



## **Numeric Guess a Guessing Game for Mind Tests**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author SDC designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors MSHP and PS managed the analyses of the study. Author PS managed the literature searches. All authors read and approved the final manuscript.*

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### **ABSTRACT**

In the modern world, all technologies have reached, their level of perspective especially computer technology has reached the maximum level. Nowadays, the game application plays a major role in everyone's life. Day by day, Gaming applications and the gaming industries are becoming more and more fashionable. This article aims to create, design and develop a Computer Game named as Numeric Guess, a guessing game to test the mind, which should be entertaining, relaxing, interesting and very pleasant to play during leisure as well as during moments of relaxation. The Numeric Guess is a game for desktop computers. A guessing game is a game that, as an object, can find or discover some kind of information. Similarly, The Numeric Guess is a guessing game, which will randomly fix a number within a known range, and then the player that the person who played the game wants to guess the number in limited trials. In this game, the player can choose the default range, or the user selection range to play. The game application was implemented by Java programming language using eclipse in java with tools like JFrame and the windows application to build the interfaces. Photoshop used to change the background of the interfaces. The if-else instruction mainly used for programming and JOptionPane for the input string as well as the popup messages. This Numeric Guess game is the most exciting and competitive game for the adults as well as the children do. This article study assesses the use of java language to develop a simple and challenging game.

**Keywords:** Game application; java; eclipse; JFrame concepts; Joption pane; photoshop.

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## 1. INTRODUCTION

The gaming industry is a unique industry that follows the development of computer technology. We know that there are many devices for playing games, but the computer system is the one that always comes first, whatever devices become more fashionable. Game is the best anti-stress remedy for everyone. There are more benefits to playing computer games [1,2] such as brain development, problem solving, improved focus and more.

In this business world, all workers spend their life like a machine without any relaxation during their work schedule, even schoolchildren; young people also do not have time for relaxation during their daily schedule, so they really need breaks or relaxations to make their lives easier. We know that all workers, schoolchildren and young people have probably used their PCs more than their other devices. On this basis, we decided to develop a guessing game [3] for the computer system. This computer game developed using eclipse [4,5] as Integrated Development Environment and the programming language java [6,7,8]. The Guessing Game is simply to guess the exact number, set by the computer earlier in the range of the limited tests. In order for the mind to relax, the person focuses on this game and gets relief from their busy schedule. In this guessing game, we can assure that the person playing this game definitely feels stress-free.

In general, we can say that a guessing game is a game that, as an object, can find or discover

some kind of information. There are lots of type guessing games available in the gaming industry such as Charades, 30 seconds, Battleship, Botticelli, and more [3]. The most famous guessing game is Charades. In this game, a player can act a sentence or a word in front of another group of players or another single player, he or they might be able to guess the sentence or word of the player who acts. Our game has the same concept as guessing games, but the special concept we are using here is to guess an exact number. For this, we have developed NUMERIC GUESS using Java on eclipse with main tool JFrame.

## 2. METHODOLOGY

### 2.1 Numeric Guess

The key concept we used in our game is a concept similar to other types of guessing games. Numeric Guess is a guessing game, in our computer game, which will randomly fix a number within a known range, and then the player that the person who played the game simply says the user, the user wants to guess the number in limited trials. If the number of riddles is incorrect, the user gets a pop-up window that has guessed too high or too low until the user guesses the correct number. If the user guesses the correct number, finally the popup message displays the number of tries the user needs to guess the correct number. If the user beyond the limited number tries to guess the number, the user must restart the game.

**Table 1. The player has two ways to play the Numeric Guess**

Default	In this type, the player must guess the number between 0 and 100 eight guessing attempts by default. If the player cannot guess the number correctly, then the player must replay the game.
User	In this type, the player can select his range to guess the number according to that the guessing tests carried out. If guessing range less than default range then the guessing attempts is six by default. If guessing range less than default range guessing attempts calculated by $(8 * \text{selected range}) / 100.0$ . If the player cannot guess the correct number, the player retypes the range and replay the game.

