File Formats

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File Format(s)

We will be using the **CSV file format** to store the data for our project. We will have 4 main types of files:

- several unique files to store data related to each of the players of the game,
- one file to store the 5 highest scores for the game,
- several unique files to store each of the mazes used in our game, and
- one file to store settings for the game.

Each player will have a unique file to store their game-related data, thus each player will have a file created for them when they register an account in the game.

Usernames must be unique, and can only contain lower-case/ upper-case English letters and numbers, i.e. cannot contain spaces or special characters.

Note: For detailed information on where the files are stored in the game directory, please refer to the Additional Diagrams page.

User Data Format:

Each file stores all the data related to the game for each user. There are 3 possible user types: student, teacher, and developer. Teachers and developers use predefined, read-only user data files. The purpose is to give them special permissions when they log into a teacher or developer account (e.g. set all stages as completed). A student user data file is created when a new student makes an account. Each student has a unique file. These files store up-to-date data related to each student's progression throughout the game. These files also store each student's total score, which is used by the high score table. Only stages that are played by the student are stored in the file. When a student creates a new game, all stage data are wiped.

Note: For detailed information on how the action chains/ action blocks are encoded in the CSV format, please refer to the Additional Diagrams page.

User Type	**Username**	**Password**	**Total Score**	**Total Time Spent (minutes)**	**Total Attempts**					
Stage ID	**Completed**	**Shortest Steps**	**Highest Score**	**Time Spent (minutes)**	**Attempts**	**/**	**Action Block 1**	**Action Block 2**	**Action Block 3**	**...**
Stage ID	**Completed**	**Shortest Steps**	**Highest Score**	**Time Spent (minutes)**	**Attempts**	**/**	**Action Block 1**	**Action Block 2**	**Action Block 3**	**...**
...	**...**	**...**	**...**	**...**	**...**	**/**	**...**	**...**	**...**	**...**

Example: username_userdata.csv

Student	AliceLiddell	pass1234	6	60	10						
1	TRUE	1	3	20	2	/	*Start*	*Forward*	*End*		
2	TRUE	3	3	40	8	/	*Start*	*Left*	*Forward*	*Forward*	*End*

High Score Data Format:

This file caches the top 5 students' total scores to reduce loading time. Each high-score entry is the sum of the highest scores achieved in each stage. This is sorted in descending order to make loading the high scores easier. It saves the 5 highest scores achieved by 5 students. Each time a new score is achieved, the game will check this list. The game will replace an old entry with a new entry if the latter has a higher score. When a student creates a new game, the old high score remains in the high score data file.

Username	**Score**
Username	**Score**
...	**...**

Example: game_highscoredata.csv

JohnDoe	98

JaneDoe	78
BruceLee	60
AliceLiddell	60
(null)	(null)

Maze Data Format:

Each file stores the default 9x9 maze layout of a particular stage. The maze layout is loaded into a graph in the game. The game uses a 2D array to store the edges and nodes in the maze.

- S represents the spawn point of the maze.
- E represents the exit for the maze.
- W represents walls in the maze.
- T represents traps in the maze.
- K represents keys in the maze.
- '_' represents paths in the maze

Maze Layout (Grid)	**...**
...	**...**
Objectives Text	
Hints Text	

Example: stage1_mazedata.csv

S	W	_	_	_	_	_	T	_
_	_	_	W	_	_	_	_	K
_	_	W	_	W	_	_	_	_
_	_	_	_	W	_	_	W	W
W	W	_	_	_	_	_	_	E
_	_	W	_	_	_	_	W	W
_	_	W	T	_	_	_	_	_
_	K	_	_	_	_	_	W	_
_	_	W	_	_	_	_	W	K
Objectives								
Hints								

Settings Data Format:

There is one file to store the game settings shared between all users. When the game boots, it loads the game settings from this file.

Window Width	**Window Height**	**Colour Blind Mode**	**Volume Level (%)**

Example: game_settingsdata.csv

800	600	FALSE	50