# **Data Science\_Univariate**

## **1.Central Tendency:**

|  | **sl\_no** | **ssc\_p** | **hsc\_p** | **degree\_p** | **etest\_p** | **mba\_p** | **salary** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mean** | 108.0 | 67.303395 | 66.333163 | 66.370186 | 72.100558 | 62.278186 | 288655.405405 |
| **Median** | 108.0 | 67.0 | 65.0 | 66.0 | 71.0 | 62.0 | 265000.0 |
| **Mode** | 1 | 62.0 | 63.0 | 65.0 | 60.0 | 56.7 | 300000.0 |

According to the placement dataset, students with an average performance score better in their Entrance test(estest\_p) than in their SSC, HSC, Degree and MBA exams. As a result, the average salary of students who had an average performance in these exams is 2,88,655.

On the other hand, the median value provides a salary of 2,65,000 which eliminates the effect of outliers and provides a more accurate estimation of the actual value. In Mode, the scores of 62, 63, 65, 60, 56 are frequently repeated by students who have appeared in their respective SSC, HSC, EntranceTest, Degree and MBA exams.

## **2.Percentile:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **sl\_no** | **ssc\_p** | **hsc\_p** | **degree\_p** | **etest\_p** | **mba\_p** | **salary** |
| **Mean** | 108 | 67.303395 | 66.333163 | 66.370186 | 72.100558 | 62.278186 | 288655.405 |
| **Median** | 108 | 67 | 65 | 66 | 71 | 62 | 265000 |
| **Mode** | 1 | 62 | 63 | 65 | 60 | 56.7 | 300000 |
| **Q1:25%** | 54.5 | 60.6 | 60.9 | 61 | 60 | 57.945 | 240000 |
| **Q2:50%** | 108 | 67 | 65 | 66 | 71 | 62 | 265000 |
| **Q3:75%** | 161.5 | 75.7 | 73 | 72 | 83.5 | 66.255 | 300000 |
| **99%** | 212.86 | 87 | 91.86 | 83.86 | 97 | 76.1142 | NaN |
| **Q4:100%** | 215 | 89.4 | 97.7 | 91 | 98 | 77.89 | 940000 |

In SSC pass marks, we can observe that 25% of students score 60.6, which gradually increases to 50% of students scoring 67, which is an increment of approximately 7%. Similarly, when it comes to 75% of students, they score 75.7 which is 9% increment. Finally, we see that 99% of students scored 87 and this gradually increased to 100% of students scoring 89.4 which is 2% increment.

In HSC pass marks, we can observe that 25% of students score 60.9, which gradually increases to 50% of students scoring 65, which is an increment of approximately 5%. Similarly, when it comes to 75% of students, they score 73 which is 8% increment. Finally, we see that 99% of students scored 91.86 and this gradually increased to 100% of students scoring 97.7 which is 6% increment.

In degree pass marks, we can observe that 25% of students score 61, which gradually increases to 50% of students scoring 66, which is an increment of approximately 5%. Similarly, when it comes to 75% of students, they score 73 which is 7% increment. Finally, we see that 99% of students scored 83.86 and this gradually increased to 100% of students scoring 91 which is 7% increment.

In Entrance test pass marks, we can observe that 25% of students score 60, which gradually increases to 50% of students scoring 71, which is an increment of approximately 11%. Similarly, when it comes to 75% of students, they score 83.5 which is 13.5% increment. Finally, we see that 99% of students scored 97 and this gradually increased to 100% of students scoring 98 which is 1% increment.

In MBA pass marks, we can observe that 25% of students score 57.94, which gradually increases to 50% of students scoring 62, which is an increment of approximately 4%. Similarly, when it comes to 75% of students, they score 66.25 which is 4 % increment. Finally, we see that 99% of students scored 76.11 and this gradually increased to 100% of students scoring 77.89 which is 1% increment.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **sl\_no** | **ssc\_p** | **hsc\_p** | **degree\_p** | **etest\_p** | **mba\_p** | **salary** |
| **Mean** | 108 | 67.303395 | 66.333163 | 66.370186 | 72.100558 | 62.278186 | 288655.405 |
| **Median** | 108 | 67 | 65 | 66 | 71 | 62 | 265000 |
| **Mode** | 1 | 62 | 63 | 65 | 60 | 56.7 | 300000 |
| **Q1:25%** | 54.5 | 60.6 | 60.9 | 61 | 60 | 57.945 | 240000 |
| **Q2:50%** | 108 | 67 | 65 | 66 | 71 | 62 | 265000 |
| **Q3:75%** | 161.5 | 75.7 | 73 | 72 | 83.5 | 66.255 | 300000 |
| **99%** | 212.86 | 87 | 91.86 | 83.86 | 97 | 76.1142 | NaN |
| **Q4:100%** | 215 | 89.4 | 97.7 | 91 | 98 | 77.89 | 940000 |

In Salary, we can observe that 25% of students gets 2,40,000, which gradually increases to 50% of students gets 2,65,000, which is an increment of approximately 11%. Similarly, when it comes to 75% of students, they get 3,00,000 which is 13 % increment. Finally, we see that 100% of students get 9,40,000 which is 201% increment.

