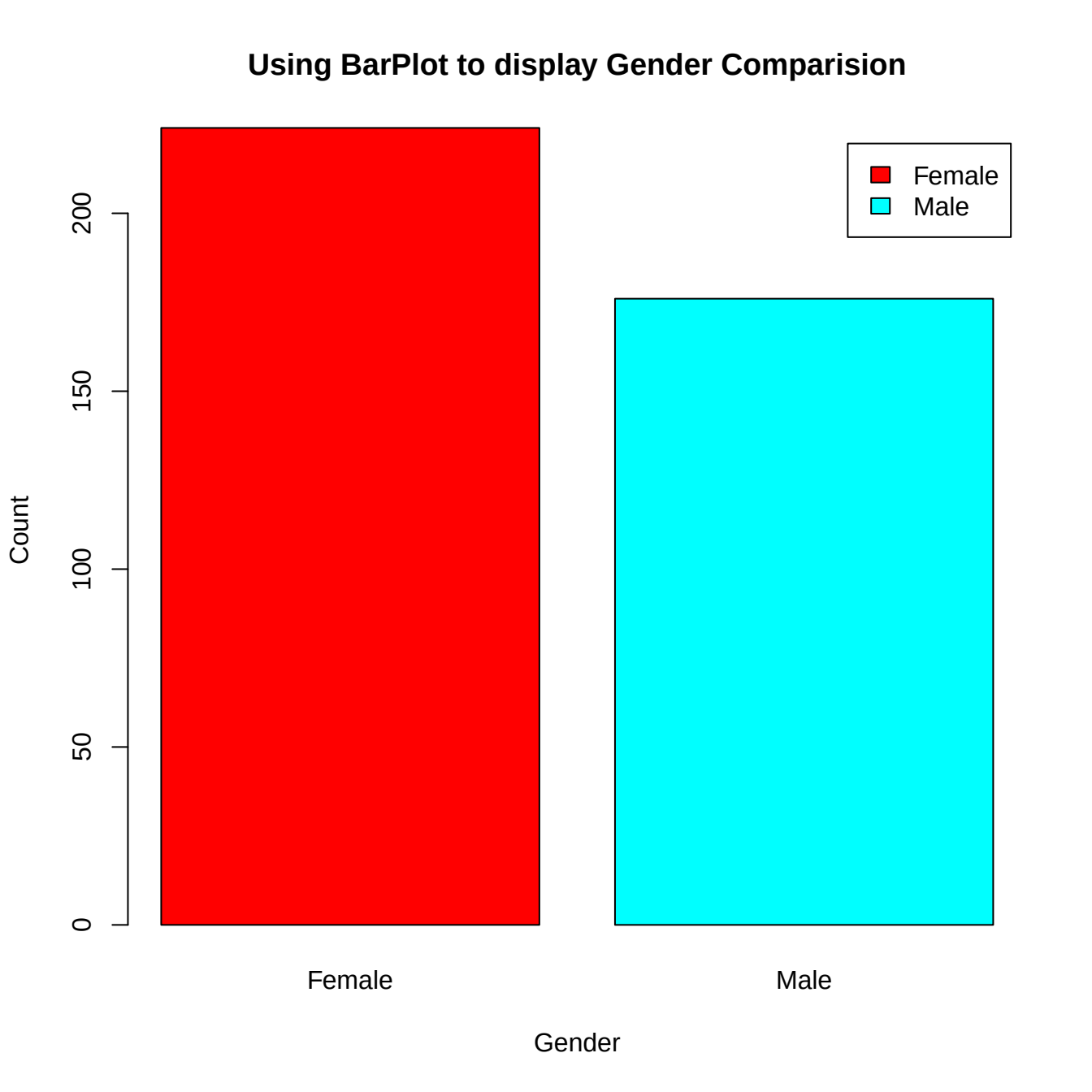
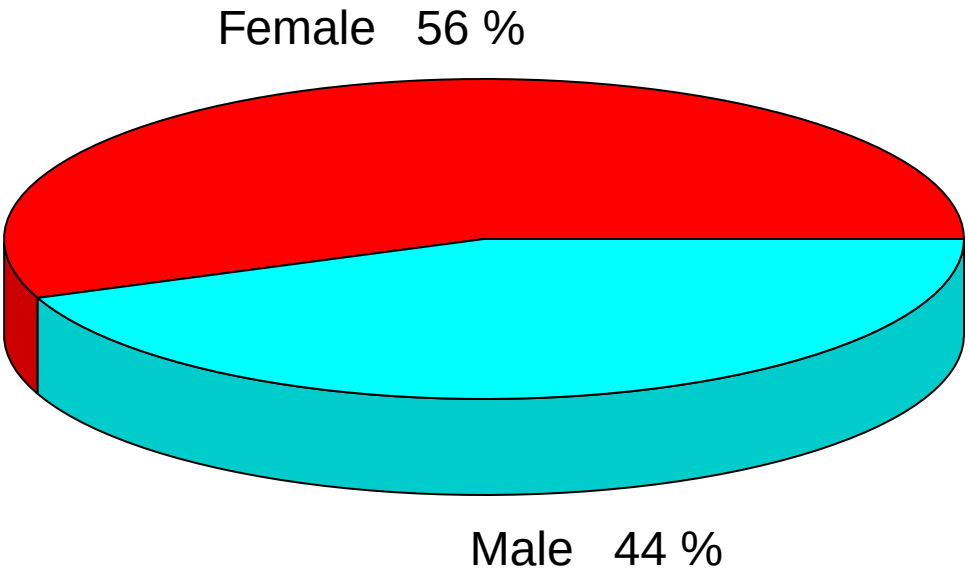
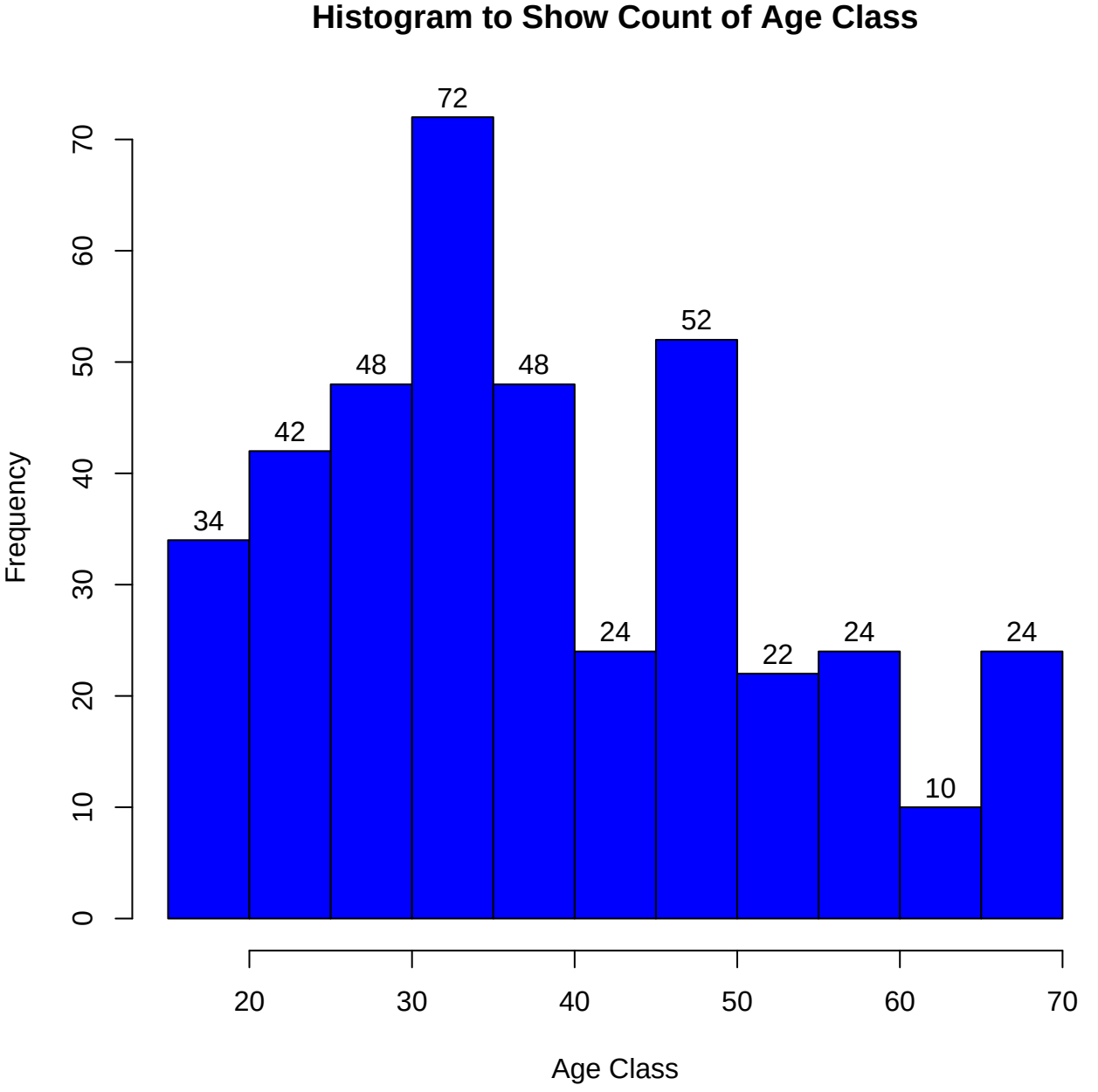
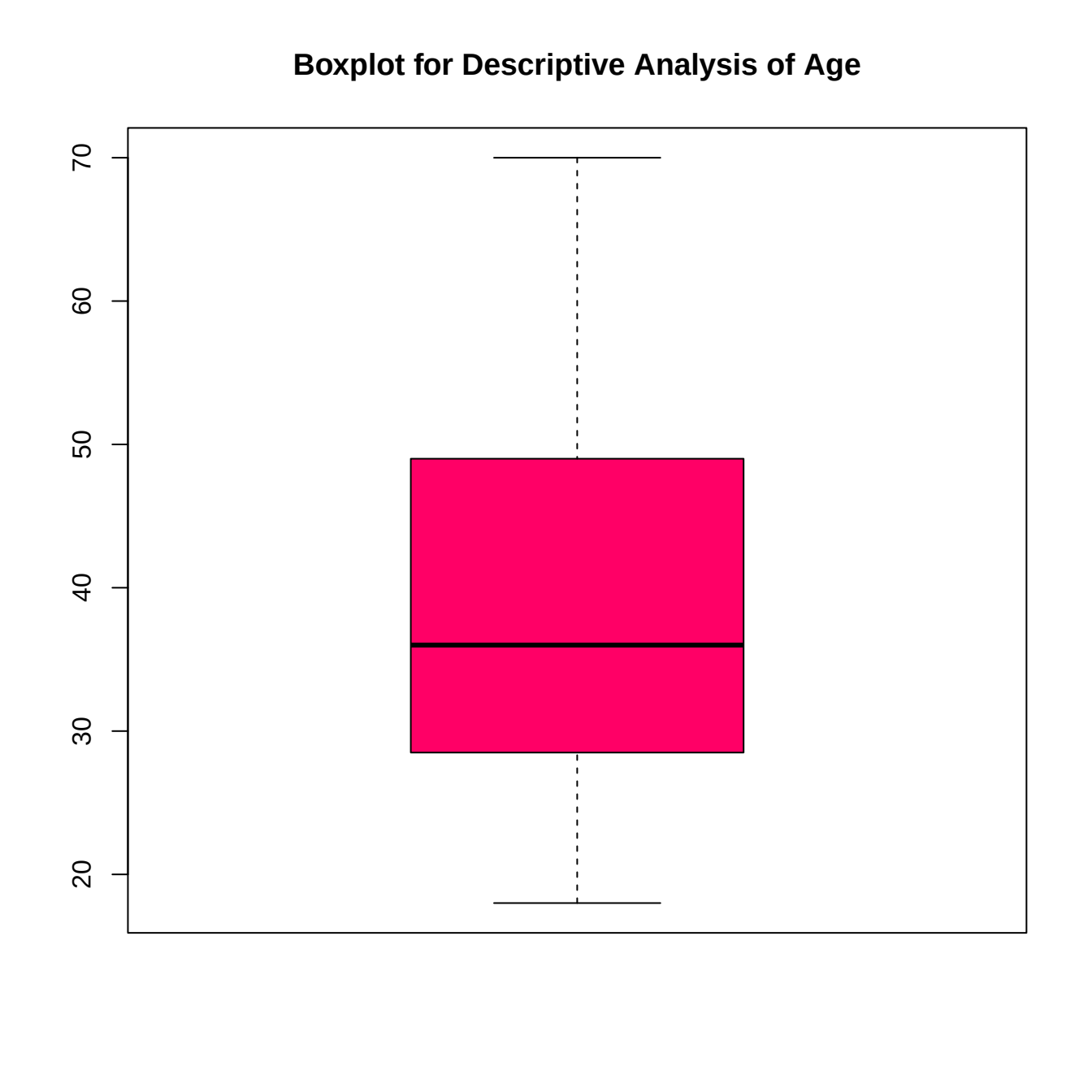
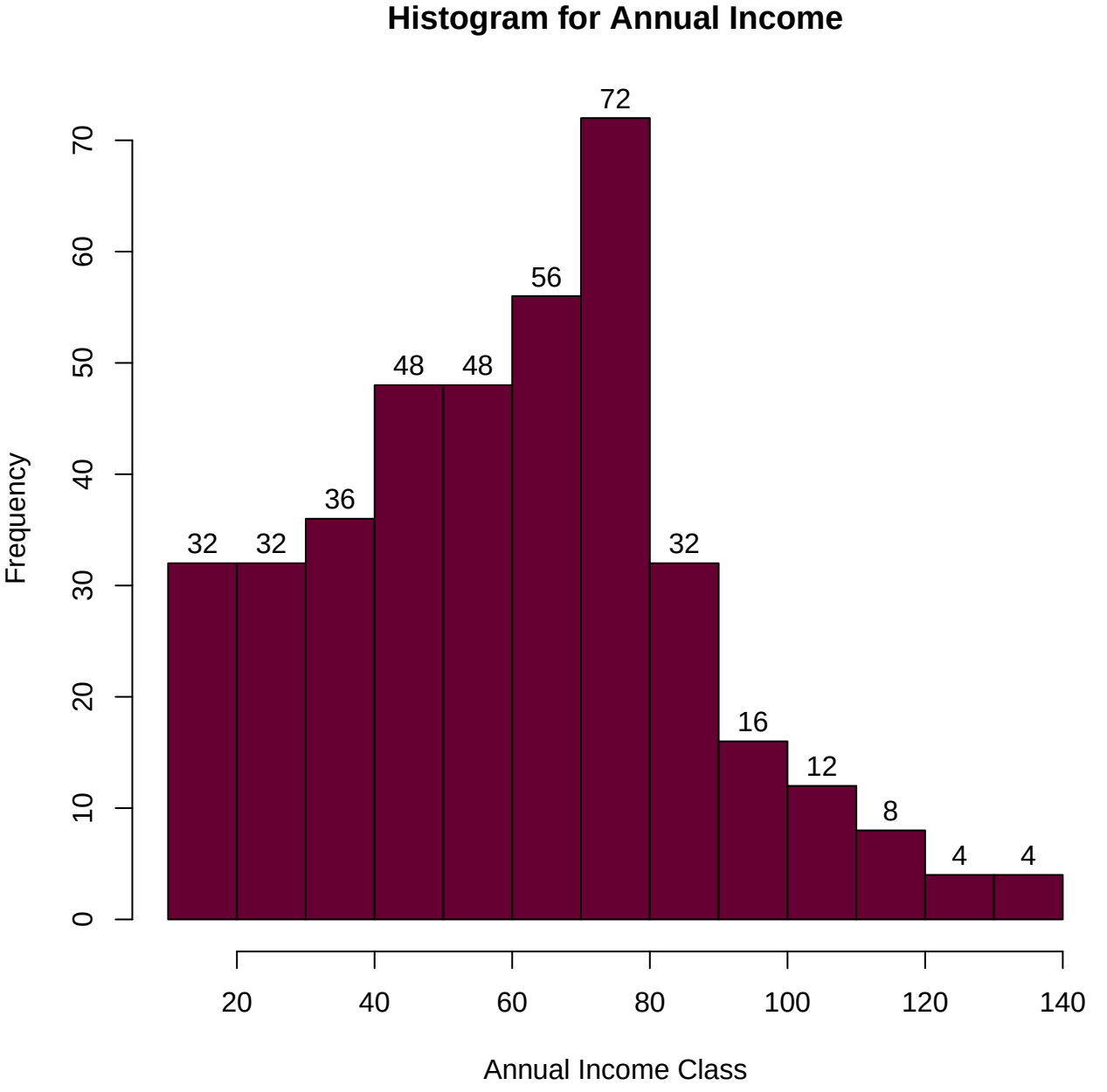

