

Manual d'usuari

MASTERMIND

Tercera Entrega

Equip: subgrup-prop 14.4

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1. Program Execution

To execute the program we need to compile the program first. For the compilation you have a Makefile in directory FONTS that will create an executable .jar file. You need to complete the following steps to successfully compile the program :

- 1) Go to the directory /FONTS from the terminal which contains a Makefile.
- 2) Run the command “**make**” in the terminal, which will now create a .jar file in the directory /EXE
- 3) Now you can run “**make run**” to execute the .jar file.
- 4) It will be a better approach to run “**make clean**” before closing the application.

For later executions you can just type “**make run**” to execute.

2. Main Window

Main window is the first visible window that you will see after running the application. It contains several buttons which have different functionality (*fig 2.1*). Also in the bottom of the MainWindow there exists a table that shows the current game parameters i.e settings to make it easier for the user to view the settings they have set earlier(*fig 2.2*). And the MainWindow as a whole (*fig 2.3*).

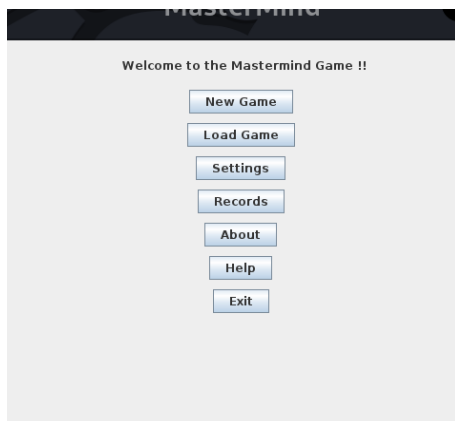


fig: 2.1

Please select the game parameters through Settings before starting a New Game

Current game parameters

Player1 Name	Algorithm	Difficulty	Hints	CodeLength	no. of pegs	Total Rounds

fig: 2.2

MasterMind

Welcome to the Mastermind Game !!

New GameLoad GameSettingsRecordsAboutHelpExit

Please select the game parameters through Settings before starting a New Game

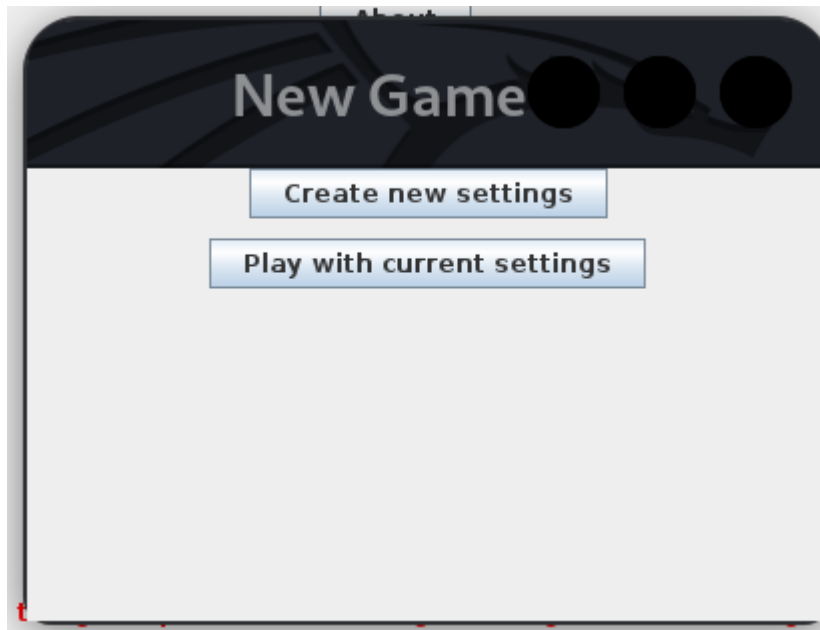
Current game parameters

Player1 Name	Algorithm	Difficulty	Hints	CodeLength	no. of pegs	Total Rounds

fig : 2.3

3. New Game

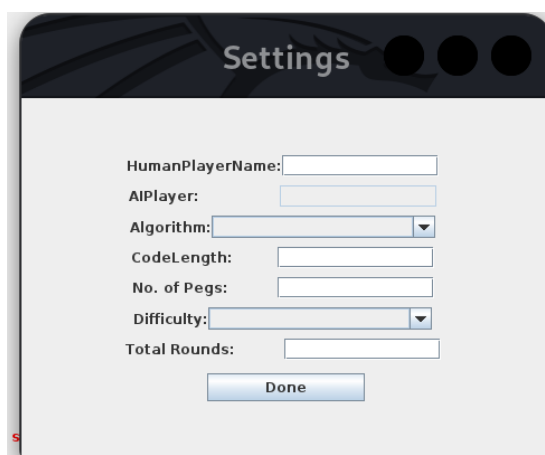
The New Game button in our application is used to start a New Game. All you have to do is click the New Game button. After clicking the following window will appear :



This view has two buttons :

a) Create new settings

This button is used to create a new setting if you haven't created any settings earlier or if you do not wish to continue with the settings you had earlier. When pressed it will open the settings view as follows:



The explanation of all the fields of this setting window can be found in the section of Settings (page –). Now, after choosing the appropriate game parameters from this settings box you just have to press the **Done** to start the game. The explanation of the game view can be found in the section of Game (page –). When you press **Done** the following window of game will appear:

