WORD GAMES

A Project Work
Submitted in the partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING
IN
ARTIFICIAL INTELLIGENCE
&
MACHINE LEARNING

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DECLARATION

We, **Nihal Agarwalla, Pranjali Singhal and Yuvraaj Koundal**, student of **Bachelor of Engineering in Computer Science in specialisation with Artificial Intelligence and Machine Learning**, **session: 2019 - 2020**, Apex Institute of Technology, Chandigarh University, Punjab, hereby declare that the work presented in this Project Work entitled **Word Games** is the outcome of our own bona fide work and is correct to the best of our knowledge and this work has been undertaken taking care of Engineering Ethics. It contains no material previously published or written by another person nor material which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

Nihal Agarwalla
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Date: 15th July, 2019
Place: Chandigarh University

CERTIFICATE

This is to certify that the work embodies in this dissertation entitled ***'WORD GAMES'*** being submitted by **Nihal Agarwalla (18BCS6106), Pranjali Singhal (18BCS6109), Yuvraaj Koundal(18BCS6114)** for partial fulfillment of the requirement for the award of **Bachelor of Engineering** in ***A.I and M.L*** discipline to Apex Institute of Technology, Chandigarh University, Punjab during the academic year 2018 - 2019 is a record of bona fide piece of work, undertaken by him/her the supervision of the undersigned.

Approved and Supervised by

Signature of Supervisor
(Mr. Nadeem)

Forwarded by

(Dr. Bhupinder Singh)
Professor & Head of Department

EXTERNAL EXAMINER

Signature of External Examiner

ACKNOWLEDGEMENT

I have taken effort in this project. However, it would not have been possible without the kind support and help of many individuals and mainly organization like ‘STACKOVERFLOW’. I would like to extend my sincere thanks to all of them.

I am highly indebted to my friends and my seniors for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project. I would like to express my gratitude towards my family members for their kind co-operation and encouragement which help me in completion of the project. My thanks and appreciations also go to my colleagues who have willingly helped me throughout for the completion of the project.

ABSTRACT

In this Project named as Word Games, the user has an option for playing two games, Word Scramble and Guessing Game. Word Scramble is simply a game where the user has to recognise the shuffled word and type in the original word. And Guessing Game is also a simple word game where the user has to recognise the hidden word and type in the original word. It is just a mini java-based project which is done with basic programming skills, in it OOPS concepts are used.

Table of Contents

INTRODUCTION

This is a Gaming Project in JAVA. This Project gives the user an option for playing 2 games. The two games are:

1. Word Scramble

2. Guessing Game

The User can select any game he wants to play and enjoy the game.

The Games are briefly described below:

Word Scramble

In this game, a random word is picked up from a database of words and then the word is shuffled by the computer. The shuffled word is then shown to the user and he needs to type in the original English word by recognising it. As soon as the user correctly guesses the word, the program is ended. The program displays the number of guesses made by the player for guessing the right word.

The Word Scramble Java program implements the Word Scramble Game. A number of important language features such as getting user input, conditional checks, loops and string operations is demonstrated by the program. It also demonstrates how a random word is picked up using the technique of Thread Local Random, how a word is shuffled using array operations and how Scanner class can be used for user input.

Guessing Game

In this game, the computer program randomly picks up a secret word from a database of words and then asks the user to guess the word. The word is displayed in asterisks on the console. As the user keeps on guessing the letters of the word, if the letter is present in the word, the asterisk is replaced with the letter and is displayed to the user. And if the letter is not present in the word, the console invokes the user for another guess. Until the complete word is guessed, the user needs to keep trying for the word. The program ends when the user correctly guesses the word. The program also prints the number of misses made by he user for finding the correct answer.

The Guessing Game Java program implements the Guessing Game. The program demonstrates a number of important language features such as getting user input, conditional checks, loops and string operations. It also demonstrates how a random word is picked up and how Scanner class can be used for user input.

HARDWARE SPECIFICATION: -

1. Windows 7 or higher
2. RAM- at least 2 GB DDR3

SOFTWARE SPECIFICATION: -

1. JAVA SDK
2. JAVA JRE

STEPS THAT NEED TO BE FOLLOWED FOR THE EXECUTION OF THE PROGRAM: -

1. Run CMD.
2. Set up the path of bin of java directory by going to the advance environment setting in the properties and then setting up the path of the java bin directory.
3. Change the current directory to where the java file is being present.
4. Run javac “java_file_name” along with the extension.
5. After that a class will be created upon the “java_file_name”
6. To execute the class Run - java “java_file_name”.