Using BarPlot to display Gender Comparision
Female
Male
Count
0
50
100
150
200
Female
Male
Gender

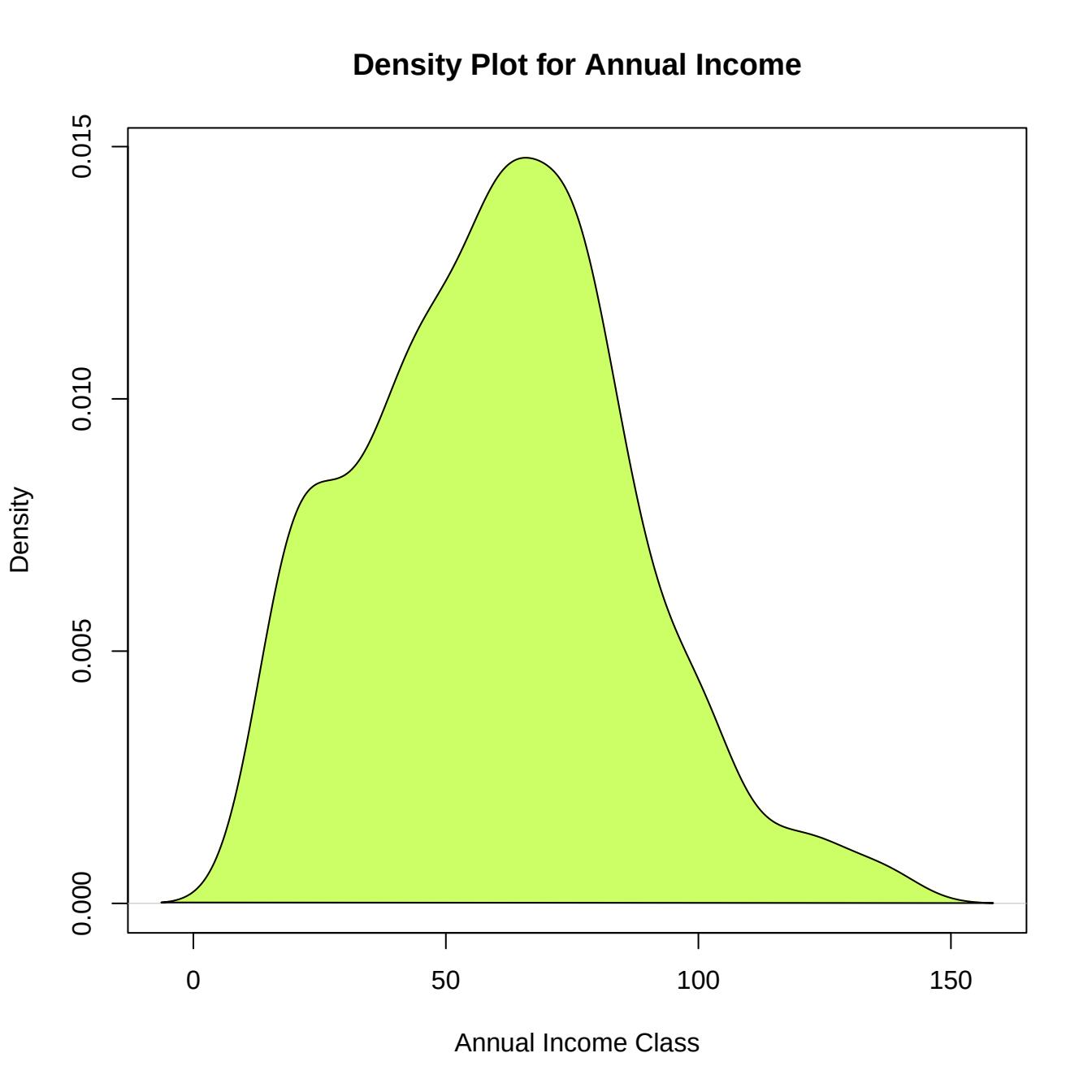
Pie Chart Depicting Ratio of Female and Male

