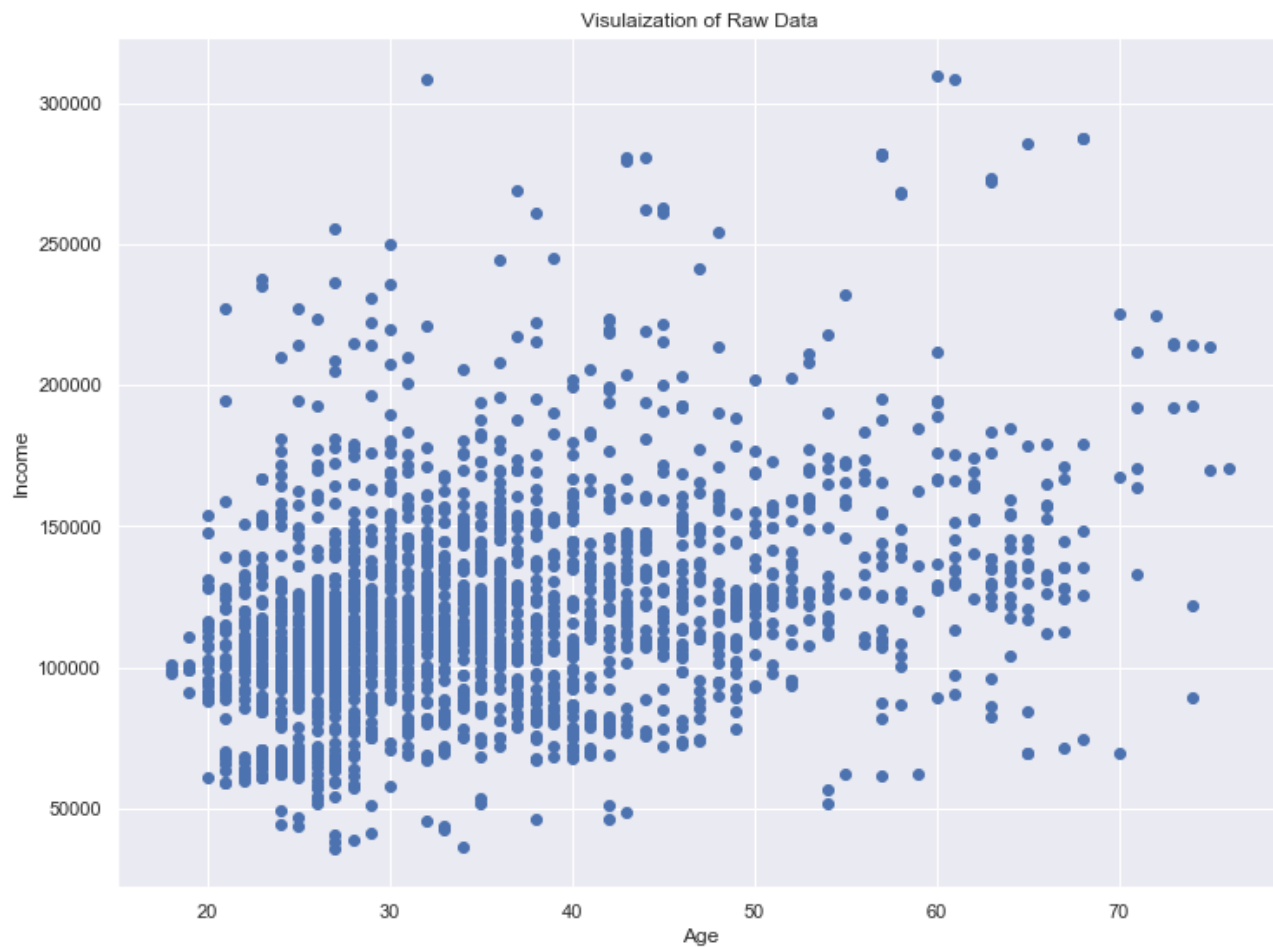


Takeaway: Hard to find clear patterns

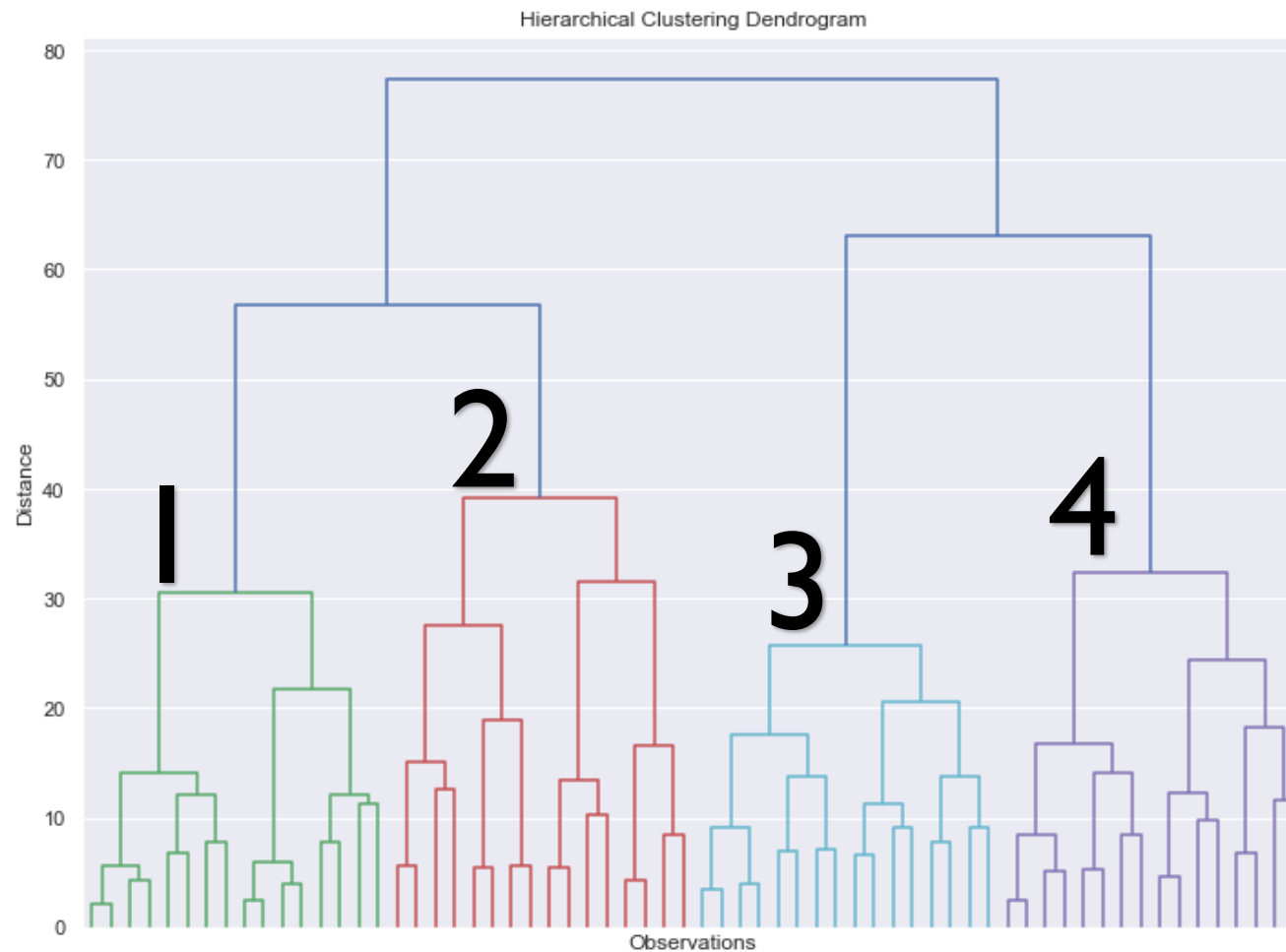
CORRELATION BETWEEN TWO CONTINUOUS VARIABLES



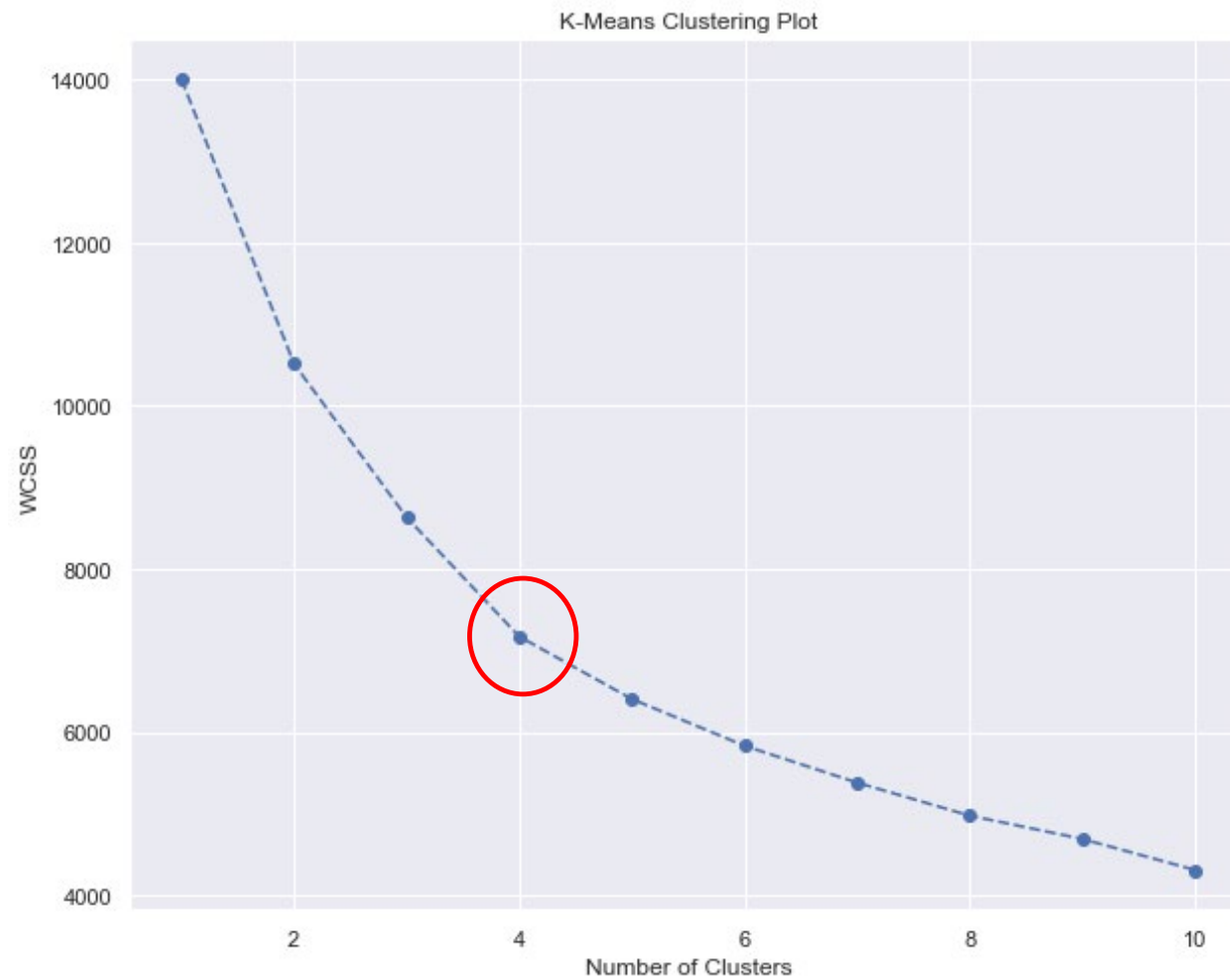
VISUALIZATION OF RAW DATA AND CORRELATION



HIERARCHICAL CLUSTERING



K-MEANS CLUSTERING



ANALYSIS OF 04 SEGMENTS

	Sex	Marital status	Age	Education	Income	Occupation	Settlement size
Segment K-Means							
0	0.501901	0.692015	55.703422	2.129278	158338.422053	1.129278	1.110266
1	0.352814	0.019481	35.577922	0.746753	97859.852814	0.329004	0.043290
2	0.029825	0.173684	35.635088	0.733333	141218.249123	1.271930	1.522807
3	0.853901	0.997163	28.963121	1.068085	105759.119149	0.634043	0.422695

