Ranking for report types:

The plot and counts indicates that the time expended might just be aligned with the volume of report. This indicates that ‘Balances’ might just require further investigations as the quantity of report produced in proportion to time expended is the problem.

Top contributors to time loss:

* Error Type – Duplicated Data, Aggregated Data
* Department Type – Production Planning, Production Department
* Report Type – Balances, Production Volume

**Hypothesis Testing Q1:**

Null hypothesis = Number of entries in Error Group 1 > Number of entries in Error Group 2

Alternative hypothesis = Number of entries in Group 1 < Number of entries in Error Group 2

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | **2 Proportions Test and Confidence Interval** | | | | | | | | | |
| Sample Data (user inputs): | | | | | Sample 1 | | | Sample 2 |
| Number of Events | | | x | | 1 | | | 2 |
| Sample Size | | | n | | 10 | | | 10 |
| Null Hypothesis (hypothesized difference) | | | H0: P1 - P2 = | | 0 | | | |
| Alternative Hypothesis | | | Ha: P1 - P2 | | Not Equal To | | | |
| Confidence Level (enter .95 for 95%) | | | 100\*(1-α)% | | 95.0% | | | |
| Hypothesis Test Method | | |  | | Fisher's Exact | | | |
| Confidence Interval Method | | |  | | Newcombe-Wilson Score | | | |
| **Test Information** | | | | | | | | |
|  | Null Hypothesis H0: | P1 - P2 | | = 0 | | Fail to Reject | | |
|  | Alternative Hypothesis Ha: | P1 - P2 | | ≠ 0 | |  | | |
| **Fisher's Exact probability P-Value (2-sided)** | | | | | | | **1.0000** | |

**Prioritization of Reports using Pareto Chart**

From the pareto, my top 3 is production volume, exploration and balance reports (Report group 1)

**Hypothesis Testing Q2:**

Null hypothesis = Number of entries in Report Group 1 > Number of entries in Report Group 2

Alternative hypothesis = Number of entries in Report Group 1 < Number of entries in Report Group 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test Information - 2 Proportions Test and Confidence Interval | | | | | | | |
|  | Null Hypothesis H0: | P1 - P2 | = 0 | Fail to Reject | | | |
|  | Alternative Hypothesis Ha: | P1 - P2 | ≠ 0 |  | | | |
| **Fisher's Exact probability P-Value (2-sided)** | | | | | **1.0000** | | |
| Results: | | | | | | | |
| Sample proportion (x/n) | | | | | | 0.1000 | 0.2000 |
| Sample proportion difference | | | | | | -0.1000 | |
| alpha | | | | | | 0.0500 | |
| Minimum expected value (should be >= 5 for normal approximation) | | | | | | 1.5000 | |
| Fisher's Exact probability P-Value (2-sided) | | | | | | 1.0000 | |
| Upper Confidence Limit (2-sided) | | | | | | 0.2362 | |
| Lower Confidence Limit (2-sided) | | | | | | -0.4205 | |

**Interpretation of P-Value and Confidence Intervals:**

|  |
| --- |
| The P-Value is the two-sided (two-tail) probability of observing a difference in proportions at least as extreme as -0.1000, given that the null hypothesis is true. Since the P-Value is greater than alpha (0.05), we fail to reject the null hypothesis H0: P1 - P2 = 0. |
| We are 95% confident that the true difference in population proportions lies within the interval (-0.4205 to 0.2362). |

**Hypothesis Testing Q3**

Null hypothesis = Number of entries in Error Groups > Number of entries in Report Groups

Alternative hypothesis = Number of entries in Error Groups < Number of entries in Report Groups

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Test Information - 2 Proportions Test and Confidence Interval | | | | | | |
|  | Null Hypothesis H0: | | P1 - P2 | = 0 | Fail to Reject | |
|  | Alternative Hypothesis Ha: | | P1 - P2 | ≠ 0 |  | |
| : Results: | | | | | | |
| Sample proportion (x/n) | | 0.1000 | | | | 0.2000 |
| Sample proportion difference | | -0.1000 | | | | |
| alpha | | 0.0500 | | | | |
| Minimum expected value (should be >= 5 for normal approximation) | | 1.5000 | | | | |
| Fisher's Exact probability P-Value (2-sided) | | 1.0000 | | | | |
| Upper Confidence Limit (2-sided) | | 0.2362 | | | | |
| Lower Confidence Limit (2-sided) | | -0.4205 | | | | |
| Interpretation of P-Value and Confidence Intervals | | | | | | |
| The P-Value is the two-sided (two-tail) probability of observing a difference in proportions at least as extreme as -0.1000, given that the null hypothesis is true. Since the P-Value is greater than alpha (0.05), we fail to reject the null hypothesis H0: P1 - P2 = 0. | | | | | | |
| We are 95% confident that the true difference in population proportions lies within the interval (-0.4205 to 0.2362). | | | | | | |