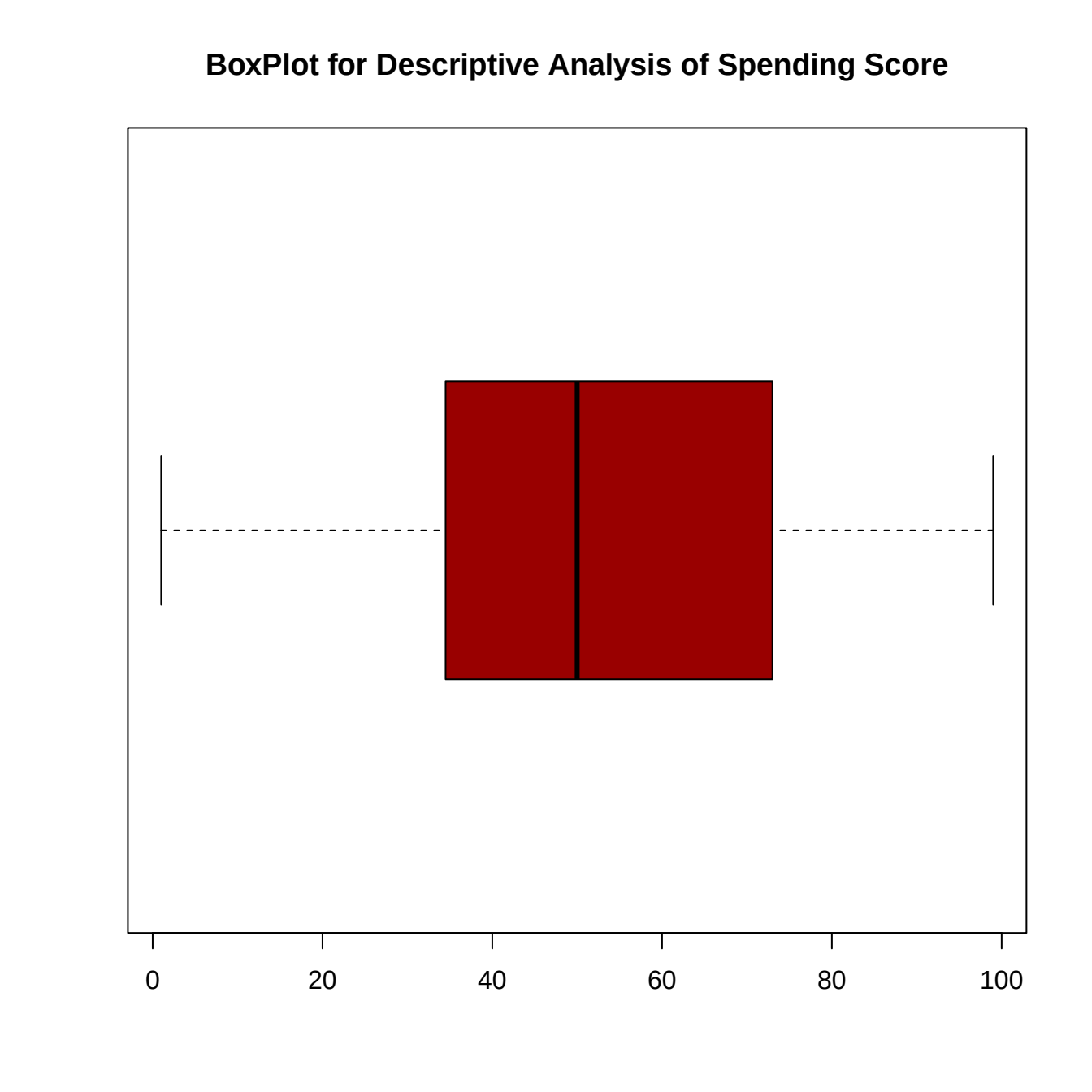


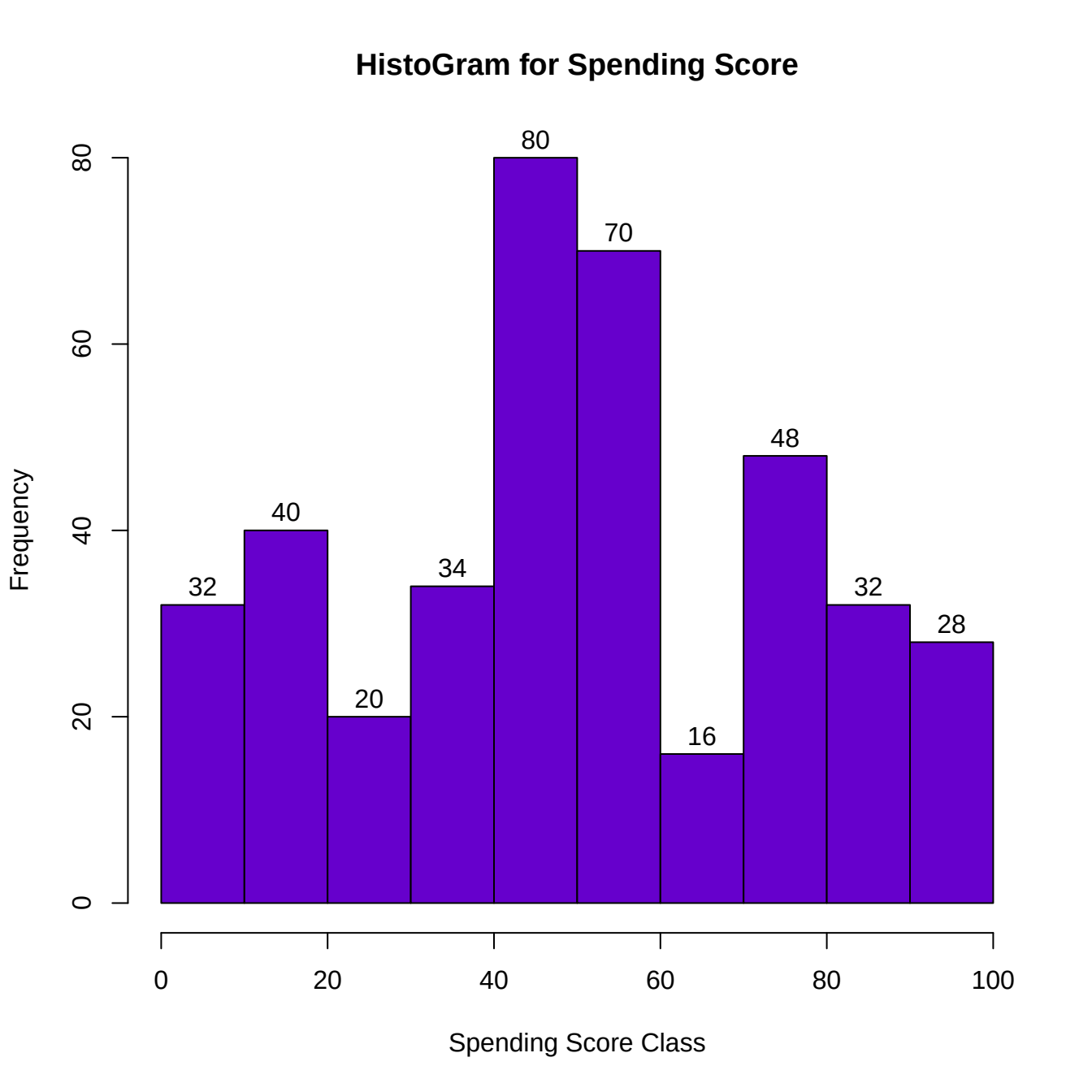

Histogram to Show Count of Age Class
Frequency
0
10
20
30
40
50
60
70
34
42
48
72
48
24
52
22
24
10
24
20
30
40
50
60
70
Age Class

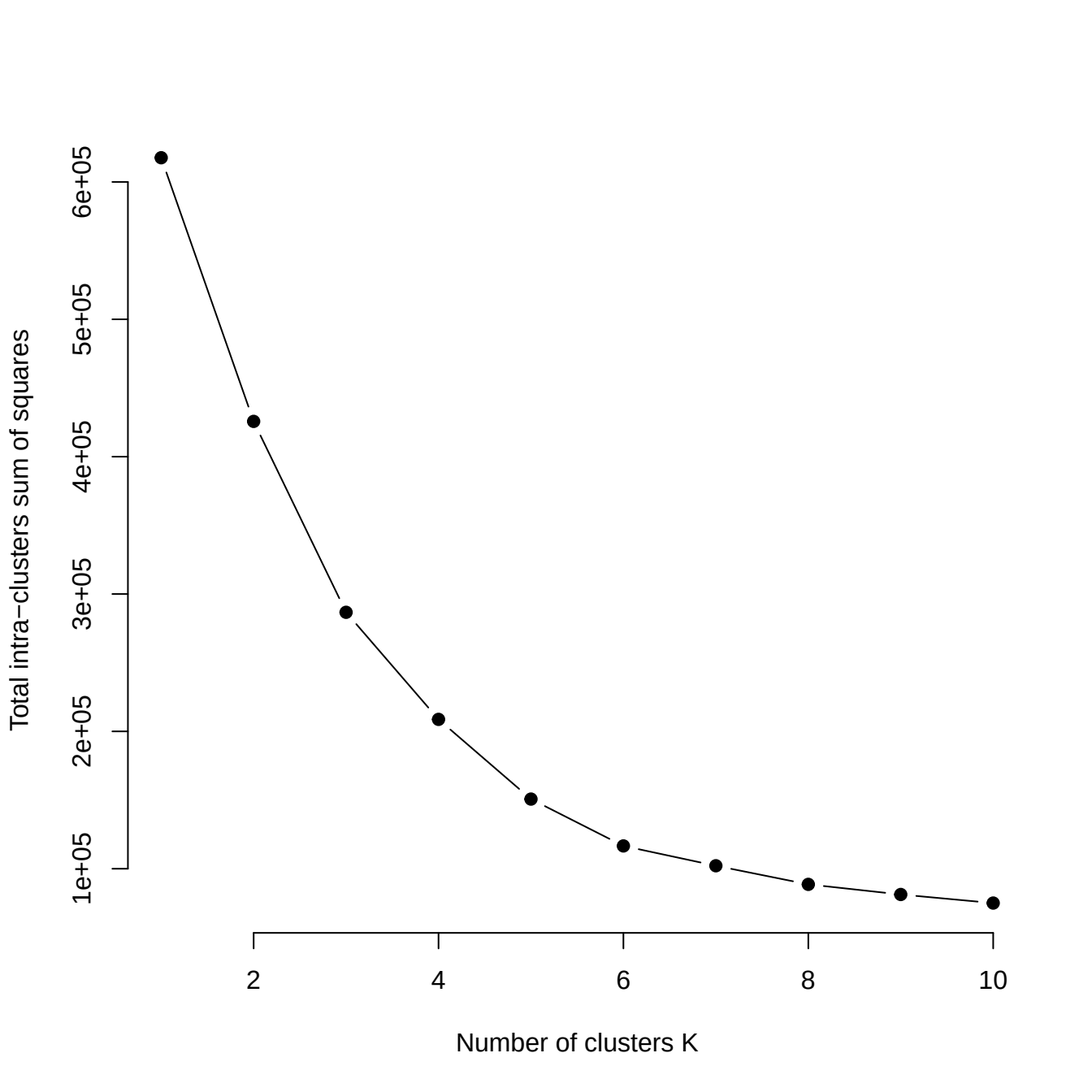

Boxplot for Descriptive Analysis of Age
70
60
50
40
30
20

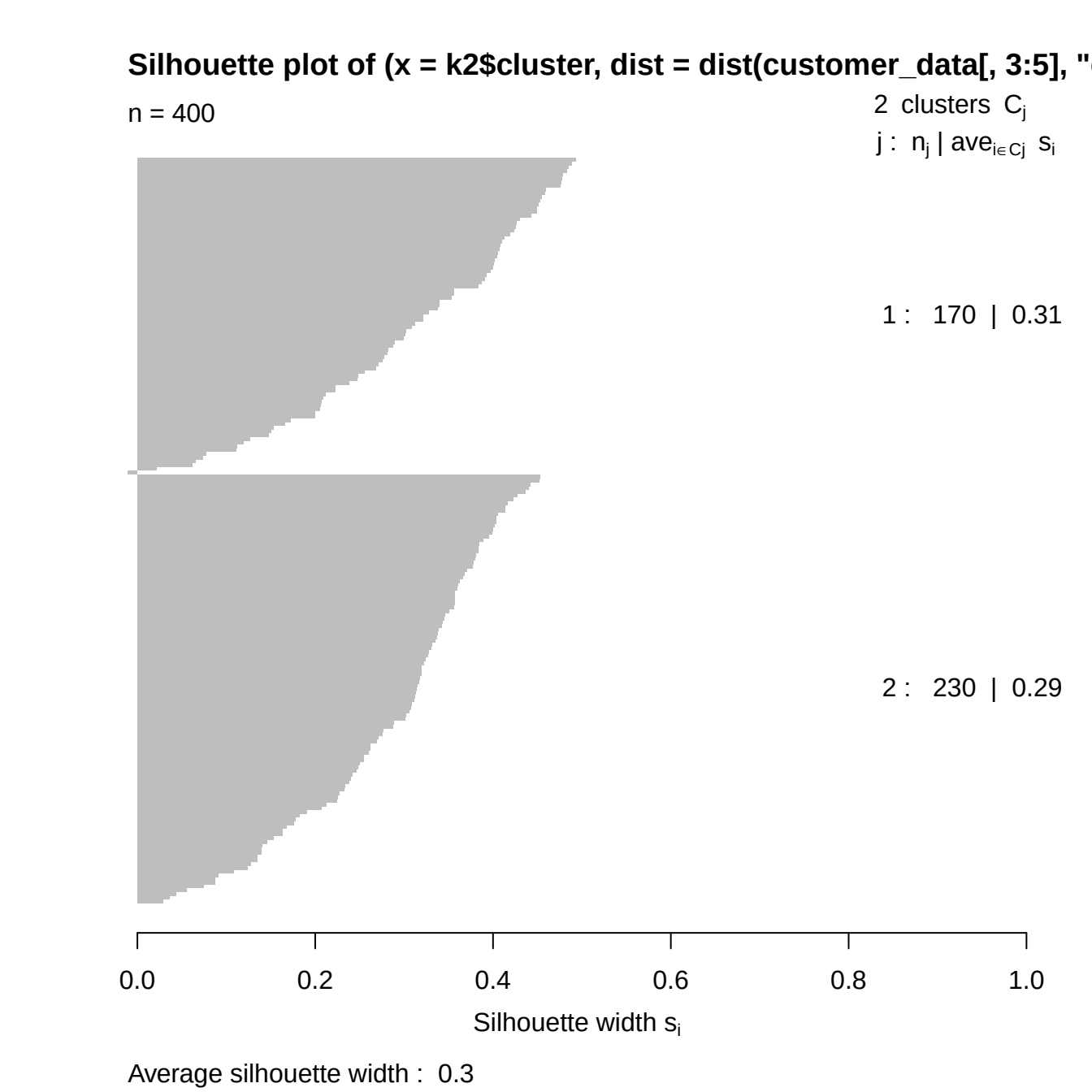

Histogram for Annual Income
Frequency
0
10
20
30
40
50
60
70
32
32
36
48
48
56
72
32
16
12
8
4
4
20
40
60
80
100
120
140
Annual Income Class

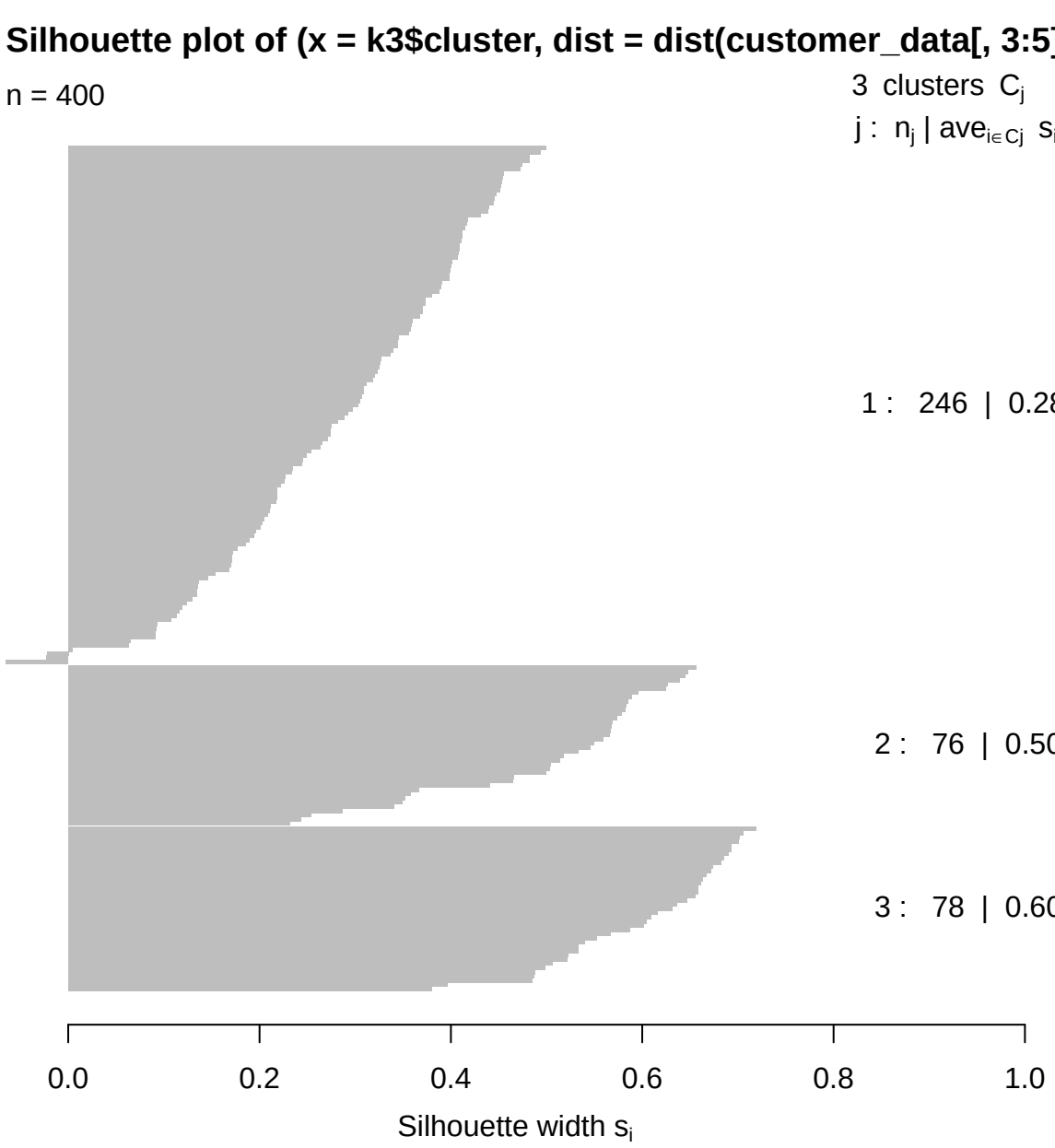

Density Plot for Annual Income
Density
0.000
0.005
0.010
0.015
0
50
100
150
Annual Income Class

