```
import pandas as pd
df = pd.read_csv(r'C:\Users\91637\OneDrive\Desktop\sev\cus.csv')
quantiles = df['Total Spending'].quantile([0.33, 0.67])
df['Spending Segment'] = pd.cut(df['Total Spending'], bins=[-1, quantiles[0.33], quantiles[0.67], float('inf')],
                                labels=['Low Spenders', 'Medium Spenders', 'High Spenders'])
avg_age = df.groupby('Spending Segment')['Age'].mean()
print("Customer Segmentation:")
print(df[['Customer ID', 'Spending Segment']])
print("\nAverage Age per Spending Segment:")
print(avg_age)
print("\nData Quality Checks:")
df.info()
print("\nMissing Values:")
print(df.isna().sum())
print("\nGender Distribution:")
print(df['Gender'].value_counts())
print("\nSpending Segment Statistics:")
print(df.groupby('Spending Segment', observed=True)['Total Spending'].agg(['mean', 'median', 'std']))
```

OUTPUT

```
Customer Segmentation:
    Customer ID Spending Segment
0          1001    High Spenders
1          1002     Low Spenders
2          1003  Medium Spenders
3          1004    High Spenders
4          1005  Medium Spenders
5          1006    High Spenders
6          1007    High Spenders
7          1008     Low Spenders
8          1009     Low Spenders
9          1010     Low Spenders
10         1011    High Spenders
11         1012  Medium Spenders
12         1013  Medium Spenders
13         1014     Low Spenders
14         1015  Medium Spenders

Average Age per Spending Segment:
Spending Segment
Low Spenders       39.0
Medium Spenders    45.4
High Spenders      40.0
Name: Age, dtype: float64
```

```
Data Quality Checks:
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 15 entries, 0 to 14
Data columns (total 5 columns):
 #   Column            Non-Null Count  Dtype
---  ------            --------------  -----
 0   Customer ID       15 non-null     int64
 1   Age               15 non-null     int64
 2   Gender            15 non-null     object
 3   Total Spending    15 non-null     float64
 4   Spending Segment  15 non-null     category
dtypes: category(1), float64(1), int64(2), object(1)
memory usage: 759.0+ bytes

Missing Values:
Customer ID         0
Age                 0
Gender              0
Total Spending      0
Spending Segment    0
dtype: int64

Gender Distribution:
Gender
Female    8
Male      7
Name: count, dtype: int64

Gender Distribution:
Gender
Female    8
Male      7
Name: count, dtype: int64

Spending Segment Statistics:
                       mean   median          std
Spending Segment
Low Spenders       1786.444  2246.54  1172.685912
Medium Spenders    5961.866  5695.37  1645.871845
High Spenders      8937.852  9175.56   361.603548
```