**Table 2. Rules of the Game**

DEFAULT	<ul style="list-style-type: none"> <li>• Player must enter numbers between 0 and 100 in any order</li> <li>• If the guessed number is greater than the exact number, it indicates "TOO HIGH"</li> <li>• If the guessed number is less than the exact number, it indicates "TOO LOW"</li> <li>• In this way, the player can continue the game until he tries beyond limited tries, which mean (8).</li> <li>• In the limited tests, if the guessed number equals to the exact number, it</li> </ul>
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	displays "YOU HAVE GUESSED THE NUMBER" otherwise, the player must restart the game.
USER	<ul style="list-style-type: none"> <li>• The player must first enter the range that the player wants to guess</li> <li>• The player must enter numbers in the range as the player enters in text field.</li> <li>• If the number guessed is greater than the exact number, it indicates "TOO HIGH"</li> <li>• If the number guessed is less than the exact number, it indicates "TOO LOW"</li> <li>• In this way, the player can continue the game until he tries beyond the limited tests, in this type depending on the range the tries carried out.</li> <li>• In the limited tests, if the number guessed is equal to the exact number, it displays "YOU HAVE GUESSED THE NUMBER" if not; the player must restart the game.</li> </ul>

## 2.2 GUI Design

The Numeric Guess developed on eclipse using Java. The graphical user interface (GUI) [9] created using the JFrame tool. Then, some properties of the graphical user interface (GUI) and JOptionPane properties edited using UIManager (User Interface Manager). The backgrounds of the computer game developed using Adobe Photoshop [10]. In this application,

the button can be accessed using the click of the mouse but the player can play the game using the click of the mouse or the Enter key on the keyboard.

## 2.3 Back End

### 2.3.1 Syntax for Random selection number

```
random.nextInt(range);
```

### 2.3.2 Algorithm for the Guess Number

```
While (!(userCorrect) &&(numberOfGuess<guesstries)) do
    Input the guess number by the user
    if (userGuessedNumber > range) then
        Display "Your entered number higher than range"
    else
        if(userGuessedNumber>RandomNumber) then
            Display "You entered number greater than random number"
        else
            if(userGuessedNumber<RandomNumber) then
                Display "You entered number less than random number"
            else
                Display "You Guessed the correct number"
                userCorrect=true;
            end if
        end if
    end if
end while
```

### 2.3.3 Algorithm for restart the game

```
if(userCorrect==true) then
    Stay at the same window
else
    If the player want to play again the game then
        TryAgain button becomes enabled
        LetsPlay button becomes disabled
    else
        TryAgain button becomes disabled
        LetsPlay button becomes disabled
    end if
end if
```

### 3. RESULTS AND DISCUSSION

#### 3.1 Test Interface

- The Numeric Guess has two ways of playing which mean "DEFAULT" and "USER" the same method as the game is played in both types but some slide differently in the two.
- The results of the game are observed,
- If the player clicks on the "LETS PLAY" button then the button becomes disabled.

#### 3.2 Test Game Environment

As we are discussing the game, there are two methods to play. They are "DEFAULT" and "USER" these two methods are similar to play slightly a few different. To play Numeric Guess game, the player needs to fully engage and focus their mind, what numbers did the player enter while playing. Based on this, we can guess the

exact number quickly with minimal tries that we have to guess.

Now we see the game environment, which means how the game plays out here, I am considering how to play the "DEFAULT" method for example.

The above way is the exact way to play the "DEFAULT" method. USER method also in the same way that we can choose the guessing range in the game. We can tell this game that the player has to focus his mind while playing, only then can the player remember the number he entered and completed this game in minimal tries in an interesting and exciting way.

To check the probability of people interested in playing digital games, we randomly selected a number of people with no age limit. About 100 people, over 80% of people enjoy to playing Numeric Guess.



Fig. 1. Welcome Window



Fig. 2. Default Range Window



Fig. 3. User Selection Range



Fig. 4. Information of the Game



Fig. 5. Default Range Play Window



Fig. 6. User Selection Range Play Window



Fig. 7. Number of players' riddle is greater than the exact number



Fig. 8. Number of players' guessing is less than the exact number



Fig. 9. Player guesses the exact number



Fig. 10. Player clicks on "YES", the "PLAY AGAIN" can click on



Fig. 11. Player enters a number greater than the range



Fig. 12. Player clicks "NO", expect "HOME", the other buttons will be disabled



Fig. 13. Player must comply if player must exit window

Table 2. Test of play

<i>For the "DEFAULT" method, the estimation range is from 0 to 100 by default and by default, 8 tries allocated.</i>		
The number entered by the player	Results as a pop message	Explanation
<p>Fig. 14.</p>	<p>Fig. 15.</p>	<p>The very first time the player enters the first number to guess the exact number</p> <p>Here in this example the first number 50, the result is that the number is too large, so the exact number is in the range of less than 50</p>



Fig. 16.



Fig. 17.