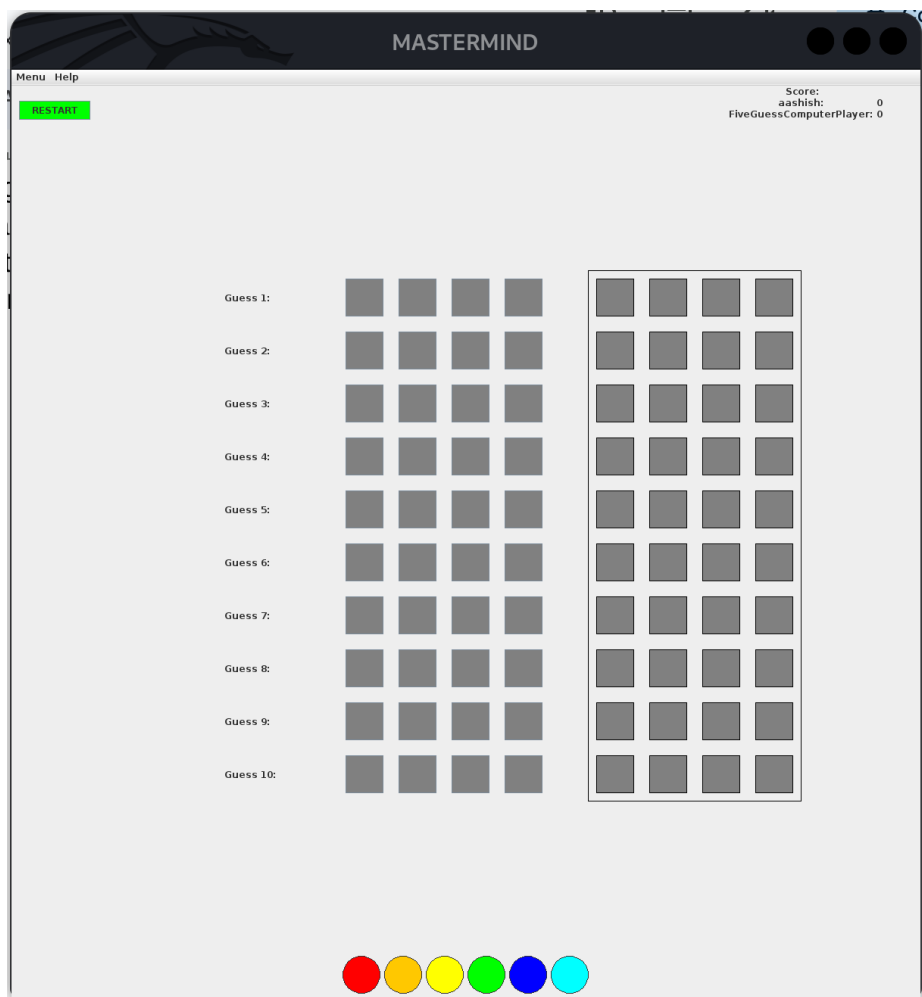


fig: 3.a.1

b) Play with current settings

This option lets you play the game with the settings you already made before in the main window. All you have to do is to click the button of Play with current settings and then a game view will appear as in fig 3.a.1.

4. Load Game

As the name suggests the button load game in the main window is to load the saved game. The process of saving a game is explained in section Save Game(page –). When this button is pressed the following window will appear where you can go to the directory where you saved the game and then load it from there selecting your desired game or typing the name of your desired game.

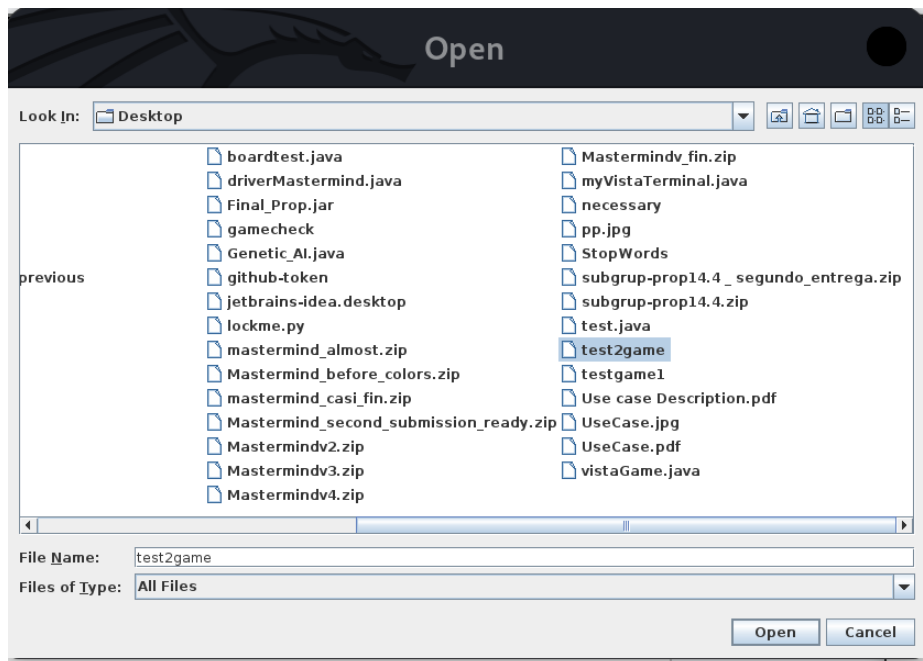


fig 3.1

In the above figure 3.1 the text field File Name is where you will type the name of your game. Or simply you can search it by scrolling the scroll bar and click on it. If you wish to open the game then all you need to do is click open. If during the process you wish to cancel the process of loading the game you have to press cancel and the window will close and you will be returned to the main window. If you wish to select a file that does not exist then a file not found exception will be thrown.