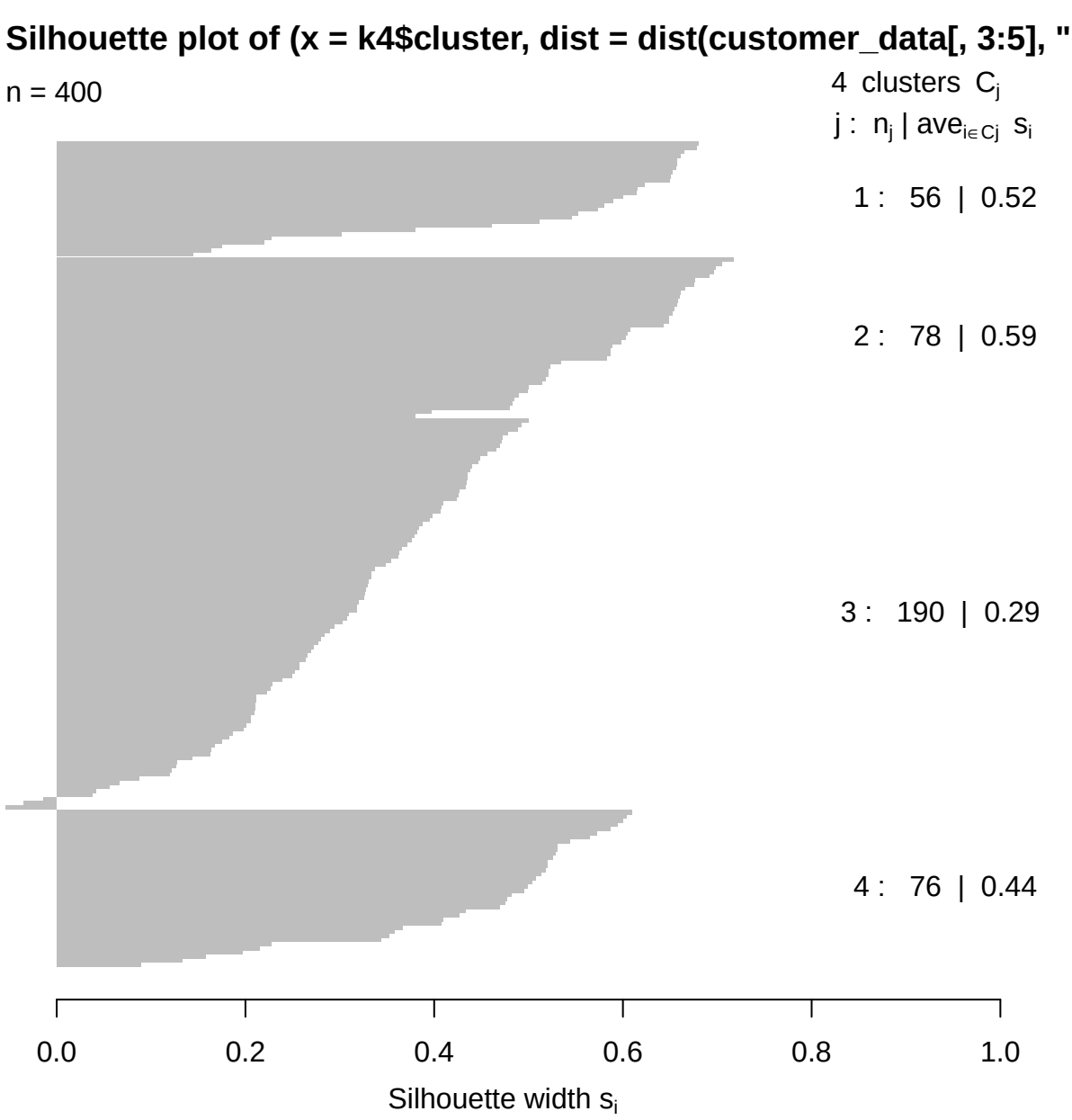

BoxPlot for Descriptive Analysis of Spending Score
0
20
40
60
80
100

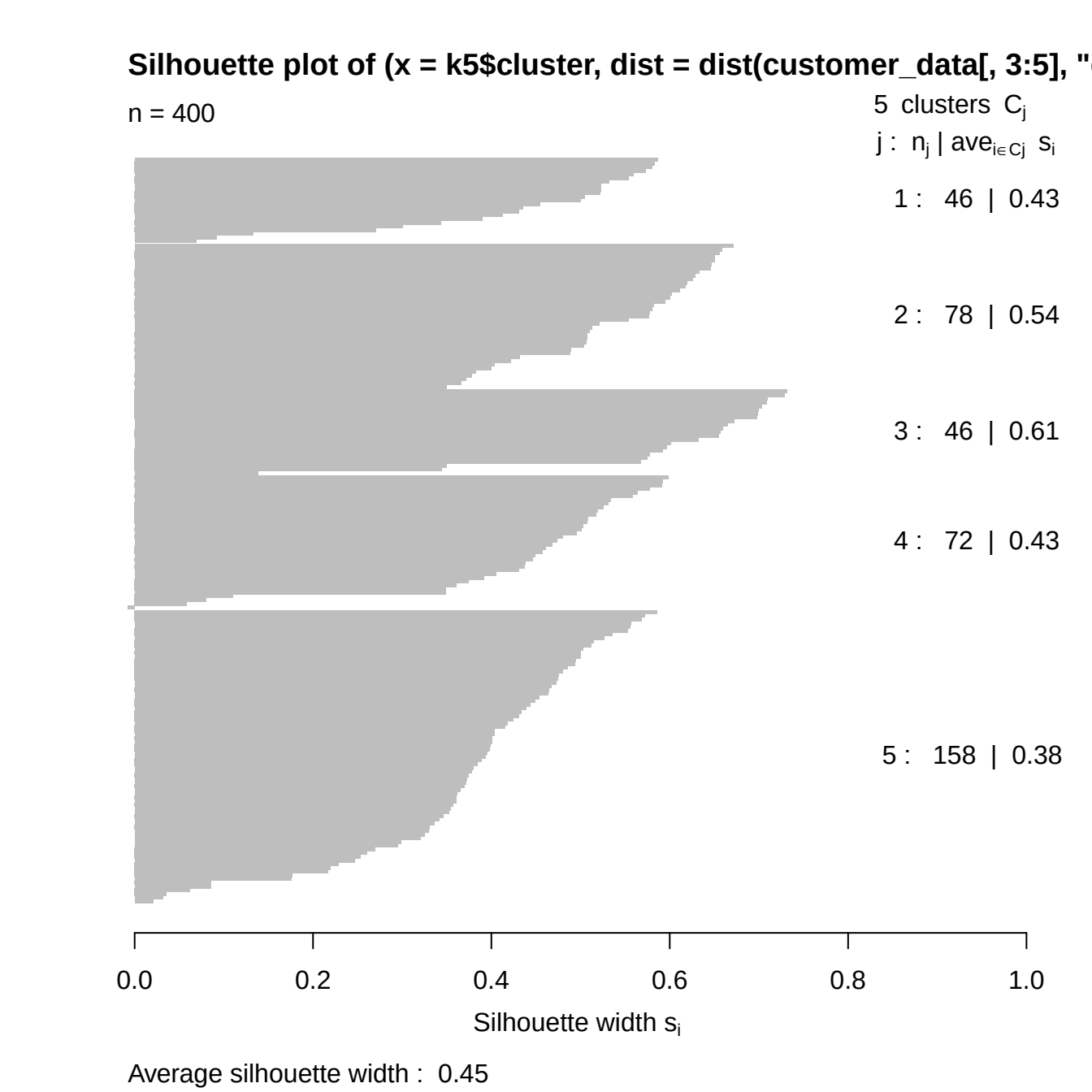

HistoGram for Spending Score
Frequency
0
20
40
60
80
32
40
20
34
80
70
16
48
32
28
0
20
40
60
80
100
Spending Score Class

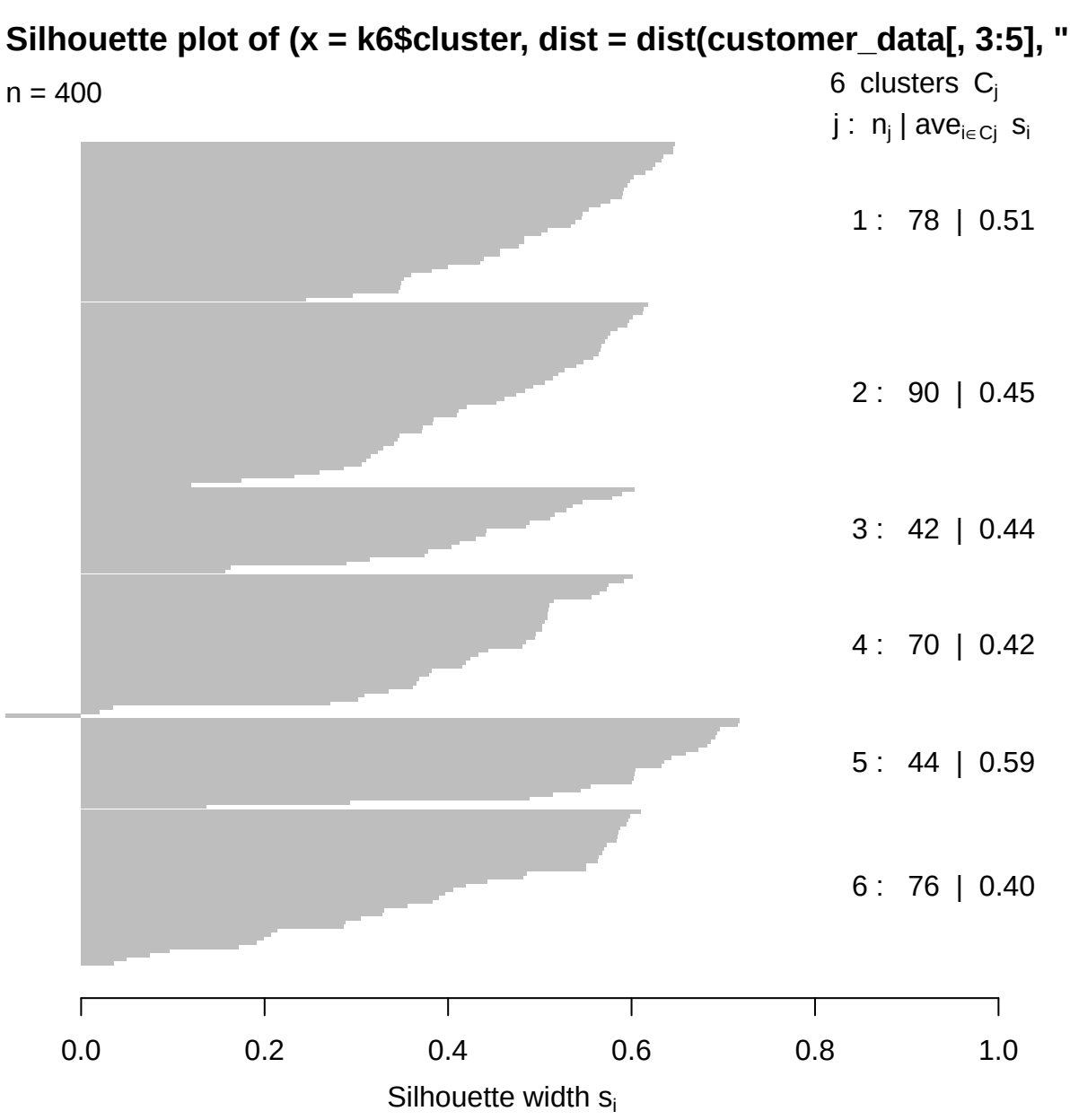

Total intra−clusters sum of squares
1e+05
2e+05
3e+05
4e+05
5e+05
6e+05
2
4
6
8
10
Number of clusters K

