Oneway

Notes

Output Created		28-FEB-2022 19:11:21
Comments		
Input	Data	/Users/benjamin/Deskto p/AP Research/21-22- PAS-AP- Research/Experiment 1/E1-A/E1-A-5.csv
	Active Dataset	DataSet2
	Filter	<none></none>
	Weight	<none></none>
	Split File	<none></none>
	N of Rows in Working Data File	50
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on cases with no missing data for any variable in the analysis.
Syntax		ONEWAY Difference BY Temperature /ES=OVERALL /STATISTICS HOMOGENEITY /MISSING ANALYSIS /CRITERIA=CILEVEL (0.95) /POSTHOC=TUKEY ALPHA(0.05).
Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.00

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Difference	Based on Mean	.554	9	40	.826
	Based on Median	.362	9	40	.947
	Based on Median and with adjusted df	.362	9	33.021	.945
	Based on trimmed mean	.549	9	40	.829

ANOVA

Difference

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.098	9	.011	92062.863	<.001
Within Groups	.000	40	.000		
Total	.098	49			

ANOVA Effect Sizes^a

			95% Confid	ence Interval
		Point Estimate	Lower	Upper
Difference	Eta-squared	1.000	1.000	1.000
	Epsilon-squared	1.000	1.000	1.000
	Omega-squared Fixed- effect	1.000	1.000	1.000
	Omega-squared Random-effect	.999	.999	1.000

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Difference

Tukey HSD

·		Maaa			95%
(I) Temperature	(J) Temperature	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound
5	10	0089200*	.0002173	<.001	009647
	15	0411400 *	.0002173	<.001	041867
	20	0609400*	.0002173	<.001	061667
	25	0708800*	.0002173	<.001	071607
	30	0929000*	.0002173	<.001	093627
	35	1062200 [*]	.0002173	<.001	106947
	40	1189200 [*]	.0002173	<.001	119647
	45	1240600 [*]	.0002173	<.001	124787
	50	1257000 [*]	.0002173	<.001	126427
10	5	.0089200*	.0002173	<.001	.008193
	15	0322200*	.0002173	<.001	032947
	20	0520200*	.0002173	<.001	052747
	25	0619600 *	.0002173	<.001	062687
	30	0839800 [*]	.0002173	<.001	084707
	35	0973000*	.0002173	<.001	098027

Dependent Variable: Difference

Tukey HSD

95% ...

(I) Temperature	(J) Temperature	Upper Bound
5	10	008193
	15	040413
	20	060213
	25	070153
	30	092173
	35	105493
	40	118193
	45	123333
	50	124973
10	5	.009647
	15	031493
	20	051293
	25	061233
	30	083253
	35	096573

Dependent Variable: Difference

Tukey HSD

Tukey HSD					95%
(I) Temperature	(J) Temperature	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound
(i) Temperature	40	1100000	.0002173	<.001	110727
	45	1151400 [*]	.0002173	<.001	115867
	50	1167800 [*]	.0002173	<.001	117507
15	5	.0411400*	.0002173	<.001	.040413
	10	.0322200*	.0002173	<.001	.031493
	20	0198000 *	.0002173	<.001	020527
	25	0297400 *	.0002173	<.001	030467
	30	0517600 *	.0002173	<.001	052487
	35	0650800 *	.0002173	<.001	065807
	40	0777800 *	.0002173	<.001	078507
	45	0829200 *	.0002173	<.001	083647
	50	0845600 *	.0002173	<.001	085287
20	5	.0609400*	.0002173	<.001	.060213
	10	.0520200*	.0002173	<.001	.051293
	15	.0198000*	.0002173	<.001	.019073
	25	0099400*	.0002173	<.001	010667
	30	0319600 [*]	.0002173	<.001	032687
	35	0452800 [*]	.0002173	<.001	046007
	40	0579800 [*]	.0002173	<.001	058707
	45	0631200 *	.0002173	<.001	063847
	50	0647600 *	.0002173	<.001	065487
25	5	.0708800*	.0002173	<.001	.070153
	10	.0619600*	.0002173	<.001	.061233
	15	.0297400*	.0002173	<.001	.029013
	20	.0099400*	.0002173	<.001	.009213
	30	0220200 [*]	.0002173	<.001	022747
	35	0353400 [*]	.0002173	<.001	036067
	40	0480400 [*]	.0002173	<.001	048767
	45	0531800 [*]	.0002173	<.001	053907
	50	0548200 [*]	.0002173	<.001	055547
30	5	.0929000*	.0002173	<.001	.092173
	10	.0839800*	.0002173	<.001	.083253
	15	.0517600*	.0002173	<.001	.051033
	20	.0319600*	.0002173	<.001	.031233

Dependent Variable: Difference

Tukey HSD

95% ...

