**Programming Language – II**

**Project-2**

**Due Date: 03/04/2022 23:59**

**Mastermind Game using Java**

Given the present generation’s acquaintance with gaming and its highly demanded technology, many aspire to pursue the idea of developing and advancing it further. Eventually, everyone starts at the beginning. Mastermind is an old code-breaking game played by two players. The game goes back to the 19th century and can be played with paper and pencil.

**Rules of the game**

Two players play the game against each other; let’s assume Player 1 and Player 2.

* **Player 1** plays first by setting a multi-digit number.
* **Player 2** now tries his first attempt at guessing the number.
* If Player 2 succeeds in his first attempt (despite odds which are highly unlikely) he wins the game and is crowned Mastermind! If not, then Player 1 hints by revealing which digits or numbers Player 2 got correct.
* The game continues till Player 2 eventually is able to guess the number entirely.
* Now, **Player 2** gets to set the number and Player 1 plays the part of guessing the number.
* If Player 1 is able to guess the number within a lesser number of tries than Player 2 took, then Player 1 wins the game and is crowned Mastermind.
* If not, then Player 2 wins the game.
* The real game, however, has proved aesthetics since the numbers are represented by color-coded buttons.

For example:

**Input:**

Player 1, set the number: 5672

Player 2, guess the number: 6502

**Output:**

+1 // For correct place of “2”

-2 // For incorrect places of “5” and “6”

Enter your next choice of numbers:

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**Project Description**

Write a Java program which plays this game for an intelligent human player.

Human player will hold a number.

And your computer program needs to find this number in an iterative approach.

Algorithm.

1. Generate a HashSet for the storage of the valid number that can be guessed.
2. Select a random value from this hashset.(i.e. 3049)
3. Display it on the screen
4. Read the response of the user. (i.e +2 -1)
5. If

it is +4 finish the game

else

Depending on this value check all the values in the hashset with 3049 and if the result is not equals (+2 -1) remove it from the hash set.

1. Continue your execution from Step-2

You can test your program by allowing this for your friends to play and try to find the hold number as early as possible.