5. Settings

This is the part where you will be setting the game parameters of the game. In the case of this Mastermind game the parameters are code length, the number of total pegs, the algorithm you want for the AI to use while playing against you, the difficulty level of the game, total rounds you want to play the game for and then finally your name. For user simplicity whenever you select the Algorithm the name of the AIPlayer , codeLength and No. of Pegs are automatically set. You can see the settings view in the below image :

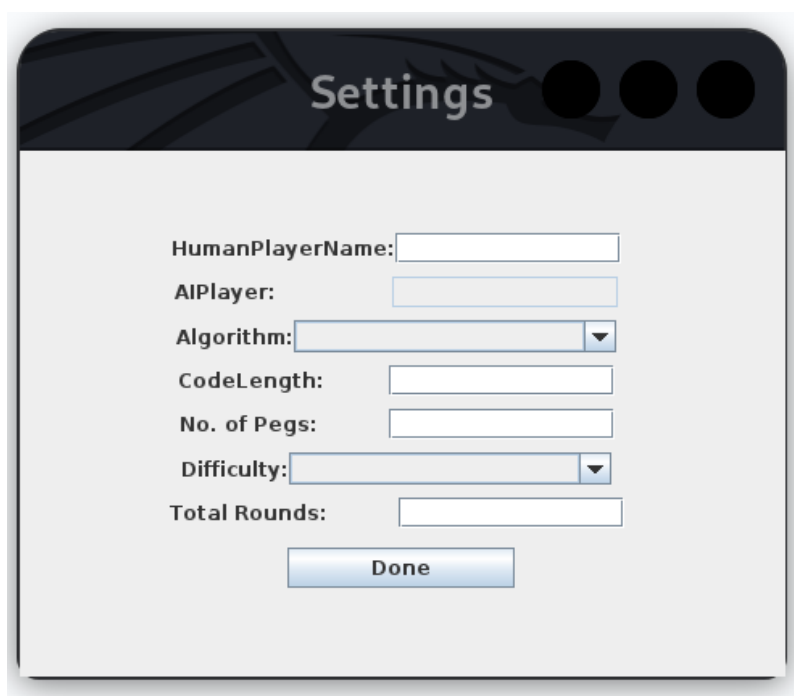
The image shows a 'Settings' window with a dark header bar containing the title 'Settings' and three window control buttons. The main area is light gray and contains several input fields and dropdown menus. The labels and their corresponding controls are: 'HumanPlayerName:' followed by a text input field; 'AIPlayer:' followed by a text input field; 'Algorithm:' followed by a dropdown menu; 'CodeLength:' followed by a text input field; 'No. of Pegs:' followed by a text input field; 'Difficulty:' followed by a dropdown menu; and 'Total Rounds:' followed by a text input field. At the bottom center is a blue 'Done' button.

fig 5.1

- a) The Text field that says **HumanPlayerName** is where you are supposed to enter your name.
- b) The name of the **AIPlayer** will be the name of the algorithm you will choose for the simplicity of the user.
- c) **Algorithm** is where you will choose the Algorithm for the AI. It can be **genetic** or **five guess** algorithms.
- d) The **code length** is the length of the secret code(length of different colors) and the **No. of Pegs** is the total possible colors out of which the code length is set

e) **Difficulty** is the difficulty level of the game. You can choose between **Easy**, **Medium** and **Hard**.

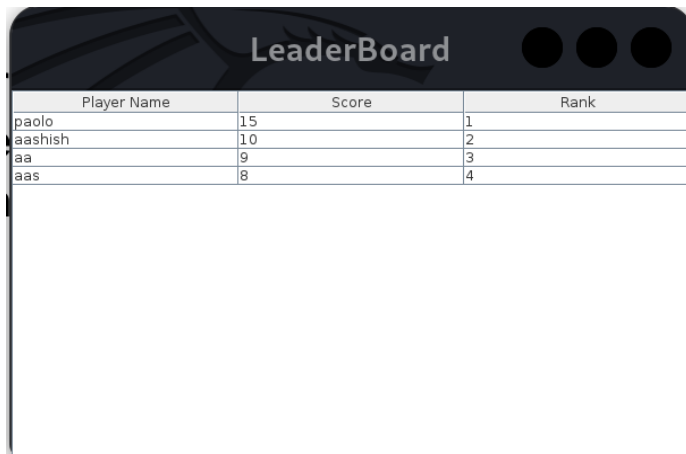
- If you choose **Easy** you will be able to ask for assistance during the game and the maximum number of guesses you can make will be set to **12**.
- If you choose **Medium** you will be able to ask for assistance during the game and the maximum number of guesses you can make will be set to **10**.
- If you choose **Hard** then you will not be able to ask for assistance during the game the maximum number of guesses you can make will be set to **8**.

f) **Total rounds** is the total number of rounds you want to play the game for which should not exceed 10.

After every game parameter is selected all you need to do is press the Done button then you will be redirected to the game view(fig 3.a.1), where you can play the game.

