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| **Test Cases for Weights** | **Test Cases for Options** | **Combinations for Parameters and Options** | **Logic** | **Results** |
| All comparisons are extremely more important | Cluster of values | |  | | --- | | 2 Parameters, 2 Options | | 2 Parameters, 10 Options | | 15 Parameters, 2 Options | | 15 Parameters, 10 Options | | -This comparison gives you the most extreme values for the weights  -Cluster values are the most ideal | The results show no significant issues. The tool perform correctly. The weights for more than 5 parameters are significantly smaller than the first 5 parameters that the data enter for the option matrix is irrelevant and not factor into the calculation. |
|  | Cluster with outlier(one direction or both direction) | |  | | --- | | ~~2 Parameters, 2 Options~~ | | ~~2 Parameters, 10 Options~~ | | 15 Parameters, 2 Options | | 15 Parameters, 10 Options | | -This comparison gives extreme weights along with testing how outliers can affect the outcome | The outlier had no effect due to more than half of the parameters for (15 para combinations) was less than 1 percent. |
|  | Wide range of values (i.e. 1 to 1000) | |  | | --- | | 2 Parameters, 2 Options | | 2 Parameters, 10 Options | | 15 Parameters, 2 Options | | 15 Parameters, 10 Options | | -This comparison gives extreme weights and shows how a wide range of options values affect the outcome  -The most vital scenarios to examine are the 2 para 10 opt and 15 para 10 opt.(2 Para and 2 Opt; 15 Para and 2 Opts do not examine this scenario to the extremes) | The wide range of values directly correlates to the results for the 2 parameters; the 15 parameter combinations, the wide range is hard to reflect due to the weights being so small.  The wide range scenario with 5 parameters and 7 options still had very small weights ranging from 50% to 3%. |
|  | 2 consecutive numbers are the max’s and min (i.e. 4 and 5); this allow for small variation within the matrix | |  | | --- | | 2 Parameters, 2 Options | | 2 Parameters, 10 Options | | 15 Parameters, 2 Options | | 15 Parameters, 10 Options | | -This comparison will give the extreme weights and condense the range to only two consecutive number which allows the tool to dictate the range if the range is not given for the option matrix. | The weights are extremely small for 15 parameters |
| All comparison are moderately more important | Cluster of values | |  | | --- | | 2 Parameters, 2 Options | | 2 Parameters, 10 Options | | 15 Parameters, 2 Options | | 15 Parameters, 10 Options | | -This scenario gives an extreme case since all of the values with will be moderately. This will affect the weight distribution. | In comparison to the extremely cluster combinations the utility score for each parameter was much different for moderately more important. The moderately more important had a more even weight distribution. |
|  | Wide range of values (i.e. 1 to 1000) | |  | | --- | | 2 Parameters, 2 Options | | 2 Parameters, 10 Options | | 15 Parameters, 2 Options | | 15 Parameters, 10 Options | | This comparison gives the extreme case of what the user would input in for a wide range of values. | The wide range scenario performed as expected the option with the highest range was calculated to be the best option. |
| All of the comparisons are not more important | Cluster of values | |  | | --- | | 2 Parameters, 2 Options | | 2 Parameters, 10 Options | | 15 Parameters, 2 Options | | 15 Parameters, 10 Options | | -This allows for 50% of the weight to be given to one parameter. This is an extreme scenario. | The parameters were closer to equal, there were no significant problems with the tool. |
|  | Cluster with outlier(one direction or both direction) | |  | | --- | | ~~2 Parameters, 2 Options~~ | | ~~2 Parameters, 10 Options~~ | | 15 Parameters, 2 Options | | 15 Parameters, 10 Options | | -This allows for 50% of the weight to be given to one parameter. This is an extreme scenario. This comparison analyzes the effect of the outlier within the cluster | No significant problems with the tool. |
|  | Wide range of values (i.e. 1 to 1000) | |  | | --- | | 2 Parameters, 2 Options | | 2 Parameters, 10 Options | | 15 Parameters, 2 Options | | 15 Parameters, 10 Options | | -This allows for 50% of the weight to be given to one parameter. This comparison analyzes if all of the parameter are equal but the options have a variety of ranges in comparison to each parameter. | No problem with tool it is calculate the higher option is the best option |
|  | 2 consecutive numbers are the max’s and min (i.e. 4 and 5); this allow for small variation within the matrix | |  | | --- | | 2 Parameters, 2 Options | | 2 Parameters, 10 Options | | 15 Parameters, 2 Options | | 15 Parameters, 10 Options | | -This allows for 50% of the weight to be given to one parameter. This is to analyze the effect of two consecutive numbers. | The results of this performed as expected. This scenario has the most interesting effect as the 2 parameter 10 opt had the same utility score for all of the optionsexcept for the option that was most optimal where each parameter had the same data of which the tool calculated this to be the best option.  After running the tool again the tool performed the same but two options had the same utility score and the user is not notify.  If the same trade is ran again and the user specifies a range and the numbers are outside of the range specified there is no difference in the optimal option though there was a .03 difference is the utility score. |

**The Scale:**

**Equal (Not Important) = 1**

**Moderately= 1.2**

**Greatly= 1.5**

**Extremely= 2**

Note:

* When using wide range of values, range should be specificed and unspecified using the tool.

User Mistake:

**Specific a range and it’s a number outside of the range:** The user is not notify. Still investigating.

**Input zero into option matrix:** tool performs the same even though mathematically it is reflected

**Punctuation in wrong places:** creates an error; the tool reacts differently depending on the punctuation error