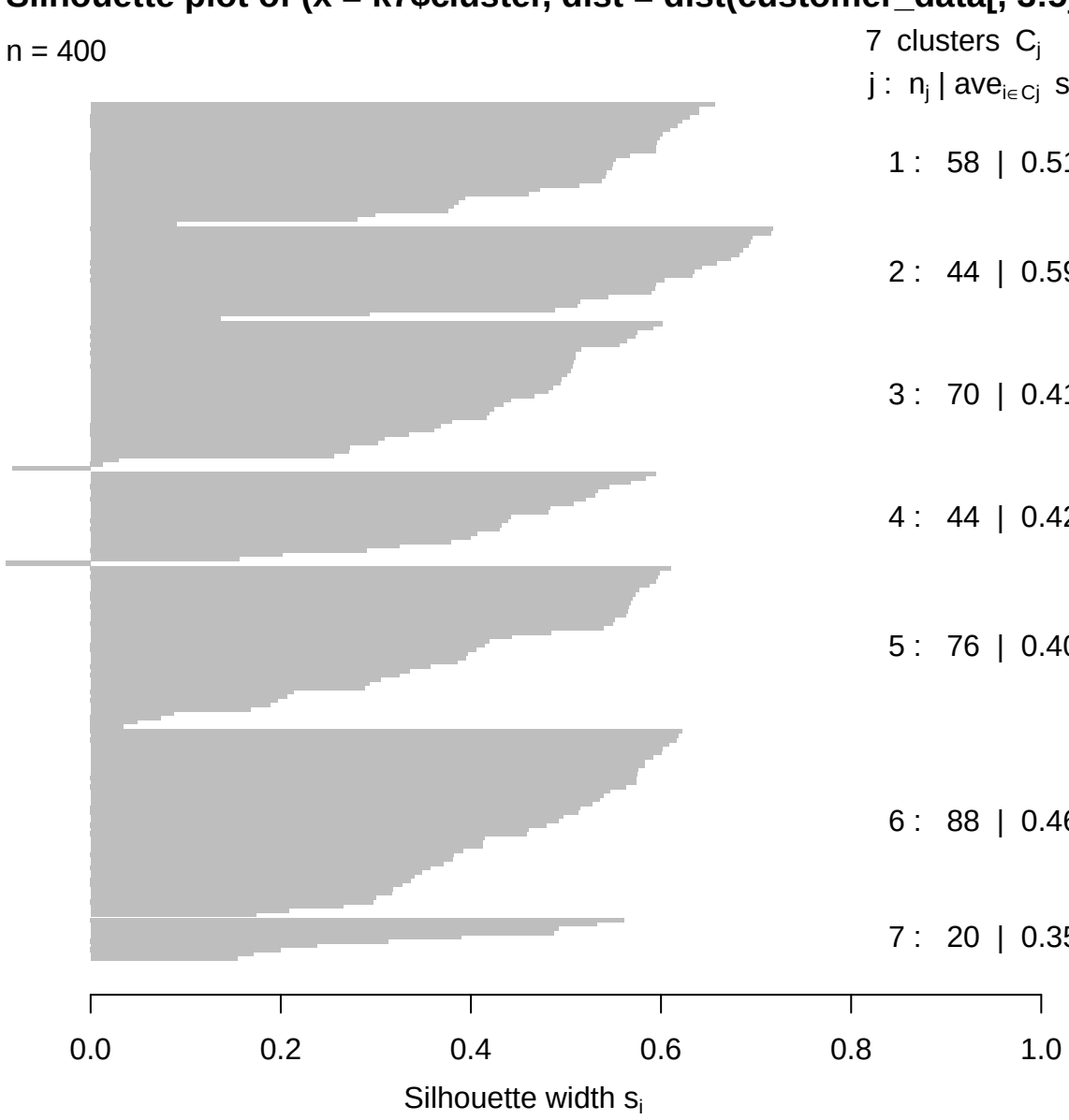

Silhouette plot of (x = k2$cluster, dist = dist(customer_data[, 3:5], "
n = 400
2 clusters C_j
j : n_j | ave$_{i \in Cj}$ s_i
1 : 170 | 0.31
2 : 230 | 0.29
0.0
0.2
0.4
0.6
0.8
1.0
Silhouette width s_i
Average silhouette width : 0.3


Silhouette plot of (x = k3$cluster, dist = dist(customer_data[, 3:5], "
n = 400
3 clusters C_j
j : n_j | $ave_{i \in Cj}$ s_i
1 : 246 | 0.28
2 : 76 | 0.50
3 : 78 | 0.60
0.0
0.2
0.4
0.6
0.8
1.0
Silhouette width s_i
Average silhouette width : 0.39

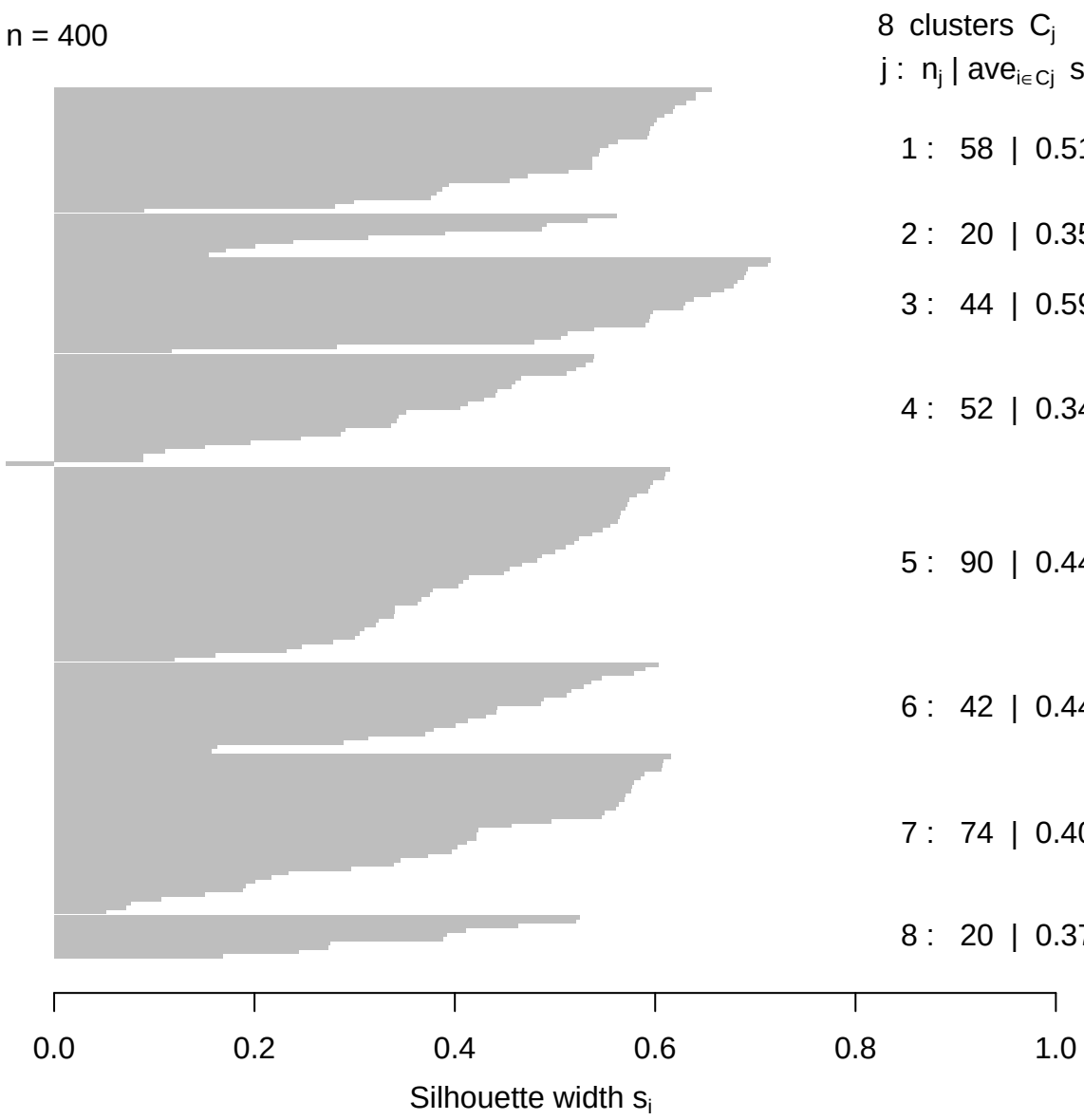

Silhouette plot of (x = k4$cluster, dist = dist(customer_data[, 3:5], "
n = 400
4 clusters C_j
j : n_j | $ave_{i \in Cj}$ s_i
1 : 56 | 0.52
2 : 78 | 0.59
3 : 190 | 0.29
4 : 76 | 0.44
0.0
0.2
0.4
0.6
0.8
1.0
Silhouette width s_i
Average silhouette width : 0.41

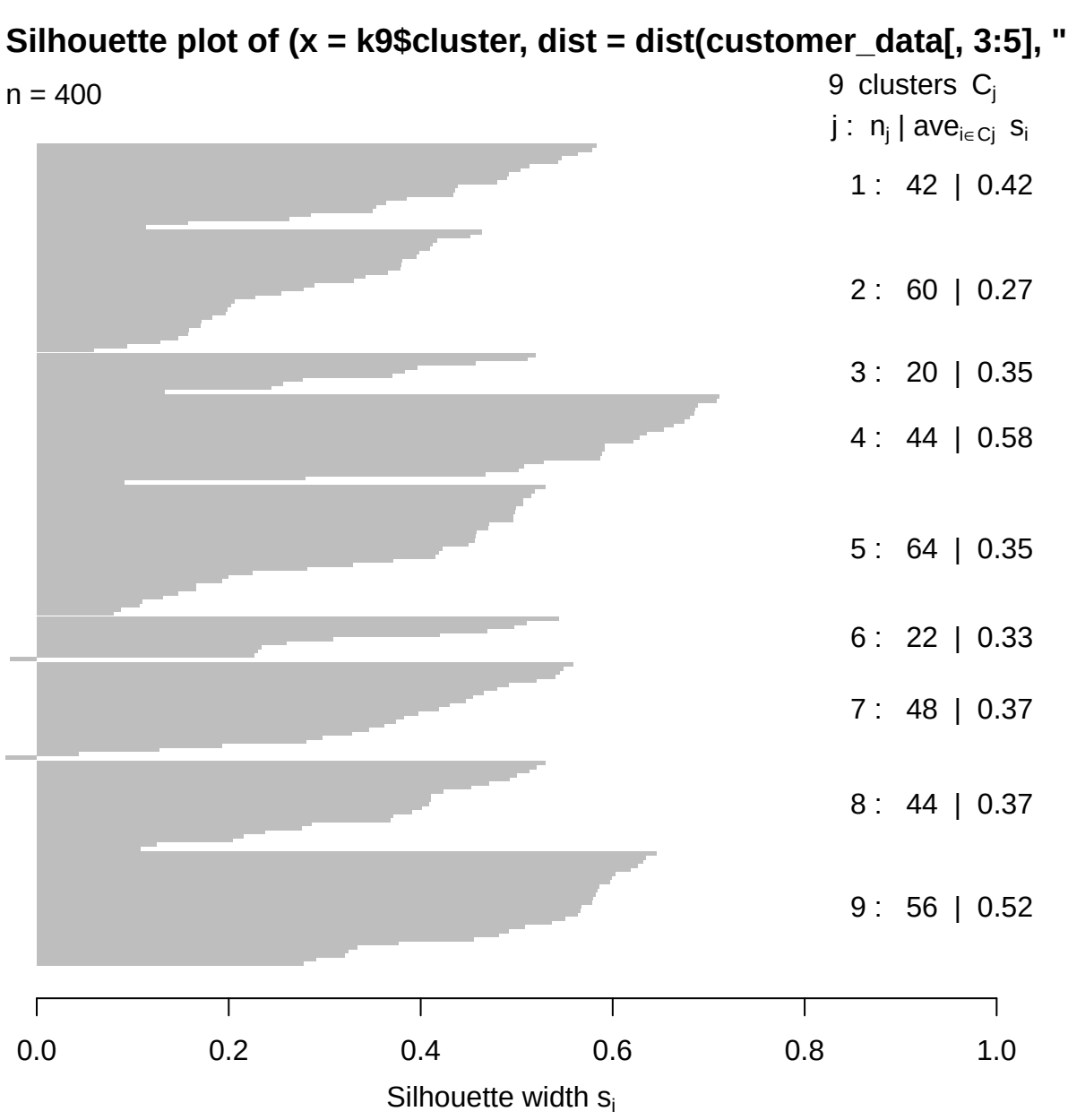

Silhouette plot of (x = k5$cluster, dist = dist(customer_data[, 3:5], "
n = 400
5 clusters C_j
j : n_j | ave$_{i \in Cj}$ s_i
1 : 46 | 0.43
2 : 78 | 0.54
3 : 46 | 0.61
4 : 72 | 0.43
5 : 158 | 0.38
0.0
0.2
0.4
0.6
0.8
1.0
Silhouette width s_i
Average silhouette width : 0.45