The second time the player enters the number to guess the exact number

Here in this example the number 25, the result is that the number is too low, so the exact number is between 25 and 50



Fig. 18.



Fig. 19.

The third time the player enters the number to guess the exact number

Here in this example the number 35, the result is that the number is too low, so the exact number is between 35 and 50





Fig. 20.



Fig. 21.

The fourth time the player enters the number to guess the exact number

Here in this example the number 40, the result is that the number is too large, therefore the exact number is between 35 and 40 so at this point the player should remember that the exact number is 36,37,38 , 39



Fig. 22.



Fig. 23.

The fifth time the player must enters 36 or 37 or 38 or 39

Here in this example the number 38, the result is that the number is too large, therefore the exact number is between 35 and 38 so at this point the player has remember that the exact number is 36 or 37.



Fig. 24.



Fig. 25.

The sixth time the player must enter 36 or 37  
This is the exact moment when the player can guess the exact number or greater than that number

Here in this example the number 37, the result is that the number is too large, so at this point the player identifies the exact number is 36



Fig. 26.



Fig. 27.

Therefore, the last time the player guessed the exact number 36 in the 7th tries.

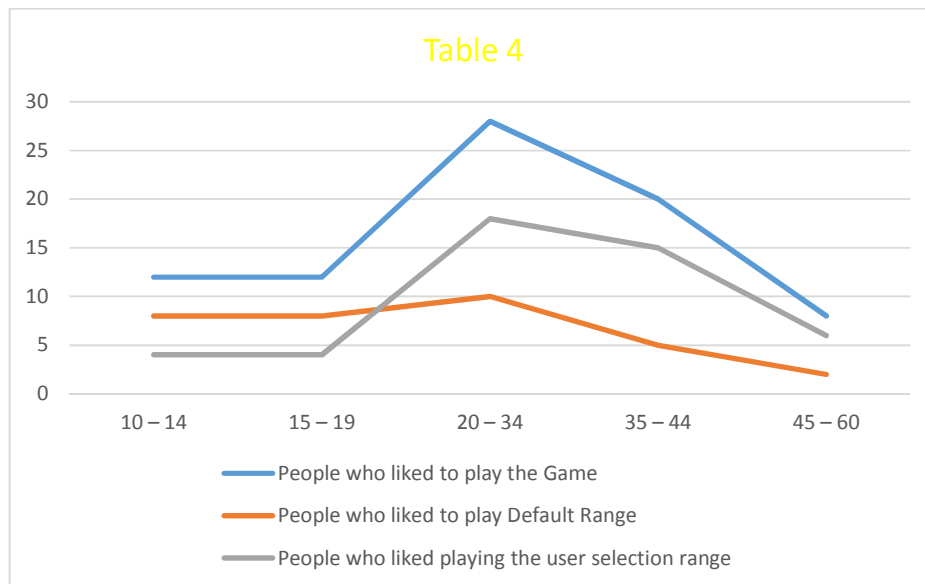
### 3.3 Back End

**Table 3. Test Button**

Test description	Reason
Click <b>DEFALUT</b> button	To check whether the window navigate to default range window
Click <b>USER</b> button	To check whether the window navigate to user selection range window
Click <b>INFO</b> button	To check whether the window navigate to a window that give some information about the game
Click <b>EXIT</b> button	Check whether the entire interface closed
Click <b>LET'S PLAY</b> button	Check whether the game dialog box will be open
Click <b>PLAY AGAIN</b> button	Check whether the game dialog box will be open
Click <b>HOME</b> button	Check whether the window again navigate to the home page

**Table 4. Analysis**

Age Limit	Total People	People who liked to play the Game	People who liked to play Default Range	People who liked playing the user selection range
10 – 14	15	12	8	4
15 – 19	15	12	8	4
20 – 34	35	28	10	18
35 – 44	25	20	5	15
45 – 60	10	8	2	6



**Fig. 28. Age limit 10-19 years likes to play the default range, others all like to play the user selection range more**

### 4. CONCLUSION

According to the analysis and evaluation, we can conclude as follows: The design of the game application implemented to entertain the player during his leisure time. It designed and implemented a user - friendly environment and

the game interface is more attractive. This Numeric Guess game can be play without any age limit. In particular, Java language learners can have a clear idea of how to create a simple computer game using Java on Eclipse. The Numeric Guess game is the most exciting, challengeable and a simple game too. We hope

this Numeric Guess game is useful for everyone who interest in playing guessing games. Our future goal of Numeric Guess game is to add a scoreboard and a database that who play the game.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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