1. **Data and Null and Alternative Hypothesis Statements**

Rank: LNMTI Adequate

Treatment A: Results for LNMTI Adequate Pre-2012

Treatment B: Results for LNMTI Adequate Project Maths 2012

|  |  |
| --- | --- |
| **Pre-2012 A** | **P.M. 2012 B** |
| **7** | **5** |
| **5** | **4** |
| **5** | **3** |
| **3** | **3** |
| **2** | **2** |
| **1** |  |

There is no difference between the ranks of Pre-2012 and Project Maths 2012

There is a difference between the ranks of Pre-2012 and Project Maths 2012

Two Tailed Test unpaired Mann Whitney Test

1. **Rank Individual Values from Smallest to Largest**

|  |  |
| --- | --- |
| **Rank** | **Value** |
| 1 | 1 |
| 2 | 2 |
| 3 | 2 |
| 4 | 3 |
| 5 | 3 |
| 6 | 3 |
| 7 | 4 |
| 8 | 5 |
| 9 | 5 |
| 10 | 5 |
| 11 | 7 |

1. **Adjust Rankings for Tied Values**

|  |  |
| --- | --- |
| **Rank** | **Value** |
| 1 | 1 |
| 2.5 | 2 |
| 2.5 | 2 |
| 5 | 3 |
| 5 | 3 |
| 5 | 3 |
| 7 | 4 |
| 9 | 5 |
| 9 | 5 |
| 9 | 5 |
| 11 | 7 |

1. **Sum Rankings for both Treatments**

|  |  |
| --- | --- |
| **Pre-2012 (A)** | **P.M. 2012 (B)** |
| 11 | 9 |
| 9 | 7 |
| 9 | 5 |
| 5 | 5 |
| 2.5 | 2.5 |
| 1 |  |
|  |  |

1. **Calculation of the U-Statistic**

Rank Sum -

37.5 - = 16.5

28.5 - = 13.5

Therefore the U-statistic is the lowest value of the two calculations which in this case is 13.5

1. **Determine a Critical Value**

Go to Tables for Critical Values of the Mann-Whitney U (Two-Tailed Testing)

For , the critical value for Treatment A, and Treatment B, is 3

1. **Conclusion**

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We fail to reject the null hypothesis, that is, there is no difference between the ranks of Pre-2012 and Project Maths 2012.