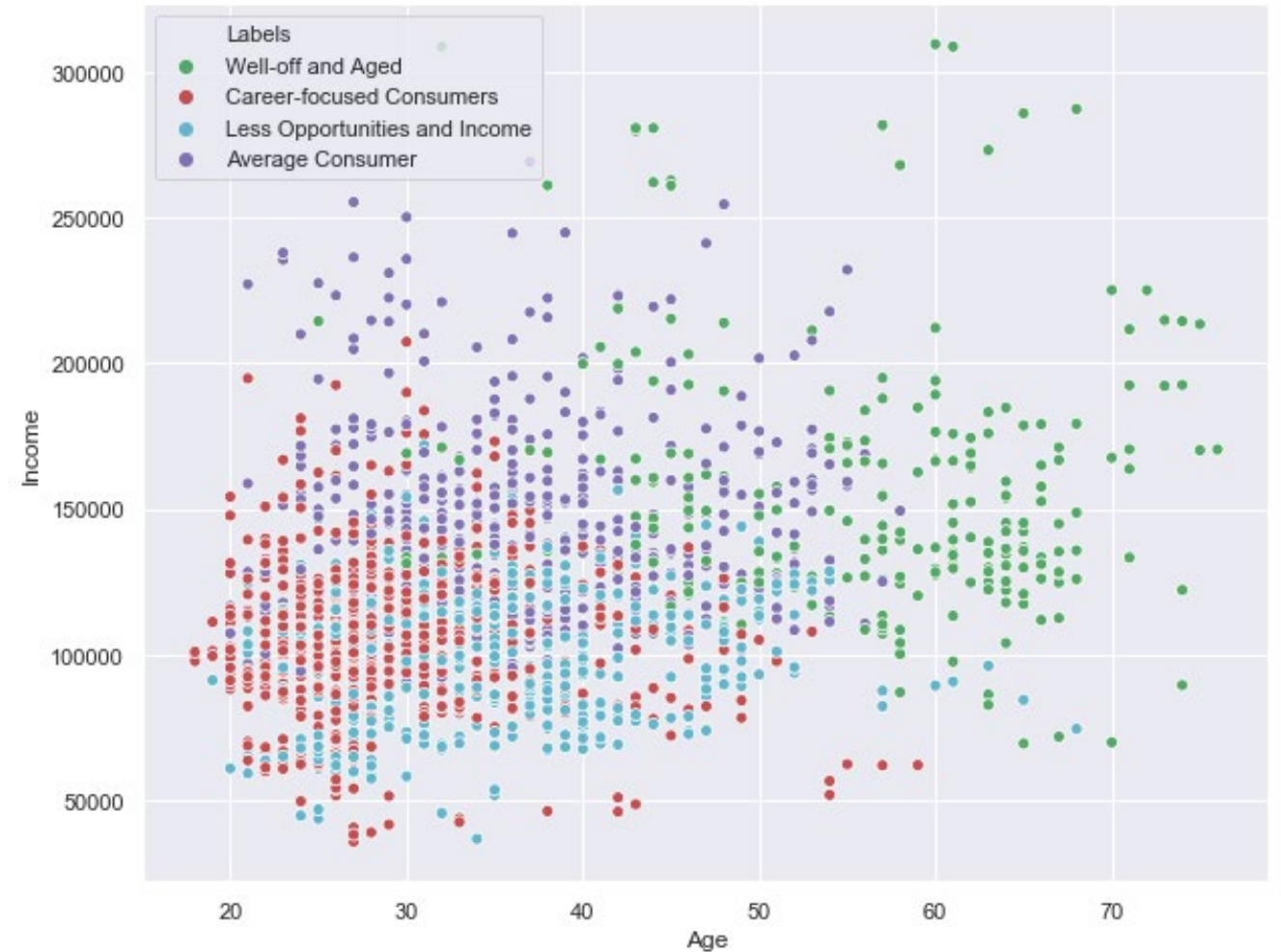
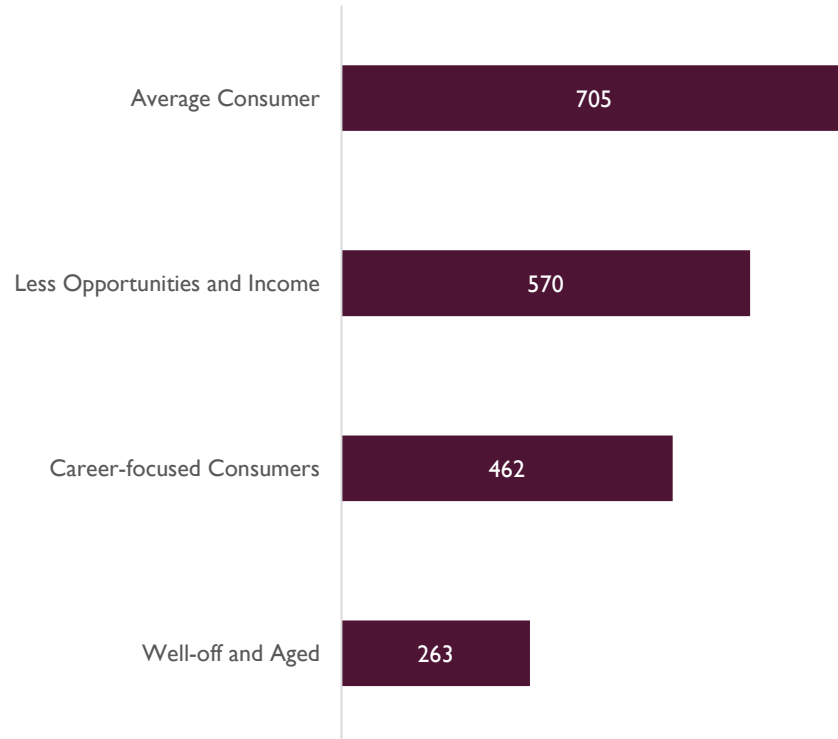
Segments:

