

Guide to the Agile Manager Game Dataset

This document serves as a guide to the users of the Agile Manager (AM) dataset on the relationship between the tables, and how to interpret the meaning of the different columns in each table.

1. Relationship between the Tables

A total of six data tables are included in this dataset. They are:

- 1) Users.xlsx
- 2) Worker Agents.xlsx
- 3) Game Levels.xlsx
- 4) Tasks.xlsx
- 5) Game Sessions.xlsx
- 6) Decisions.xlsx

Table 1 contains the demographic information of the study participants. The personality survey questions, PQ1 to PQ10 in Table 1, are from the Ten-Item Personality Inventory (TIPI). Possible values for PQ1 to PQ10 are: 1—“Disagree strongly”, 2—“Disagree”, 3—“Neither agree nor disagree”, 4—“Agree”, and 5—“Agree strongly”. The affective-oriented disposition survey questions, AQ1 to AQ20 in Table 1, are from the Positive and Negative Affect Schedule (PANAS). Possible values for AQ1 to AQ20 are: 1—“Never”, 2—“Rarely”, 3—“Sometimes”, 4—“Usually”, and 5—“Always”. Participants have the option not to take part in the personality survey or the affective-oriented disposition survey. If a participant did not take part in either or both of these two surveys, the corresponding columns in the Users dataset remain empty.

Here are a number of personality traits that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

I see myself as:

	Strongly Disagree	Strongly Agree
1. Extraverted, enthusiastic.	<input type="text"/>	<input type="text"/>
2. Critical, quarrelsome.	<input type="text"/>	<input type="text"/>
3. Dependable, self-disciplined.	<input type="text"/>	<input type="text"/>
4. Anxious, easily upset.	<input type="text"/>	<input type="text"/>
5. Open to new experiences, complex.	<input type="text"/>	<input type="text"/>
6. Reserved, quiet.	<input type="text"/>	<input type="text"/>
7. Sympathetic, warm.	<input type="text"/>	<input type="text"/>
8. Disorganized, careless.	<input type="text"/>	<input type="text"/>
9. Calm, emotionally stable.	<input type="text"/>	<input type="text"/>
10. Conventional, uncreative.	<input type="text"/>	<input type="text"/>

Fig. 1. The TIPI used in the game platform (PQ1—PQ10).

Please select the appropriate ratings on each of the following scales that best describes how you feel in general, that is, on average.

I see myself as:

	Never	Rarely	Sometimes	Usually	Always		Never	Rarely	Sometimes	Usually	Always
1. Determined						11. Enthusiastic					
2. Afraid						12. Scared					
3. Attentive						13. Interested					
4. Nervous						14. Distressed					
5. Alert						15. Excited					
6. Upset						16. Jittery					
7. Inspired						17. Strong					
8. Ashamed						18. Guilty					
9. Active						19. Proud					
10. Hostile						20. Irritable					

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Fig. 2. The PANAS used in the game platform (AQ1—AQ20).

Tables 2-4 contain the settings information for different game levels (each representing a different study setting). Table 5 contains the overall descriptive results of the participants' gameplay. Table 6 contains the detailed situation, decisions, and outcomes of all decisions made by the participants during the studies.

Table 5 contains references to the Users, Worker Agents, Tasks, and Game Levels tables so that each result record can be linked to the user demographics and experiment settings information.

Table 6 contains references to the Game Sessions, Worker Agents, and Tasks (in the Backlog Queue column) so that each decision can be linked to the situation depicted in the Game Sessions table.

2. Description of Table Columns

Users.xlsx:

Column Name	Value Range	Meaning
ID	N.A.	The participant's unique identification number
Gender	"Male", "Female"	The participant's gender
Education	"High School", "Diploma", "Bachelor", "Master", "PhD", "Others"	The participant's highest level of education
Country	"Singapore", "China"	The country the participant is located in
Age	N.A.	The participant's age at the time when he/she joined the study
Account Creation Time	N.A.	The exact date and time a participant joined the study
PQ1-PQ10	{1,2,3,4,5}	10 survey questions used for assessing the participant's personality
AQ1-AQ20	{1,2,3,4,5}	20 survey questions used for assessing the participant's affective-oriented disposition