6. Records

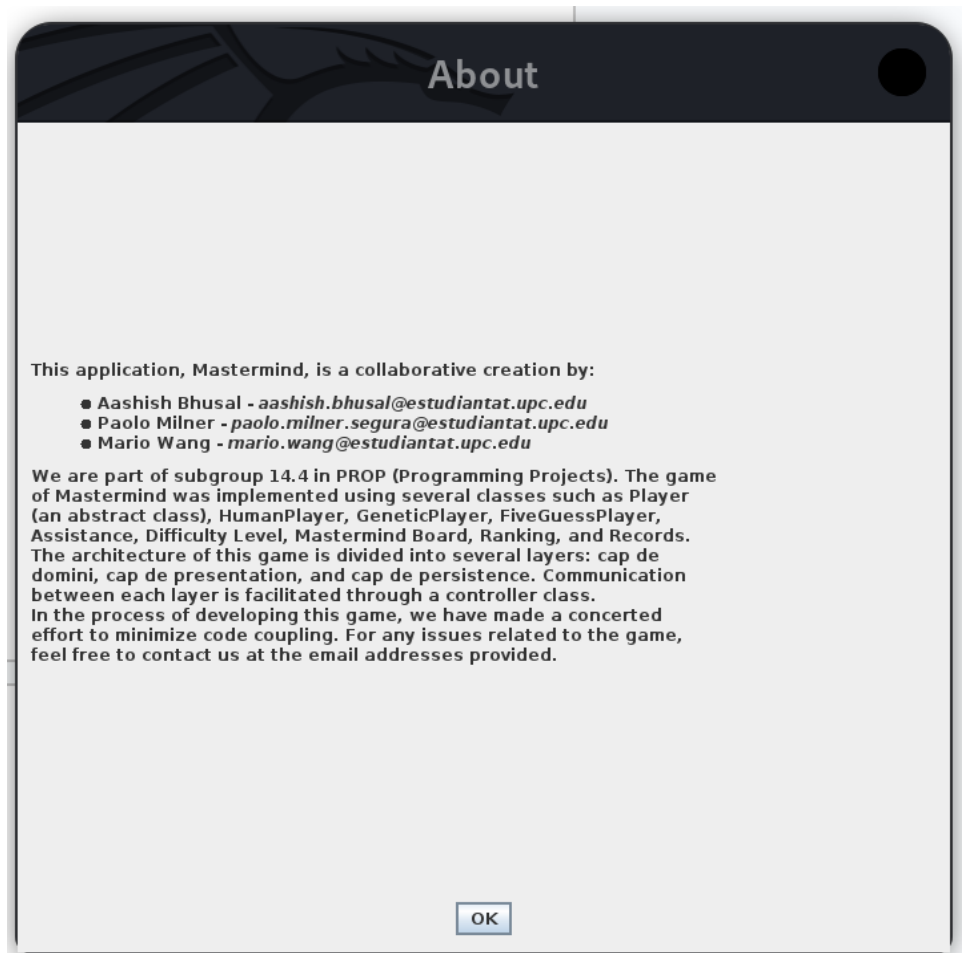
Record buttons support the leaderboard functionality. Whenever you press this button the top 10 list of the players with their highest scores and respective ranks who played this game is shown in a table as follows :



Player Name	Score	Rank
paolo	15	1
aashish	10	2
aa	9	3
aas	8	4

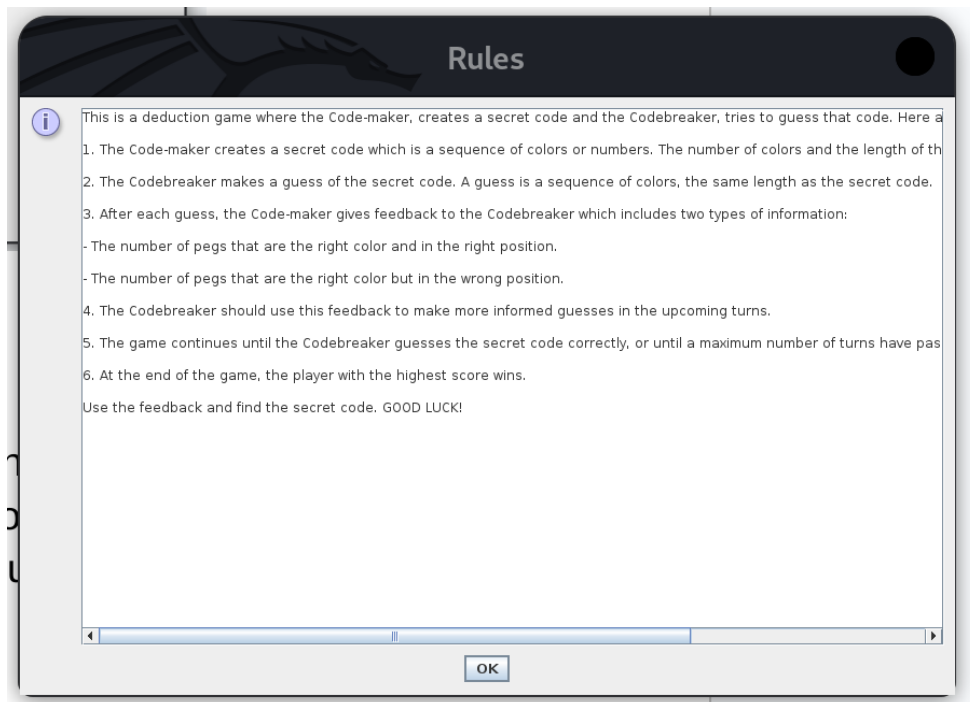
7. About

This about buttons provides information about the students who designed this game as a part of their group project. This button is just for information purposes. To exit from the about view you just have to click the ok button.



8. Help

This help button when clicked opens a new informative window that explains the rules of the game. If you are not familiar with the rules of the Mastermind game which you will be playing in this application then this button is for you. To exit from this Help window you can either click Ok button or exit via x mark on top.



9. Exit

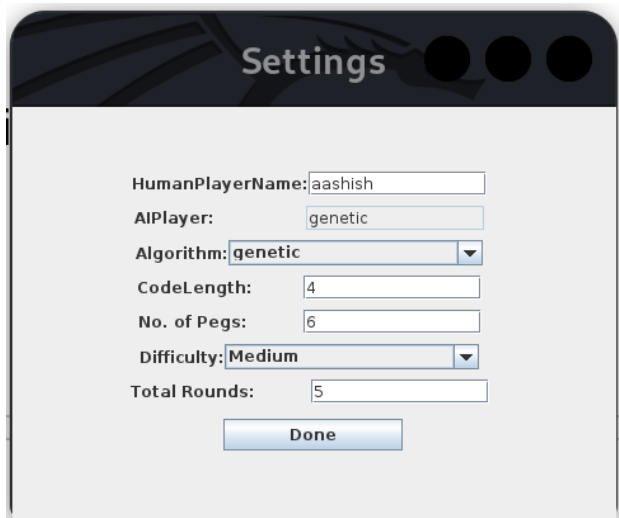
This button helps you to terminate the current running application. When pressed it shows a confirmation window as follows:



If yes is pressed it terminates the application otherwise no.