1. Well-off and Aged
2. Less Opp. & Income

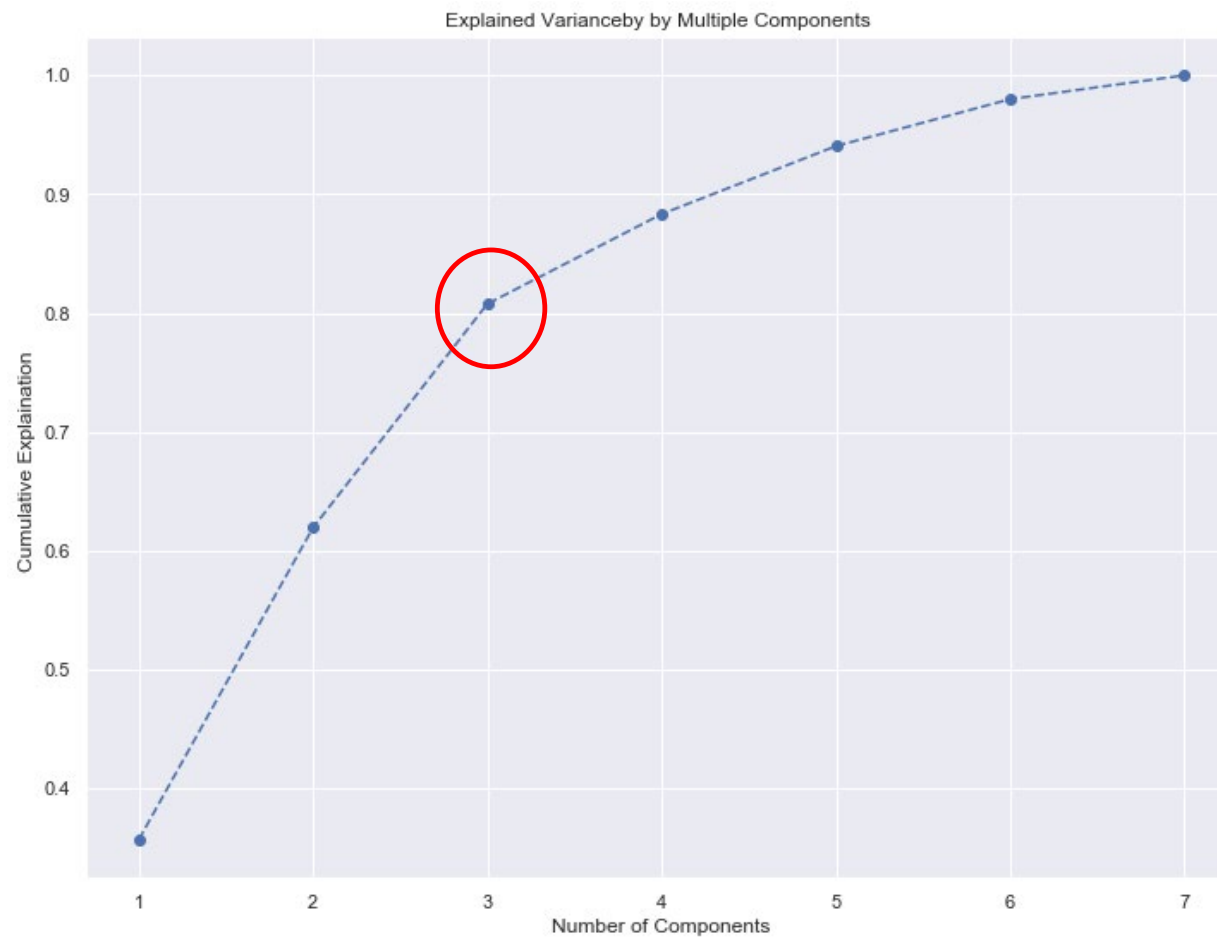
3. Career-focused Consumers
4. Average Consumer

