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Course: **Human-Computer Interaction**

Topic: **Statistical data analysis in HCI research**

Resource: **A mock-up case (student assignment)**

The aim of the experiment was to compare the workload caused by two different interaction modalities in a virtual reality (VR) system. In the first modality, interactive elements in a VR application are accessed via a hand controller, while in the second modality, a virtual beam projected according to the position of the headset is used for this purpose.

Twenty users participated in the experiment, performing the given task set with both modalities (with corresponding counterbalancing in determining the order). After performing representative tasks with the given modalities, participants completed the standardized NASA TLX questionnaire (the so-called "raw" version), in which they directly compared five selected TLX factors on semantic differential scales with 21 levels. The TLX factor scores for each modality tested, according to each user's rating, are available in an Excel file (below).

Perform a statistical analysis of the available data and draw appropriate conclusions.

DATA

CASE 07	Hand Controller					Headset				
	Mental demand	Physical demand	Frustration	Perceived performance	Overall effort	Mental demand	Physical demand	Frustration	Perceived performance	Overall effort
	-	-	-	+	-	-	-	-	+	-
Participant 01	4	11	2	17	13	4	12	8	15	14
Participant 02	4	9	3	20	12	3	13	7	16	13
Participant 03	4	6	5	18	11	5	11	7	18	11
Participant 04	7	8	5	16	11	7	10	4	15	11

Participant 05	9	10	3	16	12	6	9	6	12	13
Participant 06	5	6	4	19	13	6	8	4	18	12
Participant 07	6	7	1	21	10	6	7	5	20	10
Participant 08	8	8	1	20	9	3	9	3	19	9
Participant 09	8	8	1	18	9	3	9	3	16	10
Participant 10	4	6	2	17	9	2	6	4	16	10
Participant 11	8	7	4	16	9	7	7	4	14	9
Participant 12	9	11	5	14	10	8	10	7	11	10
Participant 13	6	12	7	14	10	9	10	9	13	12
Participant 14	7	6	6	15	11	9	8	9	11	9
Participant 15	7	7	3	16	12	6	7	7	10	12
Participant 16	6	8	3	16	12	6	11	7	12	9
Participant 17	10	9	2	16	11	5	12	6	12	11
Participant 18	4	9	2	18	11	5	11	6	14	9
Participant 19	4	9	1	20	10	4	10	2	18	10
Participant 20	7	10	5	17	9	7	12	4	16	11

Note: - lower score is better
+ higher score is better