10. Game parameters Table

This is a table which is in the main window which shows the current settings you have selected. For example if your settings is as follows :

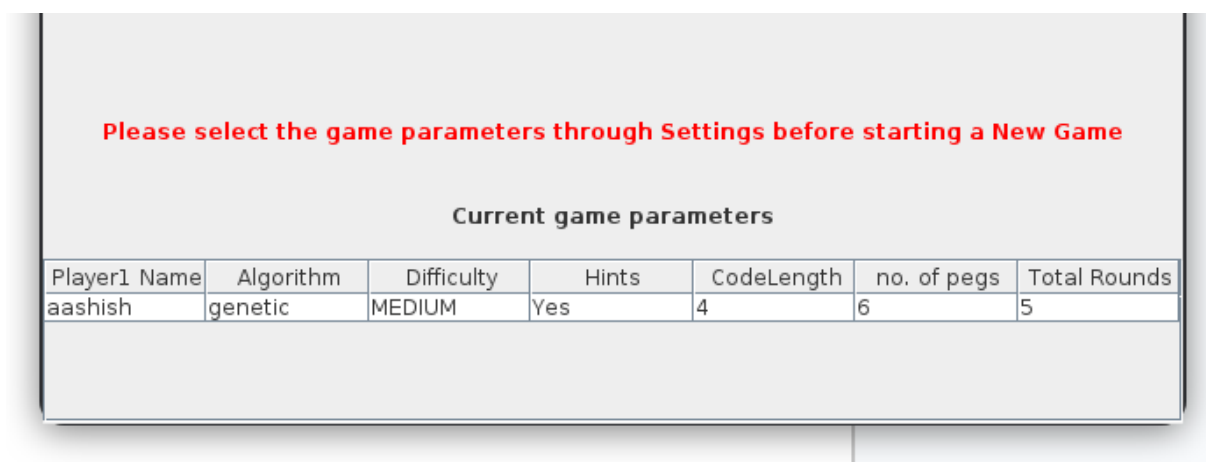


The screenshot shows a 'Settings' window with the following fields and values:

- HumanPlayerName: aashish
- AIPlayer: genetic
- Algorithm: genetic
- CodeLength: 4
- No. of Pegs: 6
- Difficulty: Medium
- Total Rounds: 5

A 'Done' button is located at the bottom of the settings panel.

Then the game parameters table will appear as :



The screenshot shows a table titled 'Current game parameters' with the following data:

Player1 Name	Algorithm	Difficulty	Hints	CodeLength	no. of pegs	Total Rounds
aashish	genetic	MEDIUM	Yes	4	6	5

The main purpose of this table is to make the user easy to remember the settings they had chosen earlier to start a New Game.

11. Game View

Now as mentioned above in the section of New Game and Load Game. Whenever you start a new game or you load a game then you will enter the game view. The game view is as follows :

