Assignment Day 11
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Question) Find out the correlation of Attrition with other variables with the help of Mannwhitneyu Test and T Test . For example Attrition with Age, income, employee performance.

1) Attrition VS Distance From Home

```
In [10]: # Attrition VS Disrance From Home
         stats,p=mannwhitneyu(databasea.Attrition,database.DistanceFromHome)
         print(stats,p)

         221121.0 0.0
```

As the P value of 0.0 is < 0.05, the H0 is rejected and Ha is accepted.
H0: There is no significant differences in the Distance From Home between attrition (Y) and attirition (N)
Ha: There is significant differences in the Distance From Home between attrition (Y) and attirition (N)

2) Attrition Vs Income

```
In [14]: # Attrition VS Monthly Income
         stats,p=mannwhitneyu(databasea.Attrition,database.MonthlyIncome)
         print(stats,p)

         0.0 0.0
```

As the P value is again 0.0, which is < than 0.05, the H0 is rejected and ha is accepted.
H0: There is no significant differences in the income between attrition (Y) and attirition (N)
Ha: There is significant differences in the income between attrition (Y) and attirition (N)

3) Attrition Vs Total Working Years

```
In [11]: # Attrition VS Total Working Years
         stats,p=mannwhitneyu(databasea.Attrition,database.TotalWorkingYears)
         print(stats,p)

         167611.5 0.0
```

As the P value is again 0.0, which is < than 0.05, the H0 is rejected and ha is accepted.
H0: There is no significant differences in the Total Working Years between attrition (Y) and attirition (N)
Ha: There is significant differences in the Total Working Years between attrition (Y) and attirition (N)

4) Attrition Vs Years at company

```
In [12]: # Attrition VS Year At Company
         stats,p=mannwhitneyu(databasea.Attrition,database.YearsAtCompany)
         print(stats,p)

         516375.0 0.0
```

As the P value is again 0.0, which is < than 0.05, the H0 is rejected and ha is accepted.
H0: There is no significant differences in the Years At Company between attrition (Y) and attirition (N)
Ha: There is significant differences in the Years At Company between attrition (Y) and attirition (N)

5) Attrition Vs YearsWithCurrentManager

```
In [13]: # Attrition VS Year With Current Manager
         stats,p=mannwhitneyu(databasea.Attrition,database.YearsWithCurrManager)
         print(stats,p)

         2083009.5 0.0
```

As the P value is again 0.0, which is < than 0.05, the H0 is rejected and ha is accepted.
H0: There is no significant differences in the Years With Current Manager between attrition (Y) and attirition (N)
Ha: There is significant differences in the Years With Current Manager between attrition (Y) and attirition (N)

Statistical Tests (Separate T Test)

1) **Attrition Vs Distance From Home**

```
In [17]: # Attrition VS Disrance from home
         stat, p=ttest_ind(database.Attrition,database.DistanceFromHome)
         print(stat,p)

         -73.73840780127942 0.0
```

As the P value is again 0.0, which is < than 0.05, the H0 is rejected and ha is accepted.
H0: There is no significant differences in the Distance From Home between attrition (Y) and attirition (N)
Ha: There is significant differences in the Distance From Home between attrition (Y) and attirition (N)

2) **Attrition Vs Income**

```
In [18]: # Attrition VS Monthly Income
         stat, p=ttest_ind(database.Attrition,database.MonthlyIncome)
         print(stat,p)

         -91.35865025190587 0.0
```

As the P value is again 0.0, which is < than 0.05, the H0 is rejected and ha is accepted.
H0: There is no significant differences in the Monthly Income between attrition (Y) and attirition (N)
Ha: There is significant differences in the Monthly Income between attrition (Y) and attirition (N)

3) **Attrition Vs Yeats At Company**

```
In [19]: # Attrition VS Year At Company
         stat, p=ttest_ind(database.Attrition,database.YearsAtCompany)
         print(stat,p)

         -73.84287889316467 0.0
```

As the P value is again 0.0, which is < than 0.05, the H0 is rejected and ha is accepted.
H0: There is no significant differences in the Years At Company between attrition (Y) and attirition (N)
Ha: There is significant differences in the Years At Company between attrition (Y) and attirition (N)

4) Attrition Vs Years With Current Manager

```
In [20]: # Attrition VS Year With Current Manager
         stat, p=ttest_ind(database.Attrition,database.YearsWithCurrManager)
         print(stat,p)

         -73.14692416000004 0.0
```

As the P value is again 0.0, which is < than 0.05, the H0 is rejected and ha is accepted.
H0: There is no significant differences in the Years With Current Manager between attrition (Y) and attirition (N)
Ha: There is significant differences in the Years With Current Manager between attrition (Y) and attirition (N)