**Basic Statistic**

**Student’s Name**

**Instructor**

**Date**

**Analysis of Statement**

Mean is the average of the total data number of data. It is obtained by adding the data and then divides by the number of data. For instance the mean of clients’ age, wait time and satisfactory is obtained by adding the total and then divides by the number of participants or clients. The mean of clients’ age is 34.65, wait time is 59.05 and satisfy scale is 2.8. However, the median is described as the number, which appears in the middle of the list of numbers. In data set the median in the list of clients’ age is 35, wait time is 19 and satisfactory is 2.5. The mode of the data is a value that appears more often or frequent. It is the number or the value, which is more likely to be sampled. The mode of clients’ age is 50, wait time is 60 and the satisfactory is 1.

The standard deviation is the quantity, which expressed how a member of group is different from the mean value for the group. It measures how a number is spread out in the data set. Standard deviation is measured as the square root of variation. The standard deviation of clients’ age 19.59128431, wait time standard deviation is 132.0524118 and the satisfactory standard deviation is 1.609184167.

 **Figure 1: Column Chart for all 3 data sets**

The graph indicates that Kelly has the highest wait time of 600 and satisfactory level of less than 100 and wait time. However, Leah and Stephen have the lowest level of satisfactory, wait time and client age. The data therefore, shows that the clients experience different age, satisfactory level and wait time. The chart therefore, reveals a unique trend in customers’ satisfactory level and the wait time. It means that wait time affect the customer satisfactory level. And based on the graph most clients who wait for a longer time are not satisfied with the services being offered by the company.

**Range**

The range is the area of variation which exists between the upper and lower limits on a certain scale. The range of clients’ age is 65; wait time is 595 and satisfactory is 4. The descriptive statistics below therefore, shows the range, mean, median, mode and standard deviation.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Client Age*  |  | *Wait Time* |  | *Satisfactory*  |  |
|  |  |  |  |  |  |
| Mean | 34.65 | Mean | 59.05 | Mean | 2.8 |
| Standard Error | 4.380744349 | Standard Error | 29.52781695 | Standard Error | 0.359824519 |
| Median | 35 | Median | 19 | Median | 2.5 |
| Mode | 50 | Mode | 60 | Mode | 1 |
| Standard Deviation | 19.59128431 | Standard Deviation | 132.0524118 | Standard Deviation | 1.609184167 |
| Sample Variance | 383.8184211 | Sample Variance | 17437.83947 | Sample Variance | 2.589473684 |
| Kurtosis | -0.91665052 | Kurtosis | 16.8427622 | Kurtosis | -1.536404568 |
| Skewness | -0.18864775 | Skewness | 4.013436705 | Skewness | 0.276192405 |
| Range | 65 | Range | 595 | Range | 4 |
| Minimum | 2 | Minimum | 5 | Minimum | 1 |
| Maximum | 67 | Maximum | 600 | Maximum | 5 |
| Sum | 693 | Sum | 1181 | Sum | 56 |
| Count | 20 | Count | 20 | Count | 20 |

***Figure 2: Descriptive Statistic***

The mid range is the mean of the smallest and the largest values in the group of data. The mid range is therefore, 2.8 +59.05= 30.92. The variation of the data set for client age is 383.818421, wait time is 17437.8395 and satisfactory level is 2.58947368.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Anova: Single Factor** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **SUMMARY** |  |  |  |  |  |  |
| *Groups* | *Count* | *Sum* | *Average* | *Variance* |  |  |
| Client age | 20 | 693 | 34.65 | 383.818421 |  |  |
| Wait time | 20 | 1181 | 59.05 | 17437.8395 |  |  |
| Satisfactory  | 20 | 56 | 2.8 | 2.58947368 |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| ANOVA |  |  |  |  |  |  |
| *Source of Variation* | *SS* | *df* | *MS* | *F* | *P-value* | *F crit* |
| Between Groups | 31825.63 | 2 | 15912.82 | 2.678287 | 0.07732 | 3.158843 |
| Within Groups | 338660.7 | 57 | 5941.416 |  |  |  |
|  |  |  |  |  |  |  |
| Total | 370486.3 | 59 |   |   |   |   |

***Figure 3: Anova: Single Factor.***

**Coefficient of variation**

It is the ratio of standard deviation to the mean. Therefore, the standard deviation to the mean of clients’ age is 19.59128431. The coefficient of variation is zero (0).

**Analysis of the data**

It is evident that the wait time is correlated to the satisfactory level of the clients. The data shows that most clients who wait for a longer time have lower satisfactory level. The data indicates that clients who wait for longer time have satisfactory level of 1 and clients who wait for a short time have high satisfactory level. This means that it is important for the company to provide efficient services to customers. Offering services efficiently would help in avoiding long waiting and therefore, most clients would be satisfied with services being provided by the company. The data also indicates that the age of clients is directly related to the wait time and the satisfactory level of clients. The data set indicates that older clients have low satisfactory level and therefore, it means that majority of them are unsatisfied with the service being offered.

In conclusion, it would be important for the company to improve services to reduce the wait time and this would help in satisfactory level of customers. It is also important for the company to look into the age factor when dealing with clients. The data shows that majority of clients who are unsatisfied with services being provided are senior citizens and this can be avoided by ensuring that older clients are served first. The company should develop a system which monitors service delivery because this affect the performance of the company based on the data.

**Standard Normal Distribution**

The probability of less than 2.02 is 0.0217 and the probability of 1.45 is 0.0735 and the probability of 1.8 is 0.7764 and greater than 2.08 are 0.6826.