Worker Agents.xlsx

Column Name	Value Range	Meaning
ID	1-20	The unique identification number of a Worker Agent (WA)
High Quality Output Probability	{0.1, 0.2, ... , 1}	The probability of the WA completing a given task
Max Productivity	11-20	The maximum workload a WA can complete per round of a game (expressed in terms of Effort Units)
SvQ Setting	{-1, 1}	Under which Speed vs. Quality (SvQ) setting should the WA be included in a game level (for SvQ settings information, please refer to the Game Levels table)

Game Levels.xlsx

Column Name	Value Range	Meaning
Level	1-6	The unique identification number of a game level
Speed vs. Quality Trade-off (SvQ)	{-1, 1}	The correlation between the <i>High Quality Output Probability</i> and the <i>Max Productivity</i> of a WA

No. of Rounds	{5, 10}	The number of iterations within each game level, during which a participant is required to allocate tasks to WAs
Tasks per Round	{20, 30}	The number of tasks a participant is required to allocate to WAs during each round of a game
Average Worker Agent Productivity Output Rate	11–20	The actual discounted <i>Max Productivity</i> a WA can output during each round of a game

Tasks.xlsx

Column Name	Value Range	Meaning
ID	1-30	The unique identification number of a task
Value	1-5	The score a participant receives if the task is completed successfully by the assigned WA
Difficulty	{0.2, 0.4, 0.6, 0.8, 1.0}	The difficulty value of the tasks (with 0 being the easiest and 1 being the hardest)
Effort Required	1–5	The workload placed on a WA by this task (expressed in terms of Effort Units)
Deadline	1	The maximum number of rounds in the game the task must be completed

Game Sessions.xlsx

Column Name	Value Range	Meaning
ID	N.A.	The unique identification number of a game session
User ID	N.A.	The unique identification number of the participant who played this game session
Game Level	1–6	The identification number of the game level played in this game session
Player Score	0%–100%	The score obtained by the participant in this game session
Player Score Loss (Low Quality)	0%–100%	The score lost by the player as a result of tasks being completed with low quality in this game session
Player Score Loss (Tardiness)	0%–100%	The score lost by the player as a result of tasks not completed before their stipulated deadlines in this game session
AI Score	0%–100%	The score obtained by the AI player in this game session
AI Score Loss (Low Quality)	0%–100%	The score lost by the AI player as a result of tasks being completed with low quality in this game session
AI Score Loss (Tardiness)	0%–100%	The score lost by the AI player as a result of tasks not completed before their stipulated deadlines in this game session
User Strategy Index	“100000”– “111111”	The index value expressing the participant’s self-reported task allocation strategy used in this game session
User Strategy Description	N.A.	The participant’s explanation about his/her task allocation strategy used in this game session (optional)

Facial Expression ID	0–36	The unique identification of the emoticon selected by a participant to represent his/her emotion
Happiness	0–10	The participant's self-reported degree of happiness
Sadness	0–10	The participant's self-reported degree of sadness
Excitement	0–10	The participant's self-reported degree of excitement
Boredom	0–10	The participant's self-reported degree of boredom
Anger	0–10	The participant's self-reported degree of anger
Surprise	0–10	The participant's self-reported degree of surprise
Start Time	N.A.	The date and time the game session started
End Time	N.A.	The date and time the game session ended

Decisions.xlsx

Column Name	Value Range	Meaning
ID	N.A.	The unique identification number of a WA's current situation
Session ID	N.A.	The unique identification number of the game session during which this snapshot was taken
Round	1–10	The unique identification number of the game round within this game session during which this snapshot was taken
Worker Agent ID	1–20	The ID of the WA
Worker Agent Backlog (No. of Tasks)	≥ 0	The WA's current workload after the participant has finished allocating all tasks in this round (measured in terms of number of tasks)
Worker Agent Backlog (No. of Effort Units)	≥ 0	The WA's current workload after the participant has finished allocating all tasks in this round (measured in terms of Effort Units)
The Backlog Queue	N.A.	The IDs of the pending tasks for a WA, separated by semi-colons
Worker Agent Reputation	0–1	The current reputation of the WA