K-MEANS CLUSTERING VISUALIZATION

Segment Proportions

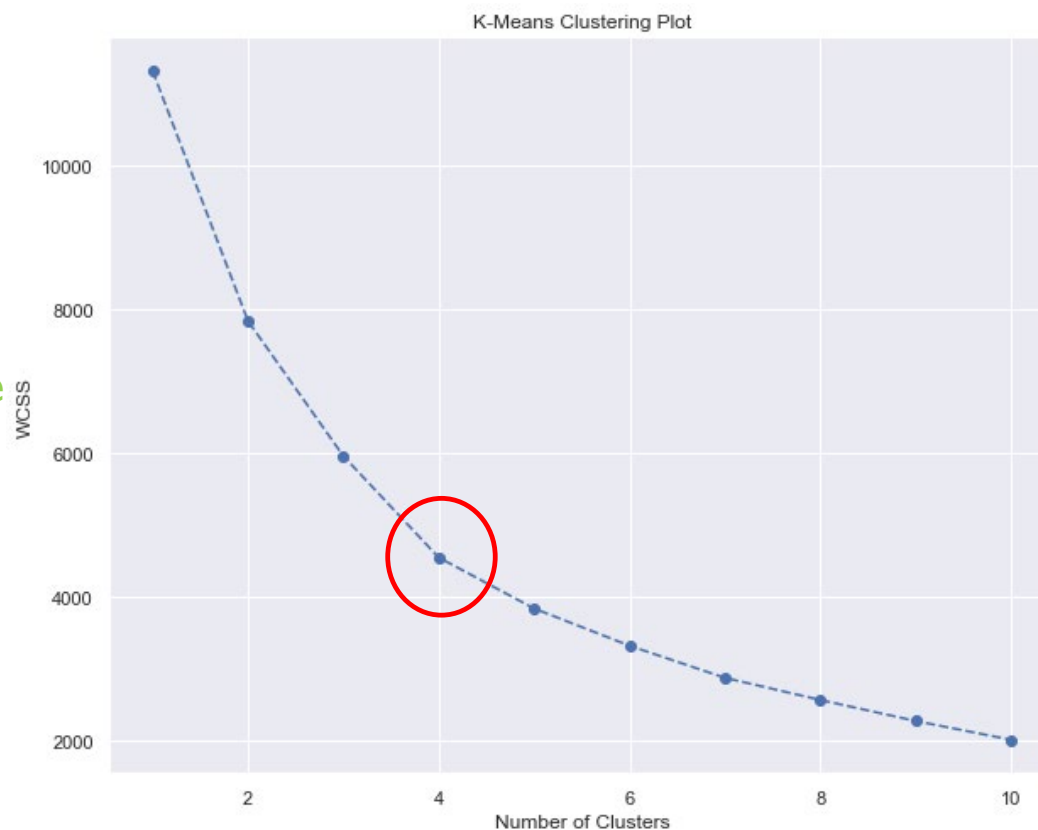
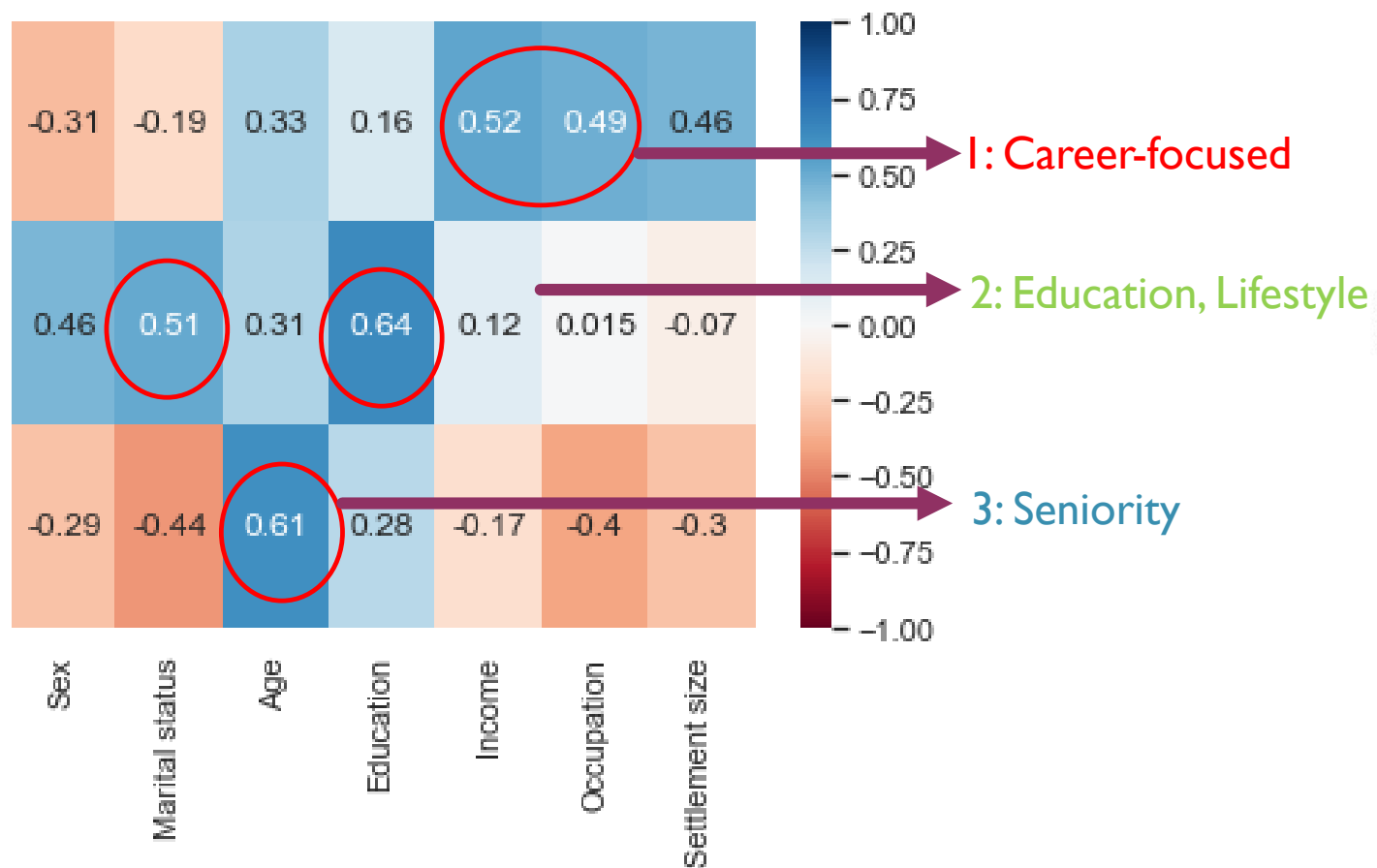