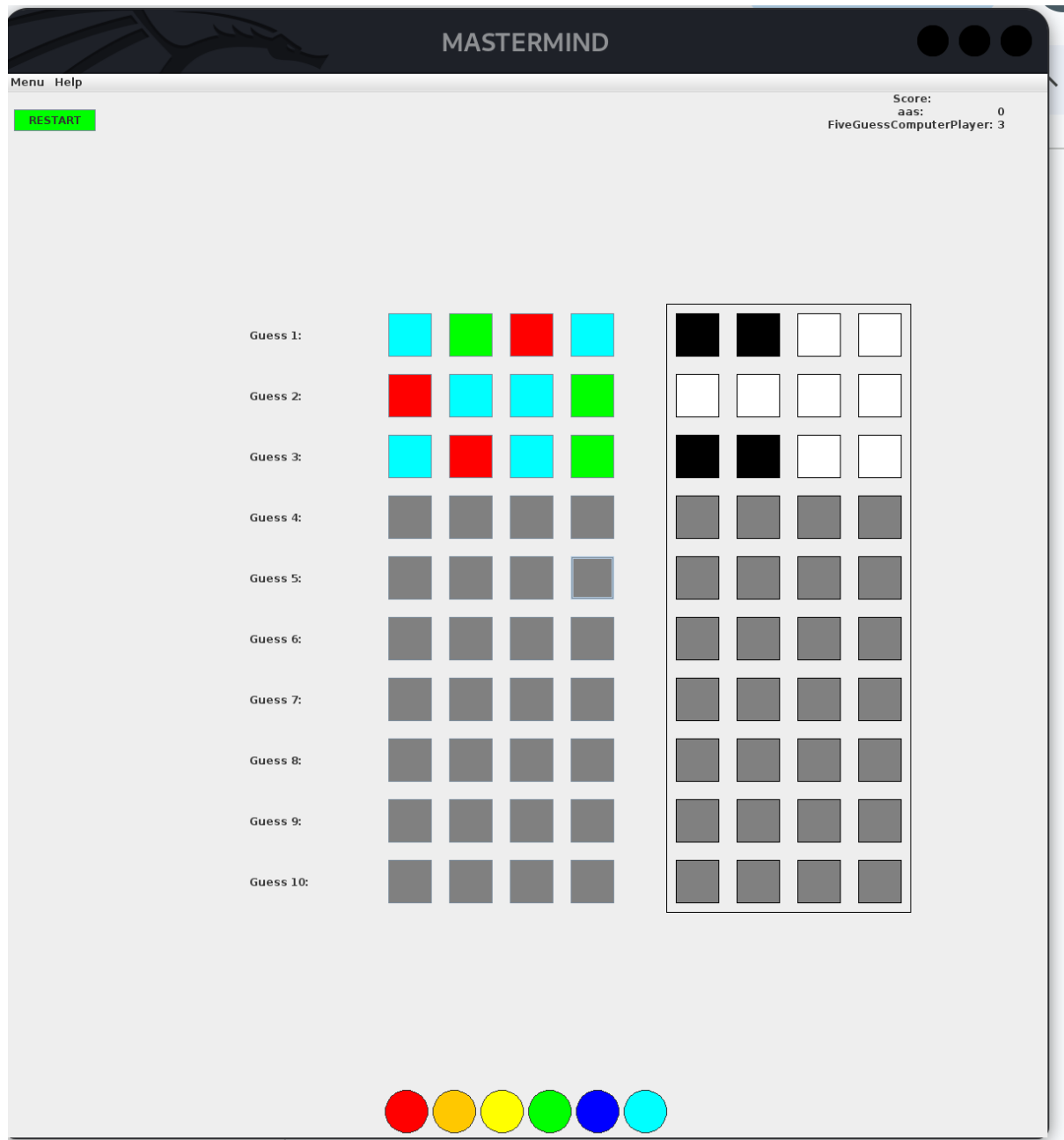


fig: 11.1

Here you can see on the left hand side **Menu** and **Help**. Just below that you can see a **RESTART** button which is green in color. Then if we move to the right hand side the **scores** of two players are shown. Then below are the **Guesses** and **feedback** buttons. The guess buttons will be of the size of maximum number of attempts, available for you, on the basis of the difficulty level you choose during settings. every guesses have their corresponding feedbacks.

Whenever you first enter this game view from the main window. It will be your turn to play the game at first, i.e you are the code breaker at first. A secret code is generated by the AI and then you need to make guesses to guess correctly that secret code. Every guess attempt you make will increase the score of your opponent by 1. If you exceed the maximum number of turns your opponent will win this round automatically and then you will move to the next round if there are any left.

To make the guesses all you need to do is press the colors that you can see below which are in the mid bottom of the game window:



fig : 11.2

When you click these buttons then you need to click on the guesses buttons accordingly to make the guess. And you repeat this process until you complete a full row of guesses.

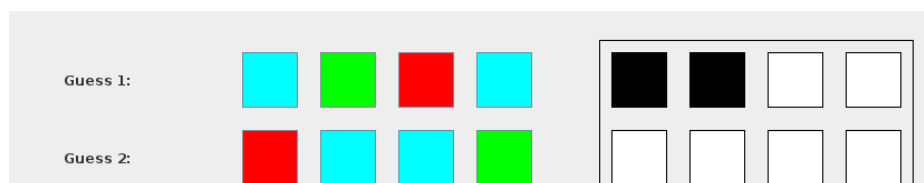


fig 11.3

For example if you have already made the guess 1 then you will not be able to reedit all these buttons of guess 1, then you will move to guess 2. At each guess you will be provided with the feedback of black and white pegs. In the **fig 11.3** in Guess 1 : The black pegs denote that you have 2 correct colors in the correct position and the white pegs denote that you have 2 correct colors but in the wrong position. Similarly guess 2 denotes that you have all 4 correct colors but they are in the wrong position.

Once you make a correct guess then your turn will change from code breaker to code maker, i.e. you have to set up a secret code for the AI player to guess. For this a window will appear after you make the correct guess as follows :

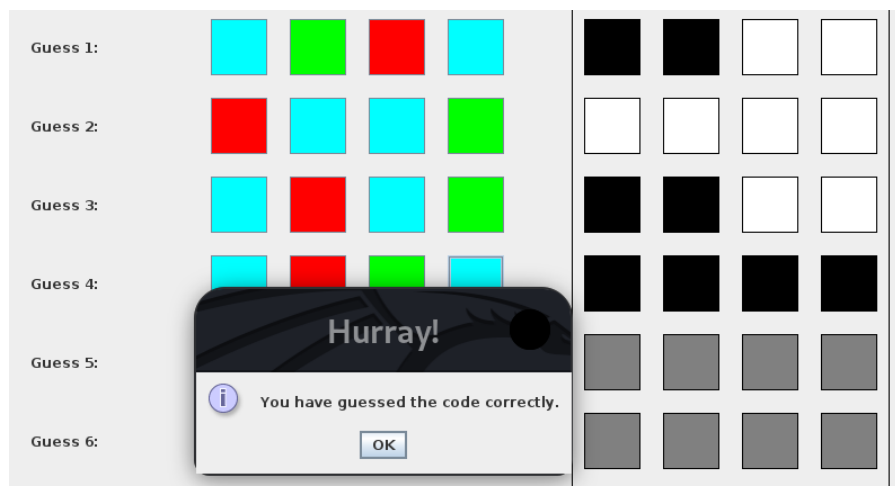


fig 11.4

Then when you click ok the following window will appear:



fig: 11.5

As you can see in the fig 11.5, now the process here to set the secret code for your opponent is the same as how you did while guessing the secret code. You need to click the button that shows the colors and then click the square buttons above as follows :

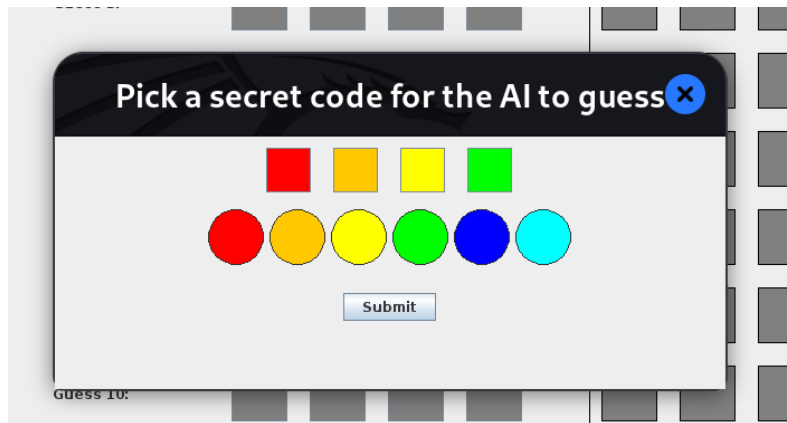


fig : 11.6

Now, in fig 11.6, the secret code is Red,Orange,Yellow,Green. Now this is the color that the AI has to guess. When the AI completes the guess then you will see something like the fig 11.7.