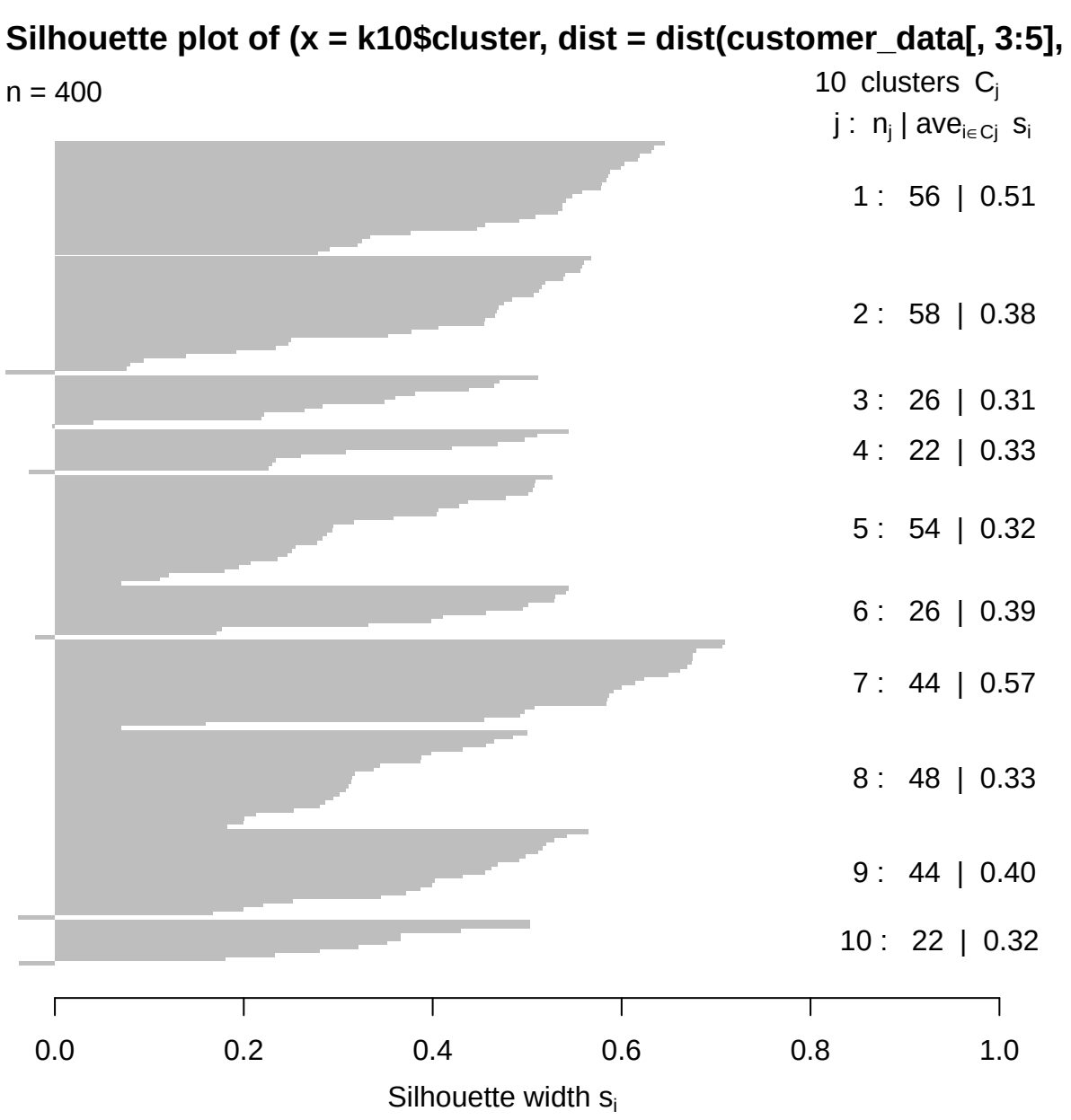

Silhouette plot of (x = k6$cluster, dist = dist(customer_data[, 3:5], "
n = 400
6 clusters C_j
j : n_j | $ave_{i \in Cj}$ s_i
1 : 78 | 0.51
2 : 90 | 0.45
3 : 42 | 0.44
4 : 70 | 0.42
5 : 44 | 0.59
6 : 76 | 0.40
0.0
0.2
0.4
0.6
0.8
1.0
Silhouette width s_i
Average silhouette width : 0.46