(I) Temperature Upper Bound 40 109273 45 114413 50 116053 15 5 .041867 10 .032947 20 019073 25 029013 30 051033 35 064353 40 077053 45 082193 50 083833 20 5 .061667 10 .052747 15 .020527 25 009213 30 031233 30 031233 35 044553 40 057253 45 062393 50 064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 5 .093627 10 .084707 15 .052487 20 .032687			95%
45	(I) Temperature	(J) Temperature	Upper Bound
50 116053 15 5 .041867 10 .032947 20 019073 25 029013 30 051033 35 064353 40 077053 45 082193 50 083833 20 5 .061667 10 .052747 15 .020527 25 009213 30 031233 35 044553 40 057253 45 062393 50 064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 30 5 .093627 10 .084707 15 .052487		40	109273
15 5 .041867 10 .032947 20 019073 25 029013 30 051033 35 064353 40 077053 45 082193 50 083833 20 5 .061667 10 .052747 15 .020527 25 009213 30 031233 35 044553 40 057253 45 062393 50 064033 25 5 10 .062687 15 .030467 20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 30 5 .093627 10 .084707 15 .052487		45	114413
10 .032947 20019073 25 .029013 30 .051033 35 .064353 40 .077053 45 .082193 50 .081867 10 .052747 15 .020527 25 .009213 30 .031233 35 .044553 40 .057253 45 .062393 50 .064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30 .021293 35 .034613 40 .047313 45 .052453 50 .054093 30 5 .093627 10 .084707 15 .052487		50	116053
20019073 25029013 30051033 35064353 40077053 45082193 50083833 20 5 .061667 10 .052747 15 .020527 25009213 30031233 35044553 40057253 45062393 50064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30021293 35034613 40047313 45052453 50054093 30 5 .093627 10 .084707 10 .084707 15 .052487	15	5	.041867
25029013 30051033 35064353 40077053 45082193 50083833 20 5 .061667 10 .052747 15 .020527 25009213 30031233 35044553 40057253 45062393 50064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30021293 35034613 40047313 45052453 50054093 30 5 .093627 10 .084707 15 .052487		10	.032947
30		20	019073
35		25	029013
40 077053 45 082193 50 083833 20 5 .061667 10 .052747 15 .020527 25 009213 30 031233 35 044553 40 057253 45 062393 50 064033 25 5 10 .062687 15 .030467 20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 30 5 10 .084707 15 .052487		30	051033
45 082193 50 083833 20 5 .061667 10 .052747 15 .020527 25 009213 30 031233 35 044553 40 057253 45 062393 50 064033 25 5 10 .062687 15 .030467 20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 30 5 10 .084707 15 .052487		35	064353
50 083833 20 5 .061667 10 .052747 15 .020527 25 009213 30 031233 35 044553 40 057253 45 062393 50 064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 30 5 .093627 10 .084707 15 .052487		40	077053
5 .061667 10 .052747 15 .020527 25 009213 30 031233 35 044553 40 057253 45 062393 50 064033 25 5 10 .062687 15 .030467 20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 30 5 10 .084707 15 .052487		45	082193
10 .052747 15 .020527 25009213 30031233 35044553 40057253 45062393 50064033 25 .071607 10 .062687 15 .030467 20 .010667 30021293 35034613 40047313 45052453 50 .093627 10 .084707 15 .084707		50	083833
15 .020527 25 009213 30 031233 35 044553 40 057253 45 062393 50 064033 25 5 10 .062687 15 .030467 20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 30 5 10 .084707 15 .052487	20	5	.061667
25009213 30031233 35044553 40057253 45062393 50064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30021293 35034613 40047313 45052453 50054093 30 5 .093627 10 .084707 15 .052487		10	.052747
30031233 35044553 40057253 45062393 50064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30021293 35034613 40047313 45052453 50054093 30052453 50054093 30052487		15	.020527
35044553 40057253 45062393 50064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30021293 35034613 40047313 45052453 50054093 30 5 .093627 10 .084707 15 .052487		25	009213
40057253 45062393 50064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30021293 35034613 40047313 45052453 50054093 30 .093627 10 .084707 15 .052487		30	031233
45062393 50064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30021293 35034613 40047313 45052453 50054093 30 5 .093627 10 .084707 15 .052487		35	044553
50 064033 25 5 .071607 10 .062687 15 .030467 20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 30 5 .093627 10 .084707 15 .052487		40	057253
5 .071607 10 .062687 15 .030467 20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 30 5 10 .084707 15 .052487		45	062393
10 .062687 15 .030467 20 .010667 30021293 35034613 40047313 45052453 50054093 30 5 .093627 10 .084707 15 .052487		50	064033
15 .030467 20 .010667 30021293 35034613 40047313 45052453 50054093 30 5 .093627 10 .084707 15 .052487	25	5	.071607
20 .010667 30 021293 35 034613 40 047313 45 052453 50 054093 30 5 .093627 10 .084707 15 .052487		10	.062687
30021293 35034613 40047313 45052453 50054093 30 5 .093627 10 .084707 15 .052487		15	.030467
35034613 40047313 45052453 50054093 30 5 .093627 10 .084707 15 .052487		20	.010667
40 047313 45 052453 50 054093 30 5 .093627 10 .084707 15 .052487		30	021293
45 052453 50 054093 30 5 .093627 10 .084707 15 .052487		35	034613
50 054093 30 5 .093627 10 .084707 15 .052487		40	047313
5 .093627 10 .084707 15 .052487		45	052453
10 .084707 15 .052487		50	054093
15 .052487	30	5	.093627
		10	.084707
20 .032687		15	.052487
		20	.032687

