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Course: **Human-Computer Interaction**

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

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

The experiment examines the potential effects of the pointing device when performing trajectory tracing tasks. A test application was developed in which trajectory tracing can be performed with the finger, mouse, stylus and joystick.

Twenty participants took part in the experiment and completed a cycle of 10 unit tasks of varying complexity with each pointing device. The order of the devices in the test procedure was counterbalanced according to the principle of the 4x4 Latin square. After completing all tasks with all devices, participants had to rate their perceived interaction workload in relation to each individual pointing device. A specially developed questionnaire with a minimum total score of 1 (best score, lowest workload) and a maximum total score of 15 (worst score, highest workload) was used for the evaluation. The values of all scores for each individual participant are available in an Excel file (below).

It is necessary to perform a statistical analysis of the available data and draw appropriate conclusions in two different contexts:

- (1) Considering all pointing devices as separate interaction modalities;
- (2) averaging the questionnaire values for direct manipulation (finger, stylus) and indirect manipulation (mouse, joystick) and comparing the interaction workload only in relation to these two aspects.

#### DATA

CASE 09	Finger	Mouse	Stylus	Joystick
	Questionnaire scores [from 1 to 15]			
Participant 01	9	11	5	12

Participant 02	8	9	5	11
Participant 03	9	9	5	9
Participant 04	6	9	7	9
Participant 05	9	12	6	14
Participant 06	9	8	4	8
Participant 07	10	8	3	9
Participant 08	6	10	8	10
Participant 09	7	9	5	11
Participant 10	5	10	7	10
Participant 11	8	7	4	10
Participant 12	8	7	5	10
Participant 13	5	7	8	9
Participant 14	9	9	9	13
Participant 15	9	9	3	8
Participant 16	9	11	6	9
Participant 17	6	9	5	9
Participant 18	5	9	6	12
Participant 19	5	8	6	10
Participant 20	9	7	9	11