IDENTIFICATION OF COMPONENTS IN PCA



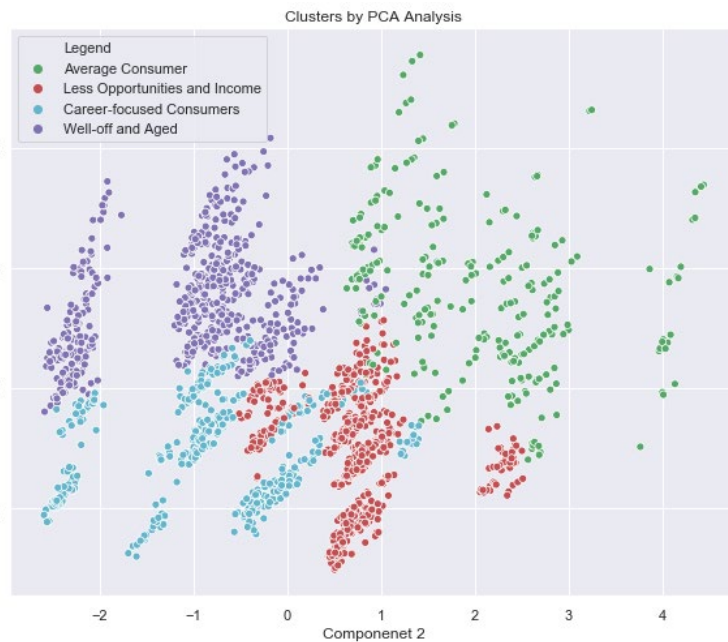
PCA COMPONENTS AND K-MEANS

Component 1
Component 2
Component 3

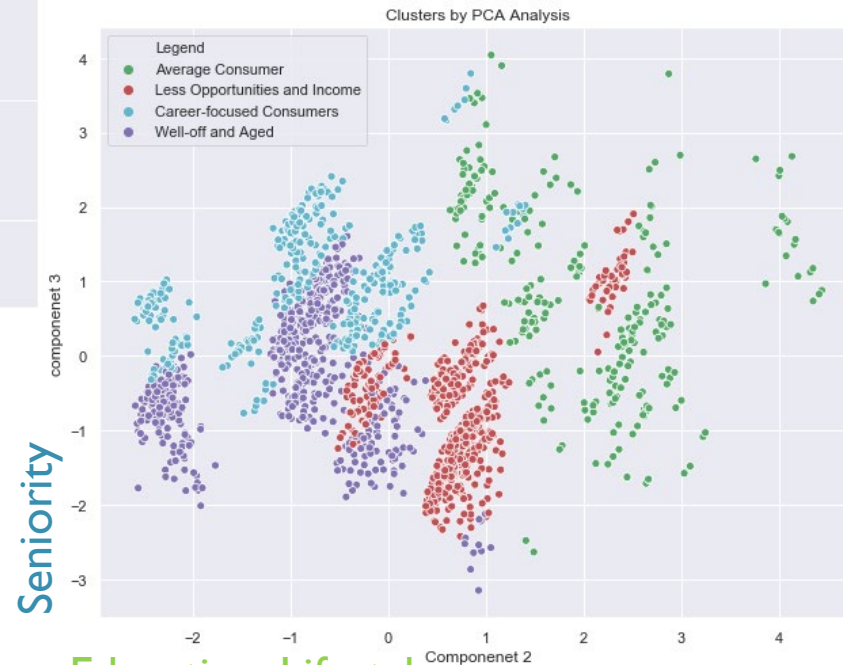


PCA: K-MEANS CLUSTERING & VISUALIZATION

Career-focused



Education, Lifestyle



Education, Lifestyle



Career-focused

SOME TAKEAWAYS.... MORE IN THE MAKING...



ANALYSE PREVIOUS
DATA TO FIND OUT
PATTERNS



IMPLEMENTING KNOW
YOUR CUSTOMER
FRAMEWORK



HOW TO IMPROVE
TARGET MARKETING

- Simple Analysis is not enough
- EDA may show you no clear patterns
- Segmentation can be done several ways
- Profiling and Validation is key
- Segmentation is key to target marketing
- Improves targeting and reduce costs



■ Q&As