

## LIST OF FIGURES

Figure 2.1: Differences between unsupervised and supervised learning .....	21
Figure 2.2: Product categories in a tree structure with levels .....	23
Figure 2.3 : Step by Step Data Analytics.....	27
Figure 3.1: Main Flowchart .....	34
Figure 3.2: Flowchart Data Preparation .....	36
Figure 3.3: Feature of Dataset .....	37
Figure 3.4: List Of Columns & Measurement Dataset .....	39
Figure 3.5: Agglomerative Clustering Algorithm .....	40
Figure 3.6 : Affinity Propagation Clustering Algorithm .....	41
Figure 4.1 : Ward Macro Nutrient .....	59
Figure 4.2 : Single Linkage Macro Nutrient.....	59
Figure 4.3: Complete Linkage Macro Nutrient .....	60
Figure 4.4 : Graph Silhouette Coefficient in every Linkage.....	60
Figure 4.5 : Single Linkage Micro Nutrient .....	63
Figure 4.6 : Complete Linkage Micro Nutrient.....	63
Figure 4.7 : Ward Micro Nutrient.....	64
Figure 4.8 : Graph Silhouette Coefficient in every Linkage.....	65
Figure 4.9 : Result Macro Nutrient Cluster with different preference .....	66
Figure 4.10 : Graph Silhouette Coefficient in every experiment Macro Nutrient .....	67
Figure 4.11 : Graph Silhouette Coefficient in Micro Nutrient.....	68
Figure 4.12 : Result Micro Nutrient Cluster with different preference .....	69
Figure A1 : Dendrogram Macronutrient Single Linkage.....	82
Figure A2 : Dendrogram Macronutrient Complete Linkage .....	82
Figure A3 : Dendrogram Macronutrient Ward Linkage.....	83
Figure A4 : Dendrogram Micronutrient Single Linkage .....	83
Figure A5 : Dendrogram Macronutrient Complete Linkage .....	84
Figure A6 : Dendrogram Macronutrient Ward Linkage .....	84