Dependent Variable: Difference

Tukey HSD

(I) Temperature Observation (I-J) (Jame) Difference (I-J) (Jame) Sig. (Jame) Lower Bound (Jame) 48 25 .0220200 .0002173 .0001 .021293 .001 .021293 35 0133200 .0002173 .0001 .026747 .001 .026747 45 0311600 .0002173 .0001 .031887 .001 .031887 50 0328000 .0002173 .0001 .033527 10 .0973000 .0002173 .001 .096573 15 .0650800 .0002173 .001 .064353 20 .0452800 .0002173 .001 .044553 25 .0353400 .0002173 .001 .034613 30 .0133200 .0002173 .001 .012593 40 .0127000 .0002173 .001 .013427 45 0178400 .0002173 .001 .018567 50 0194800 .0002173 .001 .018567 15 .07778400 .0002173 .001 .018567 20 .0579800 .0002173 .001 .018567 20 .0579800 .0002173 .001 .019273 20 .0579800 .0002173 .001 .001 .077053 25 .0480400 .0002173 .001 .001 .077053 25 .0480400 .0002173 .001 .001 .025293 35 .0127000 .0002173 .001 .001 .025867 </th <th>Tukey HSD</th> <th></th> <th></th> <th></th> <th></th> <th>95%</th>	Tukey HSD					95%
25	(I) T	(I) T		Otal Fanca	C:~	
35	(I) Temperature		*			
40						
45			+			
50						
5 .1062200* .0002173 <.001 .105493 10 .0973000* .0002173 <.001						
10	3.5		+			
15	33					
20						
25						
10			*			
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45						
40 50 0194800* .0002173 <.001 020207 40 5 .1189200* .0002173 <.001						
40 5 .1189200° .0002173 <.001						
10	40					
15	40					
20						
25			+			
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$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			*			
35 .0178400* .0002173 <.001 .017113 40 .0051400* .0002173 <.001 .004413 500016400* .0002173 <.001002367 50 5 .1257000* .0002173 <.001 .124973						
40 .0051400* .0002173 <.001						
500016400* .0002173 <.001002367 50 5 .1257000* .0002173 <.001 .124973			*			
50 5 .1257000 [*] .0002173 <.001 .124973						
*	50	5	+			
		10	.1167800*	.0002173	<.001	.116053

Dependent Variable: Difference

Tukey HSD

95% ...