## **3. InterQuarterRange(IQR)Table:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **sl\_no** | **ssc\_p** | **hsc\_p** | **degree\_p** | **etest\_p** | **mba\_p** | **salary** |
| **Mean** | 108 | 67.303395 | 66.334744 | 66.358558 | 72.100558 | 62.278186 | 277648.649 |
| **Median** | 108 | 67 | 65 | 66 | 71 | 62 | 265000 |
| **Mode** | 1 | 62 | 63 | 65 | 60 | 56.7 | 300000 |
| **Q1:25%** | 54.5 | 60.6 | 60.9 | 61 | 60 | 57.945 | 240000 |
| **Q2:50%** | 108 | 67 | 65 | 66 | 71 | 62 | 265000 |
| **Q3:75%** | 161.5 | 75.7 | 73 | 72 | 83.5 | 66.255 | 300000 |
| **99%** | 212.86 | 87 | 91.129 | 83.86 | 97 | 76.1142 | NaN |
| **Q4:100%** | 215 | 89.4 | 91.15 | 88.5 | 98 | 77.89 | 390000 |
| **IQR** | 107 | 15.1 | 12.1 | 11 | 23.5 | 8.31 | 60000 |
| **1.5Rule** | 160.5 | 22.65 | 18.15 | 16.5 | 35.25 | 12.465 | 90000 |
| **Lesser** | -106 | 37.95 | 42.75 | 44.5 | 24.75 | 45.48 | 150000 |
| **Greater** | 322 | 98.35 | 91.15 | 88.5 | 118.75 | 78.72 | 390000 |
| **Min** | 1 | 40.89 | 42.75 | 50 | 50 | 51.21 | 200000 |
| **Max** | 215 | 89.4 | 91.15 | 88.5 | 98 | 77.89 | 390000 |

## **4. Frequency Table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **unique\_values** | **Frequency** | **Relative\_Frequency** | **Cusum** |
| **0** | 56.7 | 3 | 0.032967 | 0.032967 |
| **1** | 66.94 | 2 | 0.021978 | 0.054945 |
| **2** | 59.47 | 2 | 0.021978 | 0.076923 |
| **3** | 60.44 | 2 | 0.021978 | 0.098901 |
| **4** | 68.07 | 2 | 0.021978 | 0.120879 |
| **...** | ... | ... | ... | ... |
| **200** | 67 | 1 | 0.010989 | 2.318681 |
| **201** | 64.27 | 1 | 0.010989 | 2.32967 |
| **202** | 57.65 | 1 | 0.010989 | 2.340659 |
| **203** | 59.42 | 1 | 0.010989 | 2.351648 |
| **204** | 60.22 | 1 | 0.010989 | 2.362637 |

## **5.Skew and Kurtosis:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **sl\_no** | **ssc\_p** | **hsc\_p** | **degree\_p** | **etest\_p** | **mba\_p** | **salary** |
| **Mean** | 108 | 67.303395 | 66.334744 | 66.358558 | 72.100558 | 62.278186 | 277648.649 |
| **Median** | 108 | 67 | 65 | 66 | 71 | 62 | 265000 |
| **Mode** | 1 | 62 | 63 | 65 | 60 | 56.7 | 300000 |
| **Q1:25%** | 54.5 | 60.6 | 60.9 | 61 | 60 | 57.945 | 240000 |
| **Q2:50%** | 108 | 67 | 65 | 66 | 71 | 62 | 265000 |
| **Q3:75%** | 161.5 | 75.7 | 73 | 72 | 83.5 | 66.255 | 300000 |
| **99%** | 212.86 | 87 | 91.129 | 83.86 | 97 | 76.1142 | NaN |
| **Q4:100%** | 215 | 89.4 | 91.15 | 88.5 | 98 | 77.89 | 390000 |
| **IQR** | 107 | 15.1 | 12.1 | 11 | 23.5 | 8.31 | 60000 |
| **1.5Rule** | 160.5 | 22.65 | 18.15 | 16.5 | 35.25 | 12.465 | 90000 |
| **Lesser** | -106 | 37.95 | 42.75 | 44.5 | 24.75 | 45.48 | 150000 |
| **Greater** | 322 | 98.35 | 91.15 | 88.5 | 118.75 | 78.72 | 390000 |
| **Min** | 1 | 40.89 | 42.75 | 50 | 50 | 51.21 | 200000 |
| **Max** | 215 | 89.4 | 91.15 | 88.5 | 98 | 77.89 | 390000 |
| **Skew** | 0 | -0.132649 | 0.162611 | 0.204164 | 0.282308 | 0.313576 | 0.8067 |
| **Kurtosis** | -1.2 | -0.60751 | 0.086901 | -0.09749 | -1.08858 | -0.470723 | -0.239837 |