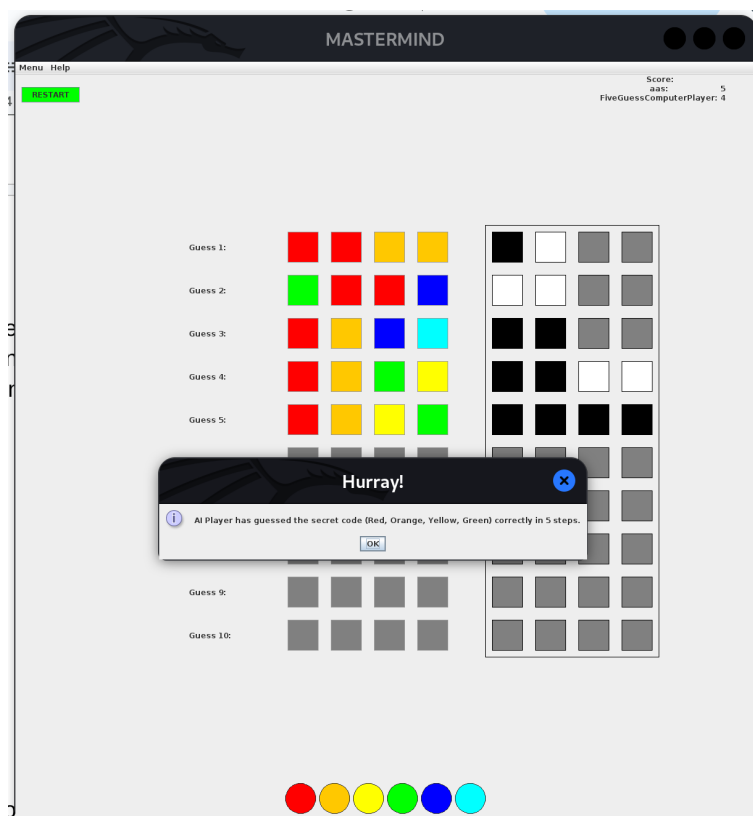


fig: 11.7

As you can see an informative window will provide the information of the AI guesses. Also as you can notice that the score has been updated as well. Your opponent took 5 steps to make the guess so you got 5 points.

This process will repeat until you reach the total number of rounds you set. Once you reach the total number of rounds a game over message will be shown with the winners information as in fig 11.8.

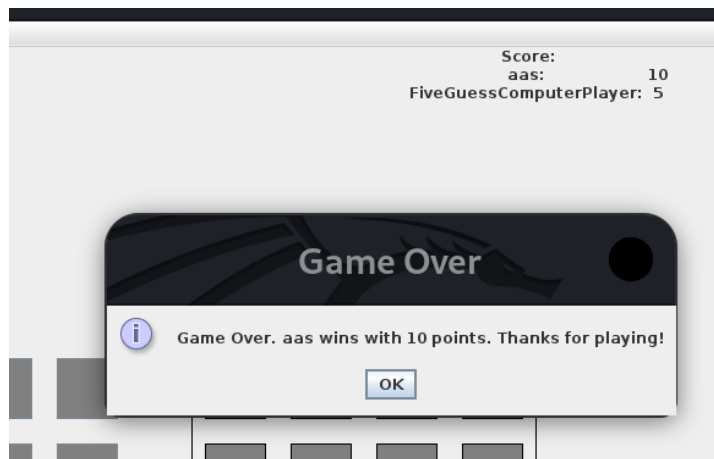


fig 11.8

Now after this when the ok is pressed a prompt will appear asking you whether you want to play again or not. If you select yes to the prompt in fig 11.9 you will stay in the game view and a new game will start with the same settings as before. If you press no then you will return to the main window.

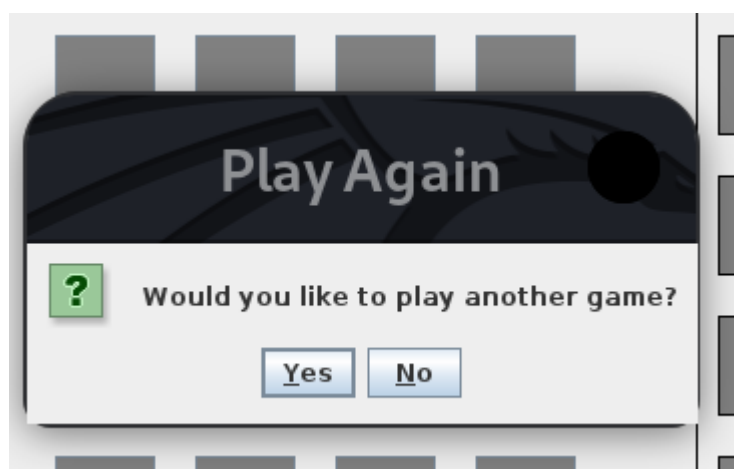


fig 11.9

12. Save Game

Now imagine you are playing a game and then at a certain point you decide to play the game later and save it for now. For that you have a menu item Save game, which you can see after clicking on the **Menu** option on top left corner as follows:

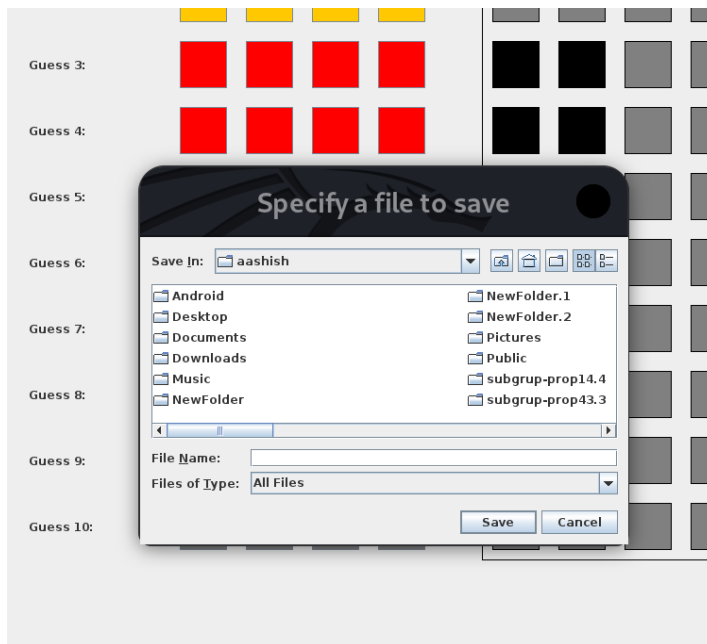


fig: 12.1

As seen on the fig 12.1 the window to save game will appear where you will need to type the name of the game as you would like it to be saved. If you try to save it with the name that already exists in the currently selected directory it will give you an error message. So, it will be a better approach to keep the name unique.

Once you are done typing the name all you need to do is click the Save button. If at any given moment you decide not to save the game then you simply have to click the Cancel button.

The functionality for the load game is already explained above in page 6 but you also have a **Load Game** option available as a Menu item. To access it all you need to do is click the **Menu** button which is on the top left corner. Once you click this button the load window will appear as in fig 3.1. You just have to select the game you want to load and click the

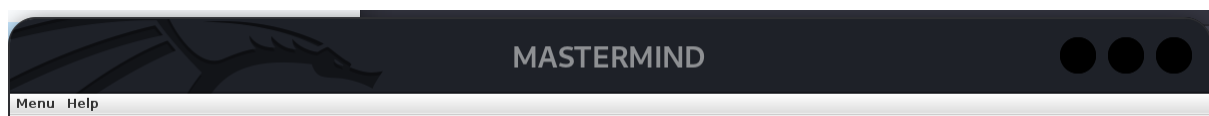
Open button, then the game will be loaded from where you left it earlier.

The Menu Also has an exit option that will take you to the main window from where you can set the settings or start a new game, load a previous game, etc

13. Assistance

For example you are playing the game and you find it difficult to guess the correct secret code. For this moment, you have an assistance option available for you which can be obtained if you have set the difficulty level to Easy or Medium. The way to obtain the assistance is as follows:

a) click on the Help that you see on the top left corner



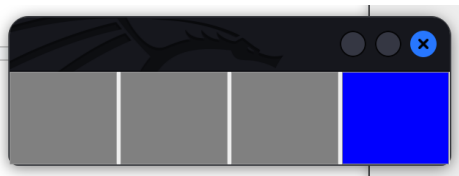
b) Then click on the assistance option you see there. After clicking the assistance button you will see a window appearing that will provide you the colors in an order how it is supposed to be.



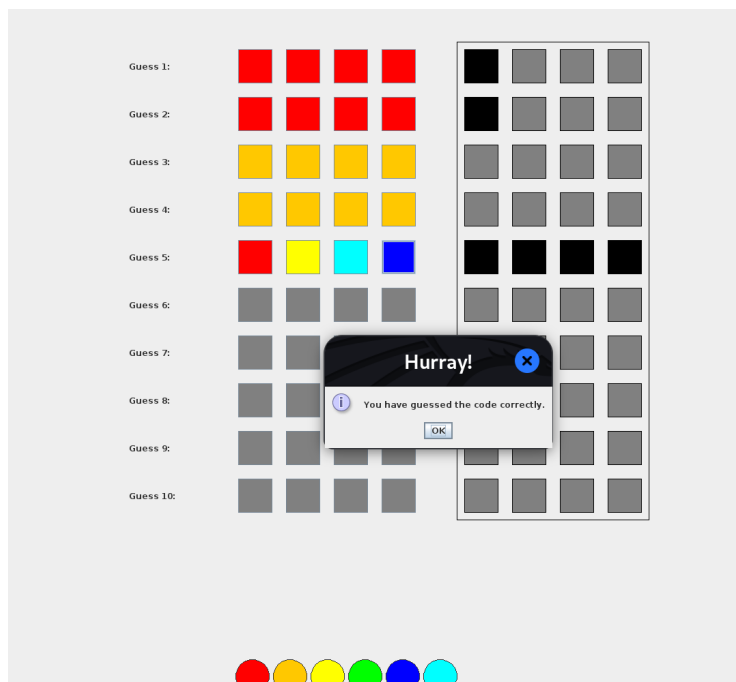
This signifies that the first color is Red. Now again if you press Assistance you will see the second color:



Then let's get third and fourth color as well:

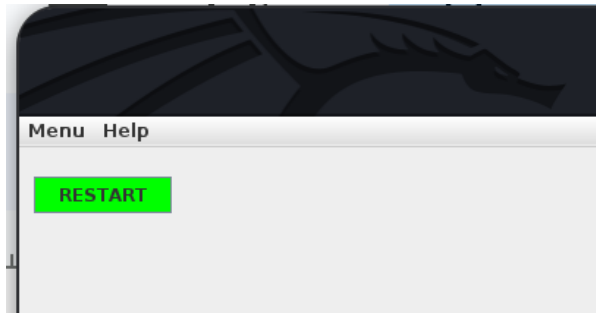


Now you can make your guess with this help:



14. Restart Game

Now, when you are playing a game and you aren't happy with your guesses at a current round then you can simply restart the round by clicking the restart button. When a restart button is pressed it will generate a new secret code and you will have to guess that new secret code.



Restarting the game will clear all the guesses and feedback buttons and it will clear the rounds and your scores. You can start from the beginning but you will have the same setting as before.