25	(I) Temperature	(J) Temperature	Upper Bound
40 025293 45 030433 50 032073 35 5 .106947 10 .098027 15 .065807 20 .046007 25 .036067 30 .014047 40 011973 45 017113 50 018753 40 5 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 5 15 .083647 20 .063847 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		25	.022747
45		35	012593
50 032073 35 5 .106947 10 .098027 15 .065807 20 .046007 25 .036067 30 .014047 40 011973 45 017113 50 018753 40 5 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 5 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		40	025293
35 5 .106947 10 .098027 15 .065807 20 .046007 25 .036067 30 .014047 40 011973 45 017113 50 018753 40 5 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 5 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		45	030433
10 .098027 15 .065807 20 .046007 25 .036067 30 .014047 40 011973 45 017113 50 018753 40 5 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 5 10 .115867 10 .038647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		50	032073
15 .065807 20 .046007 25 .036067 30 .014047 40011973 45017113 50018753 40 5 .119647 10 .110727 15 .078507 20 .058707 20 .058707 25 .048767 30 .026747 35 .013427 45004413 50006053 45 5 .124787 10 .115867 10 .115867 15 .083647 20 .063847 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50000913	35	5	.106947
20 .046007 25 .036067 30 .014047 40 011973 45 017113 50 018753 40 5 .119647 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 5 15 .083647 20 .063847 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		10	.098027
25 .036067 30 .014047 40 011973 45 017113 50 018753 40 5 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 5 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		15	.065807
30 .014047 40 011973 45 017113 50 018753 40 5 .119647 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 5 10 .115867 15 .083647 20 .063847 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		20	.046007
40 011973 45 017113 50 018753 40 5 .119647 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 124787 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		25	.036067
45 017113 50 018753 40 5 .119647 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 5 10 .115867 15 .083647 20 .063847 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		30	.014047
50 018753 40 5 .119647 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 1.115867 10 .115867 20 .063847 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		40	011973
40 5 .119647 10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 124787 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		45	017113
10 .110727 15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45004413 50006053 45 5 .124787 10 .115867 15 .083647 20 .063847 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50000913		50	018753
15 .078507 20 .058707 25 .048767 30 .026747 35 .013427 45004413 50006053 45 5 .124787 10 .115867 15 .083647 20 .063847 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50000913	40	5	.119647
20 .058707 25 .048767 30 .026747 35 .013427 45 004413 50 006053 45 5 .124787 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		10	.110727
25 .048767 30 .026747 35 .013427 45004413 50006053 45 5 .124787 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50000913		15	.078507
30 .026747 35 .013427 45004413 50006053 45 5 .124787 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50000913		20	.058707
35 .013427 45004413 50006053 45 5 .124787 10 .115867 15 .083647 20 .063847 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50000913		25	.048767
45004413 50006053 45 5 .124787 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50000913		30	.026747
50 006053 45 5 .124787 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		35	.013427
5 .124787 10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		45	004413
10 .115867 15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		50	006053
15 .083647 20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50000913	45	5	.124787
20 .063847 25 .053907 30 .031887 35 .018567 40 .005867 50 000913		10	.115867
25 .053907 30 .031887 35 .018567 40 .005867 50 000913		15	.083647
30 .031887 35 .018567 40 .005867 50 000913		20	.063847
35 .018567 40 .005867 50000913		25	.053907
40 .005867 50 000913		30	.031887
50000913		35	.018567
		40	.005867
50 5 .126427		50	000913
	50	5	.126427
10 .117507		10	.117507

Dependent Variable: Difference

Tukey HSD

					95%
		Mean			
(I) Temperature	(J) Temperature	Difference (I-J)	Std. Error	Sig.	Lower Bound
	15	.0845600*	.0002173	<.001	.083833
	20	.0647600*	.0002173	<.001	.064033
	25	.0548200*	.0002173	<.001	.054093
	30	.0328000*	.0002173	<.001	.032073
	35	.0194800*	.0002173	<.001	.018753
	40	.0067800*	.0002173	<.001	.006053
	45	.0016400*	.0002173	<.001	.000913

Multiple Comparisons

Dependent Variable: Difference

Tukey HSD

95% ...

(I) Temperature	(J) Temperature	Upper Bound
	15	.085287
	20	.065487
	25	.055547
	30	.033527
	35	.020207
	40	.007507
	45	.002367

^{*.} The mean difference is significant at the 0.05 level.

Homogeneous Subsets

Difference

Tukey HSD^a

		Subset for alpha = 0.05						
Temperature	N	1	2	3	4	5	6	
5	5	137940						
10	5		129020					
15	5			096800				
20	5				077000			
25	5					067060		
30	5						045040	
35	5							
40	5							
45	5							
50	5							
Sig.		1.000	1.000	1.000	1.000	1.000	1.000	

Difference

Tukey HSD^a

	Subset for alpha = 0.05							
Temperature	7	8	9	10				
5								
10								
15								
20								
25								
30								
35	031720							
40		019020						
45			013880					
50				012240				
Sig.	1.000	1.000	1.000	1.000				

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.