**Business Problem:**

An educational platform derives course scores by using the ratings assigned to courses and employs these scores for ranking purposes. However, an employee argues that those who watch courses less tend to assign lower ratings, negatively impacting a fair scoring. Therefore, there is a desire to ascertain whether the extent of course viewing truly influences the scoring and to take action accordingly based on this determination.

Veriseti Örneği:

|  |  |  |  |
| --- | --- | --- | --- |
| Rating | Progress | Question Asked | Question Answered |
| 5 | 5 | 0 | 0 |
| 4.5 | 1 | 0 | 0 |
| 3.5 | 10 | 0 | 0 |
| 5 | 25 | 1 | 1 |
| 4 | 5 | 0 | 0 |

NOTE :

The comparison might be performed as follows:

df[(df["Progress"] > 75)]["Rating"].mean()

= 4.86

df[(df["Progress"] < 25)]["Rating"].mean()

=4.72

As observed, those who watch more than 75% of the course have an average rating of 0.14 points higher than those who watch less than 25%. However, we cannot directly conclude that "those who watch the course more give higher ratings, therefore the contribution of ratings should be adjusted based on the course consumption rate for scoring." This situation should be analyzed using statistical methods in a way that eliminates randomness and leads to a conclusion, and action should be taken accordingly.

**Solution :**

**Step-1:** Divide the raters into two groups, less than 25% and more than 75%.

**Step-2:** Hypothesize

H0: M1 = M2 , There is no significant difference between the averages of the two groups. In other words, even if there appears to be a difference, it is random and not worth considering.

H1: M1 != M2 , There is a significant difference between the averages of the two groups. In other words, as the course viewing rate increases, the given scores change. Therefore, when evaluating the ratings based on the course viewing rate, it should be taken into account.

**Step-3:** Perform *Normality checks* and *variance homogeneity checks* to select the correct statistical test.

**Normality check**:

Both Control group and Test group were testet with **Shapiro-Wilk Test**. Both groups doesn’t have a normal distrubition. (p = 0.00 < 0.05)

**Variance Homogeneity check**

Both groups are tested with **Levene Test.** Variances are not homogenous. (p = 0.00 < 0.05)

To be able to apply Parametric T-Test, both groups should have normal distrubution and variance homogenity. So Non-Parametric Test (Mann-Whitney U) will be applied.

**Step-4:** Apply the test on the hypothesis and get the results.

As a result of Non-Parametric Test, H0 is rejected. That means there is a meaningful difference between the two groups.

**Analysis of the Results:**

The lower scores given by those who haven't watched most of the course compared to those who have watched most of it indicate that ;

Ratings were given without knowing the content of the course, leading to a negative perception of the course. **This statistically proven result** suggests that the ratings of those who watch the course less should be given less weight compared to those who watch it more. For this purpose, coefficients can be determined based on viewing rates to calculate the ratings.

For example;

• For 0-24%, use 0.20,

• For 25-49%, use 0.23,

• For 50-74%, use 0.27,

• For 75-100%, use 0.30

By using these coefficients, we incorporate the viewing rate into the scoring. (0.20 + 0.23 + 0.27 + 0.30 = 1)