According to the table, the SKEW value for the “SSC\_P” is -0.1326, indicating Negative skewness, which means the Mean Value is higher in the respective column. The KURTOSIS value for the “SSC\_P” is -0.60751 indicating platykurtic distribution.

According to the table, the SKEW value for the “HSC\_P” is 0.1626, indicating Positive skewness, which means the Mode Value is higher in the respective column. The KURTOSIS value for the “HSC\_P” is 0.08691 indicating platykurtic distribution.

According to the table, the SKEW value for the “DEGREE\_P” is 0.2041, indicating Positive skewness, which means the Mode Value is higher in the respective column. The KURTOSIS value for the “DEGREE\_P” is -0.0974 indicating platykurtic distribution.

According to the table, the SKEW value for the “ETEST\_P” is 0.2823, indicating Positive skewness, which means the Mode Value is higher in the respective column. The KURTOSIS value for the “ETEST\_P” is -1.0885 indicating platykurtic distribution.

According to the table, the SKEW value for the “MBA\_P” is 0.3135, indicating Positive skewness, which means the Mode Value is higher in the respective column. The KURTOSIS value for the “MBA\_P” is -0.4707 indicating platykurtic distribution.

According to the table, the SKEW value for the “SALARY” is 0.8067, indicating Positive skewness, which means the Mode Value is higher in the respective column. The KURTOSIS value for the “SALARY” is -0.2398 indicating platykurtic distribution.

## **6.Standard Deviation and Variance Table:**

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|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **sl\_no** | **ssc\_p** | **hsc\_p** | **degree\_p** | **etest\_p** | **mba\_p** | **salary** |
| **Mean** | 108 | 67.303395 | 66.334744 | 66.358558 | 72.100558 | 62.278186 | 277648.6486 |
| **Median** | 108 | 67 | 65 | 66 | 71 | 62 | 265000 |
| **Mode** | 1 | 62 | 63 | 65 | 60 | 56.7 | 300000 |
| **Q1:25%** | 54.5 | 60.6 | 60.9 | 61 | 60 | 57.945 | 240000 |
| **Q2:50%** | 108 | 67 | 65 | 66 | 71 | 62 | 265000 |
| **Q3:75%** | 161.5 | 75.7 | 73 | 72 | 83.5 | 66.255 | 300000 |
| **99%** | 212.86 | 87 | 91.129 | 83.86 | 97 | 76.1142 | NaN |
| **Q4:100%** | 215 | 89.4 | 91.15 | 88.5 | 98 | 77.89 | 390000 |
| **IQR** | 107 | 15.1 | 12.1 | 11 | 23.5 | 8.31 | 60000 |
| **1.5Rule** | 160.5 | 22.65 | 18.15 | 16.5 | 35.25 | 12.465 | 90000 |
| **Lesser** | -106 | 37.95 | 42.75 | 44.5 | 24.75 | 45.48 | 150000 |
| **Greater** | 322 | 98.35 | 91.15 | 88.5 | 118.75 | 78.72 | 390000 |
| **Min** | 1 | 40.89 | 42.75 | 50 | 50 | 51.21 | 200000 |
| **Max** | 215 | 89.4 | 91.15 | 88.5 | 98 | 77.89 | 390000 |
| **Skew** | 0 | -0.132649 | 0.162611 | 0.204164 | 0.282308 | 0.313576 | 0.8067 |
| **Kurtosis** | -1.2 | -0.60751 | 0.086901 | -0.09749 | -1.08858 | -0.470723 | -0.239837 |
| **Var** | 3870 | 117.228377 | 112.063731 | 53.60471 | 176.251018 | 34.028376 | 2944596801 |
| **Std** | 62.209324 | 10.827205 | 10.586016 | 7.321524 | 13.275956 | 5.833385 | 54264.13918 |

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