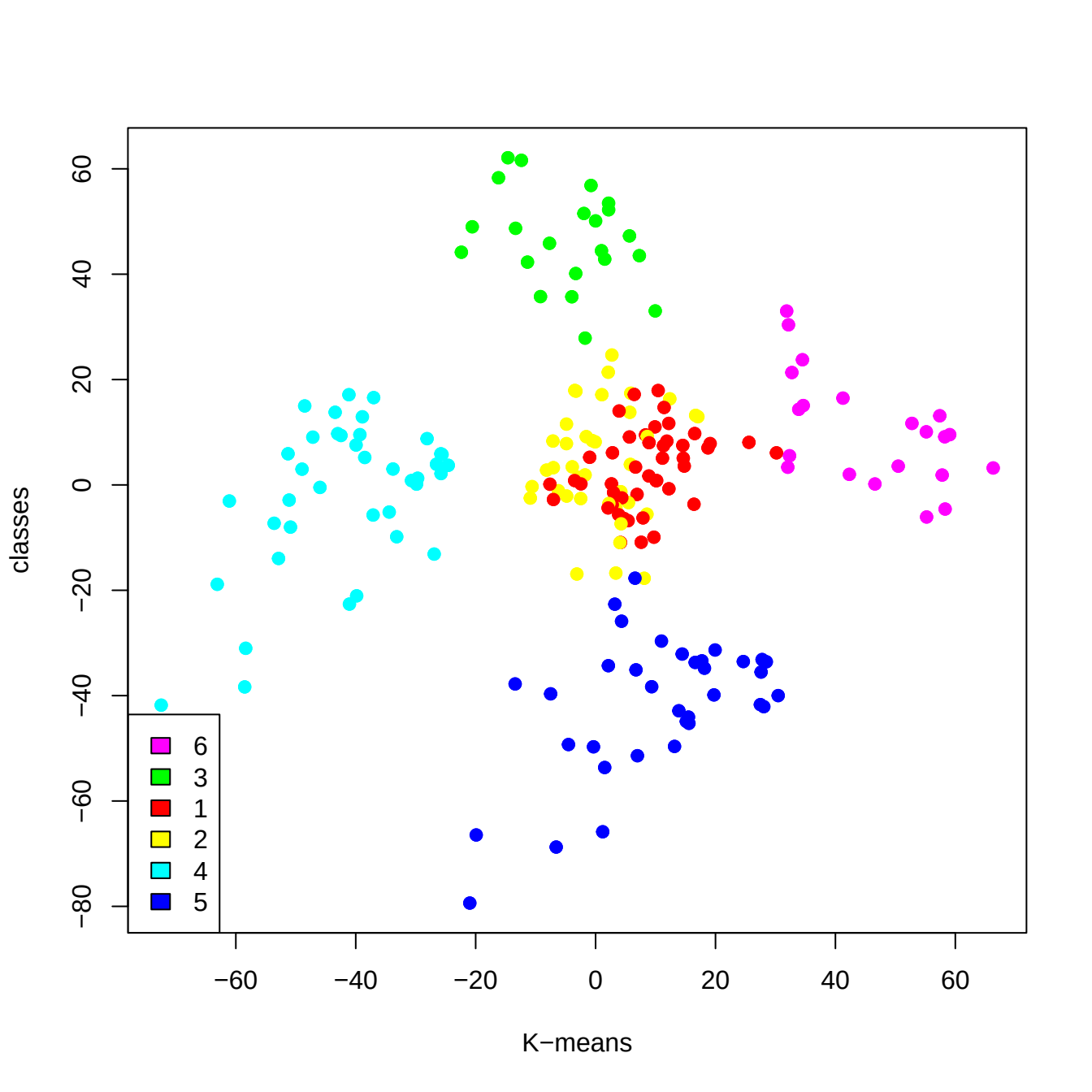


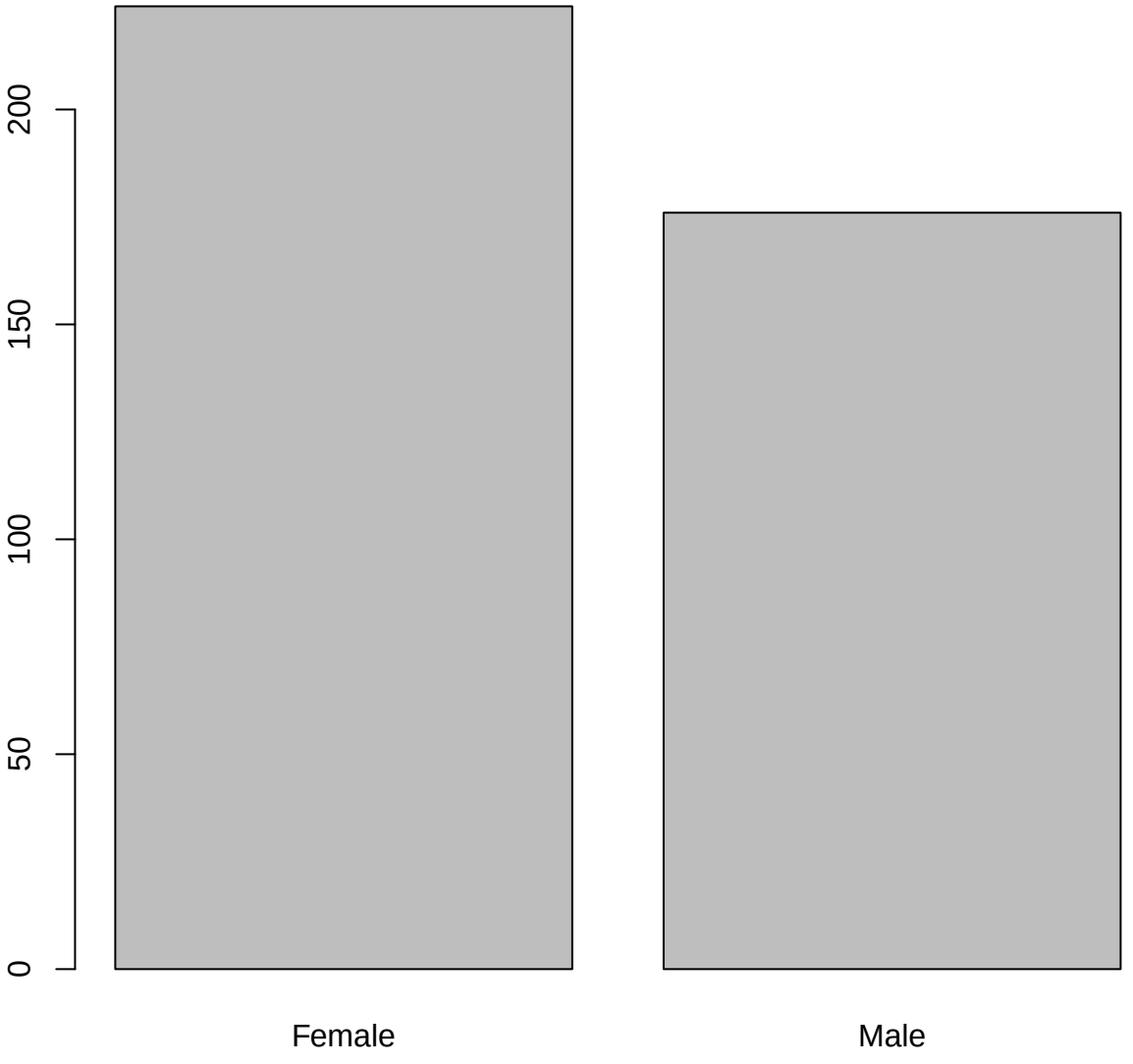
Average silhouette width : 0.45

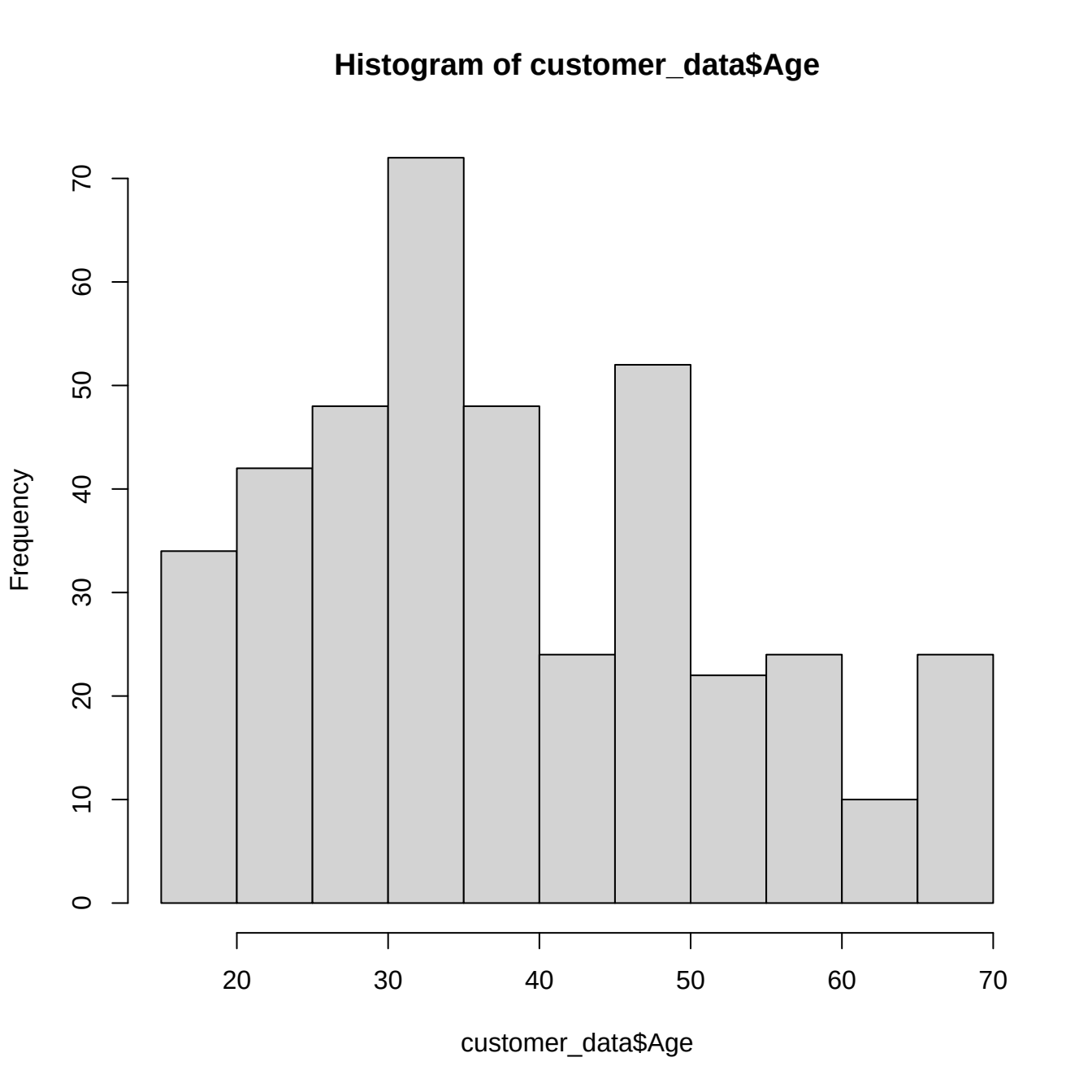

Silhouette plot of (x = k8$cluster, dist = dist(customer_data[, 3:5], "
n = 400
8 clusters C_j
j : n_j | ave$_{i \in Cj}$ s_i
1 : 58 | 0.51
2 : 20 | 0.35
3 : 44 | 0.59
4 : 52 | 0.34
5 : 90 | 0.44
6 : 42 | 0.44
7 : 74 | 0.40
8 : 20 | 0.37
0.0
0.2
0.4
0.6
0.8
1.0
Silhouette width s_i
Average silhouette width : 0.44

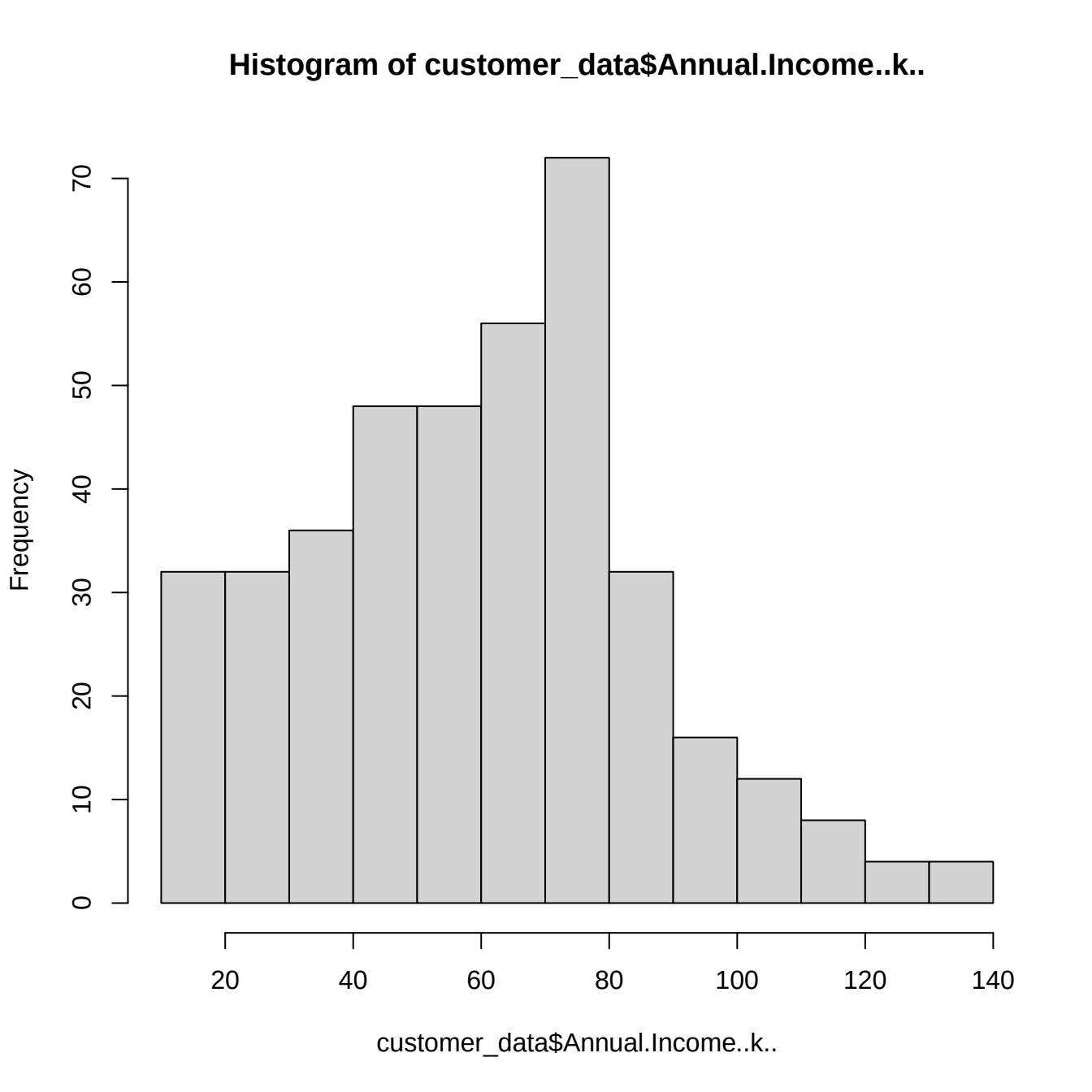

Silhouette plot of (x = k9$cluster, dist = dist(customer_data[, 3:5], "
n = 400
9 clusters C_j
j : n_j | $ave_{i \in Cj}$ s_i
1 : 42 | 0.42
2 : 60 | 0.27
3 : 20 | 0.35
4 : 44 | 0.58
5 : 64 | 0.35
6 : 22 | 0.33
7 : 48 | 0.37
8 : 44 | 0.37
9 : 56 | 0.52
0.0
0.2
0.4
0.6
0.8
1.0
Silhouette width s_i
Average silhouette width : 0.4

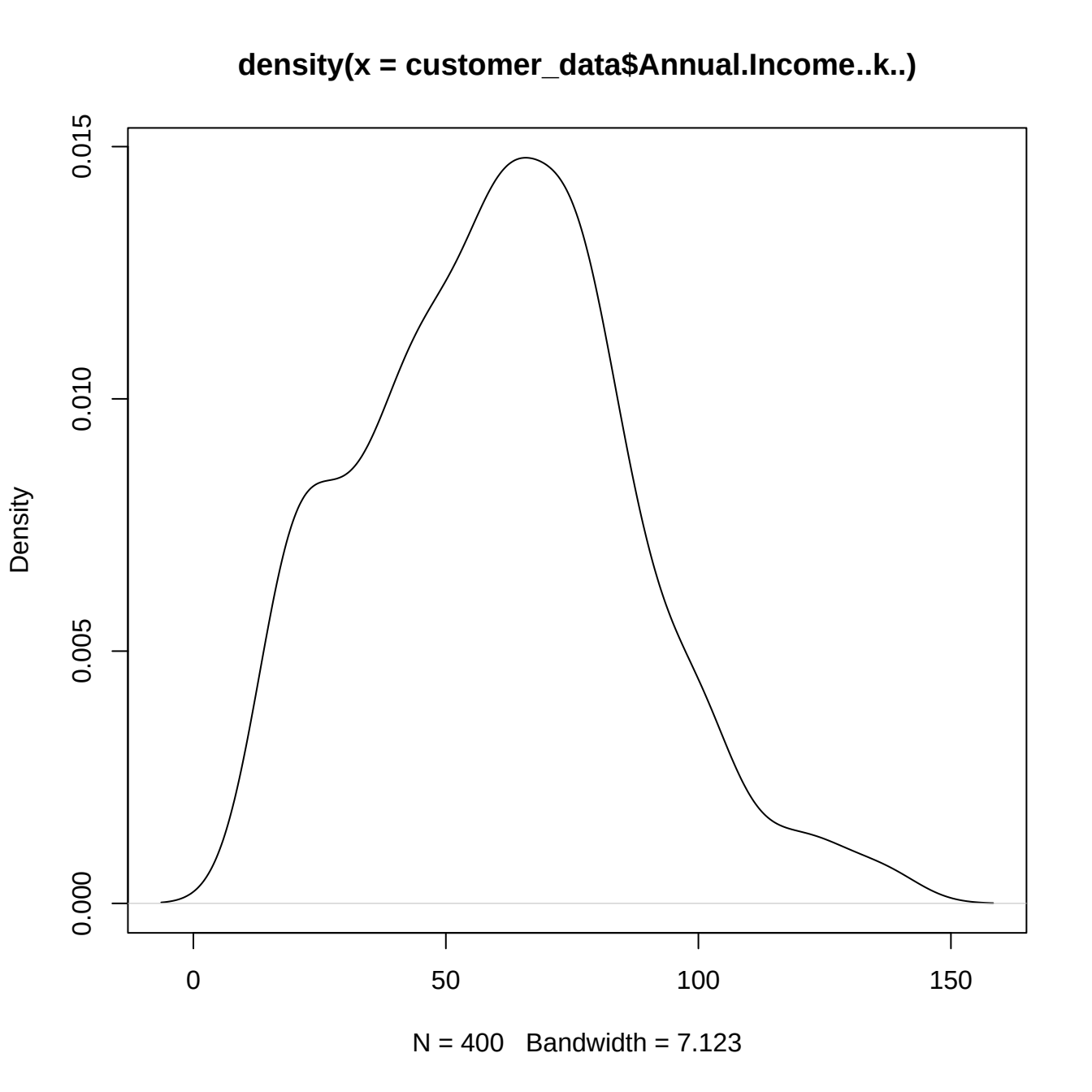

Silhouette plot of (x = k10$cluster, dist = dist(customer_data[, 3:5],
n = 400
10 clusters C_j
j : n_j | ave$_{i \in Cj}$ s_i
1 : 56 | 0.51
2 : 58 | 0.38
3 : 26 | 0.31
4 : 22 | 0.33
5 : 54 | 0.32
6 : 26 | 0.39
7 : 44 | 0.57
8 : 48 | 0.33
9 : 44 | 0.40
10 : 22 | 0.32
0.0
0.2
0.4
0.6
0.8
1.0
Silhouette width s_i
Average silhouette width : 0.4

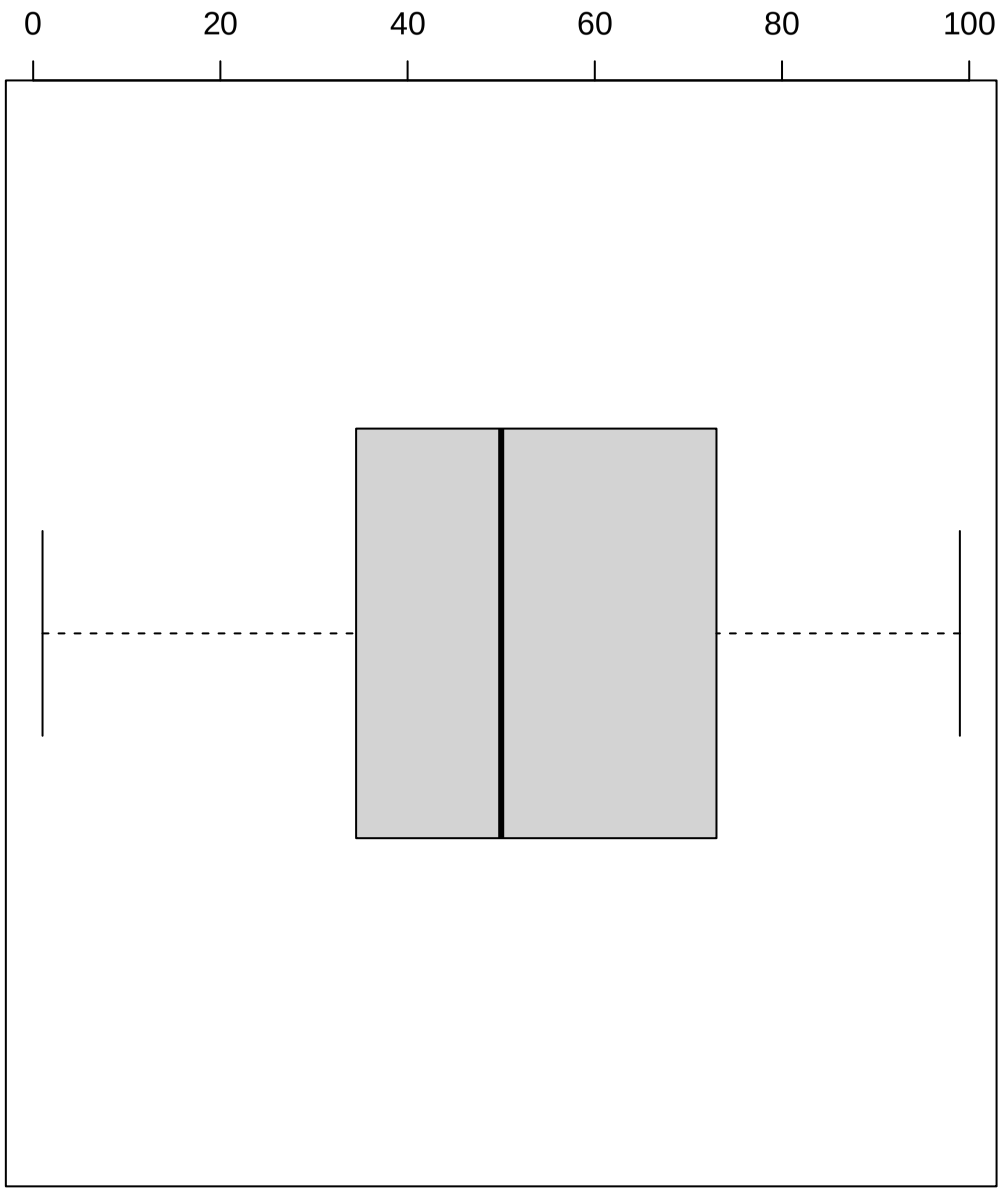

classes
K−means
−80
−60
−40
−20
0
20
40
60
6
3
1
2
4
5

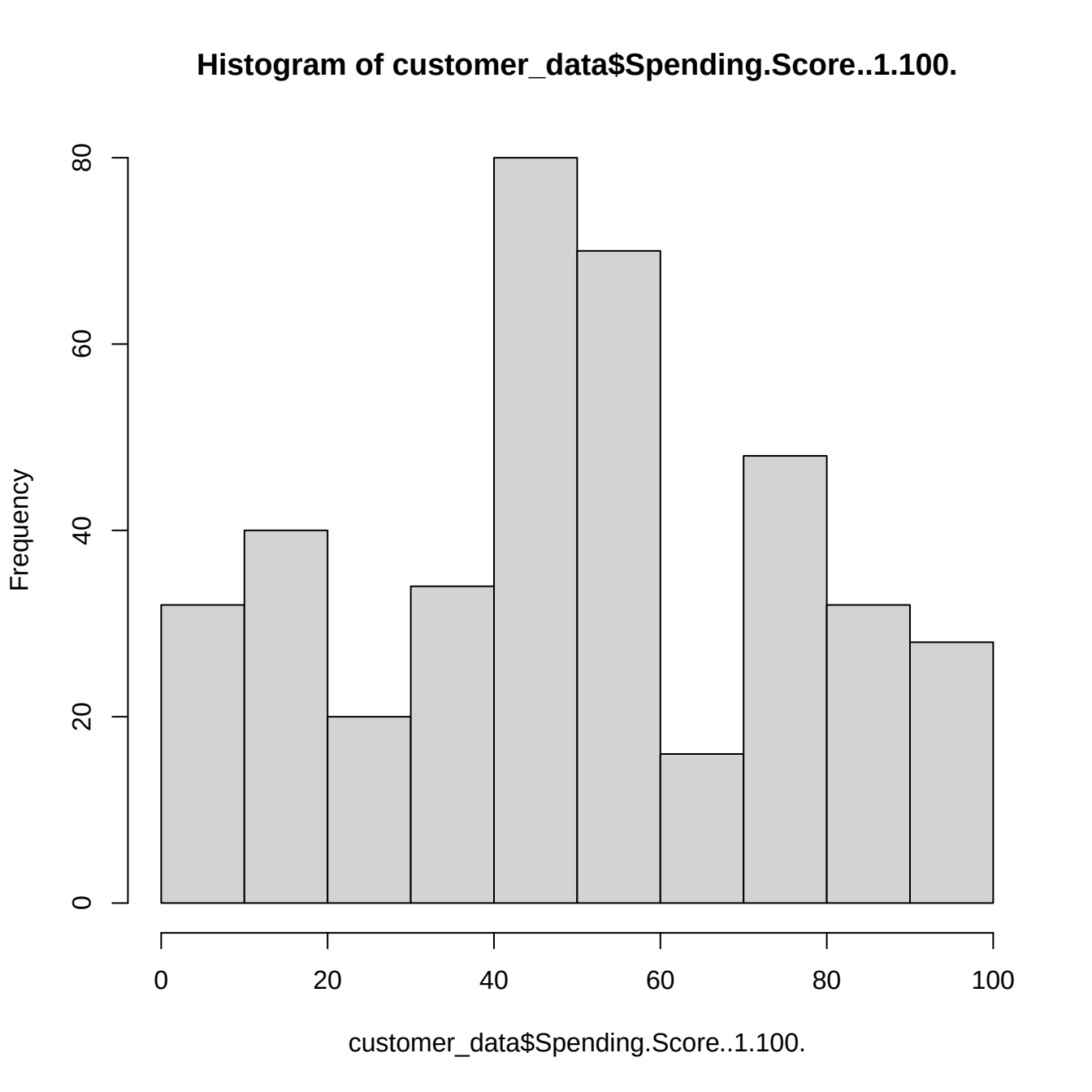

0
50
100
150
200
Female
Male

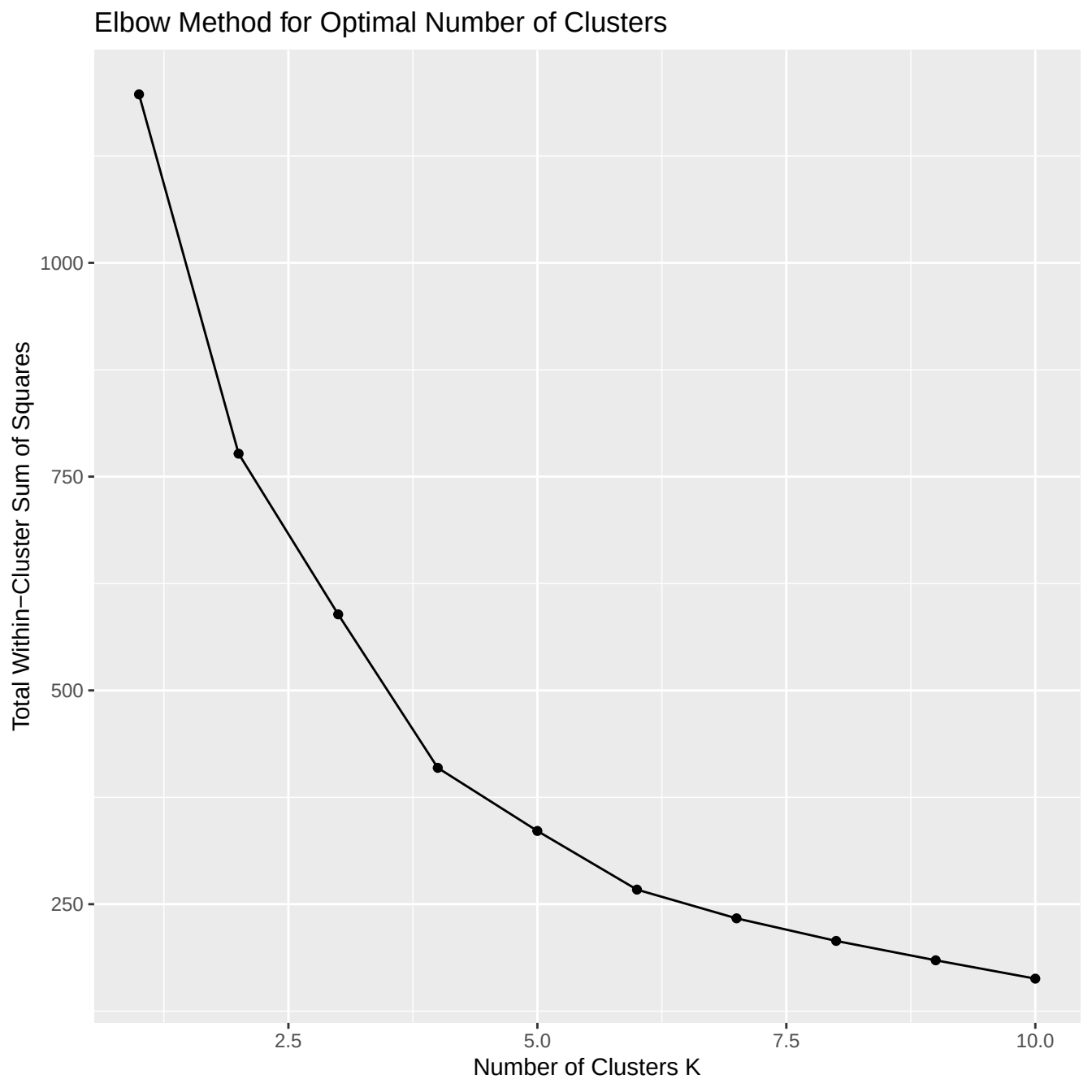

Histogram of customer_data$Age
Frequency
0
10
20
30
40
50
60
70
20
30
40
50
60
70
customer_data$Age


Histogram of customer_data$Annual.Income..k..
Frequency
0
10
20
30
40
50
60
70
20
40
60
80
100
120
140
customer_data$Annual.Income..k..


density(x = customer_data$Annual.Income..k..)
Density
0.000
0.005
0.010
0.015
0
50
100
150
N = 400 Bandwidth = 7.123


0
20
40
60
80
100


Histogram of customer_data$Spending.Score..1.100.
Frequency
0
20
40
60
80
0
20
40
60
80
100
customer_data$Spending.Score..1.100.


Elbow Method for Optimal Number of Clusters
Total Within−Cluster Sum of Squares
1000
750
500
250
2.5
5.0
7.5
10.0
Number of Clusters K