SYSTEM ANALYSIS & DESIGN

ALGORITHM AND PSEUDOCODE: -

```
import java.util.Scanner;
import java.util.concurrent.ThreadLocalRandom;
public class WordGames
{
	private Scanner obj;
	public static void main(String[] args)
	{
		System.out.println("Which game you wanna play ??");
		System.out.println("1. Word Scramble\n2. Guessing Game");
		Scanner choose = new Scanner(System.in);
		int choice = choose.nextInt();
		WordGames game = new WordGames();
		switch(choice)
		{
		case 1:
			game.WordScrambleStartGame();
			break;
		case 2:
			game.GuessingGameStart();
			break;
		default:
			System.err.println("Invalid option!!");
```

```
                break;
            }
            choose.close();
        }


        private static final String[] data = new String[]
                {

        "superman","jungle","programmer","letter","house","helium", "programming",
"fish", "cairo", "arabs", "quraan", "sunnah", "editor",
                "photography", "artist", "software", "write", "read", "gaming", "lunch",
"participate", "lunch", "dinner",
                "house", "books", "animals"
                 };


        private void WordScrambleStartGame() {
            boolean again = true;
            while(again)
            {
            int number = 0;
            String original = getrandomn();
            String shuffled = getshuffledword(original);
            boolean gameon = true;
            while(gameon)
            {
                System.out.println("Shuffled word : "+shuffled);
                number++;
                String userguess = getuserguess();
                if(original.equalsIgnoreCase(userguess))
```

```
                {
                        System.out.println("Congratultions! You found the word in
"+number+" guesses.");
                        gameon = false;
                        again = userWantsAnotherGame();
                }
                else
                {
                        System.err.println("Sorry! Wrong answer.");
                }
        }
        }

}
public String getuserguess()
{
        obj = new Scanner(System.in);
        System.out.println("Please type the original word: ");
        return obj.nextLine();
}
public String getrandomn() {
        int rpos = ThreadLocalRandom.current().nextInt(0, data.length);
        return data[rpos];
}
public String getshuffledword(String original)
{
        String shuffledword = original;
        int wordsize = original.length();
        int shufflecount = 10;
        for(int i=0;i<shufflecount;i++)
```

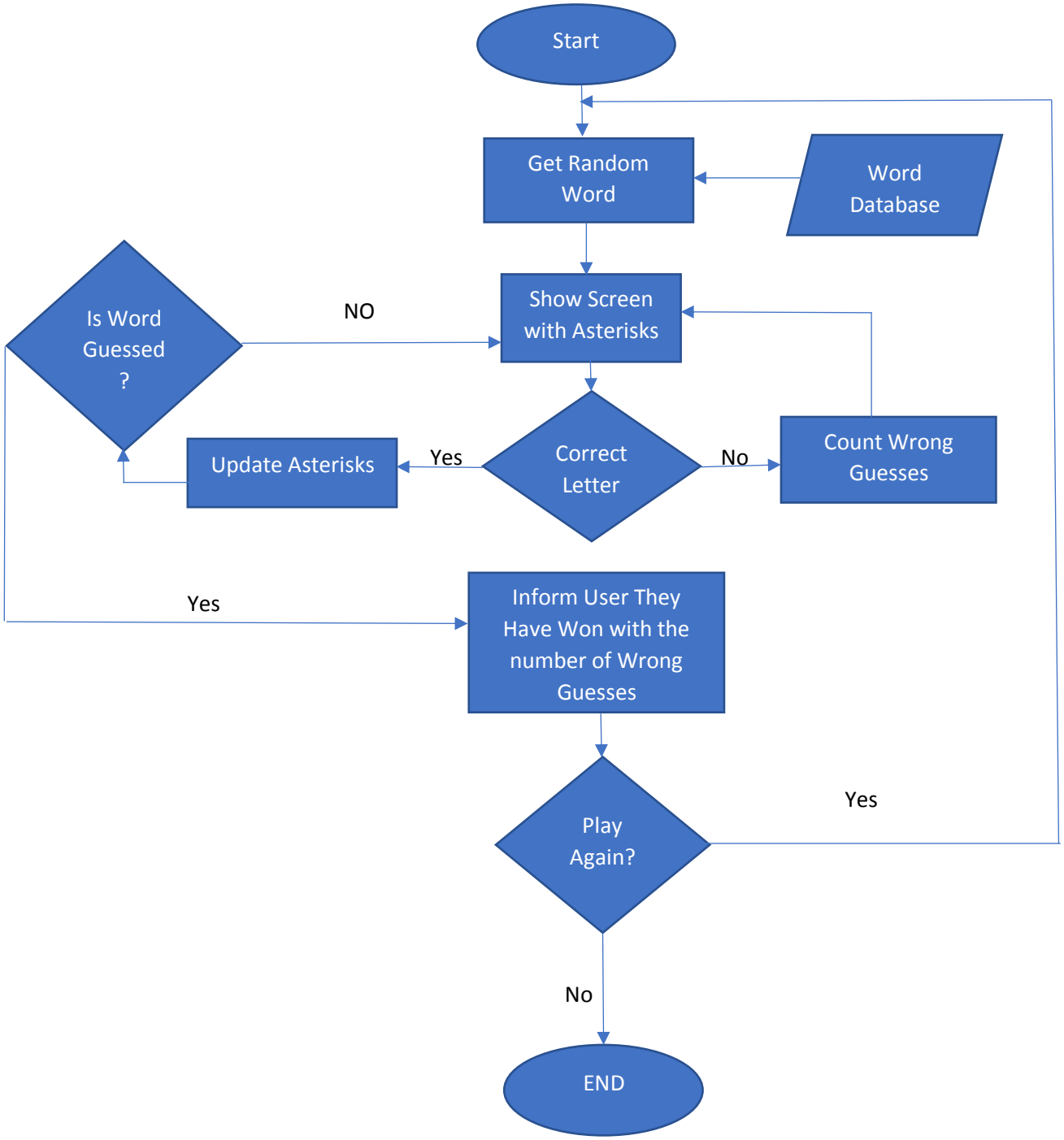
```
            {
                int position1 = ThreadLocalRandom.current().nextInt(0, wordsize);
                int position2 = ThreadLocalRandom.current().nextInt(0, wordsize);
                shuffledword = swapCharacters(shuffledword,position1,position2);

            }
            return shuffledword;

        }
        private String swapCharacters(String shuffledword, int position1, int position2)
        {
            char[] chararray = shuffledword.toCharArray();
            char temp = chararray[position1];
            chararray[position1] = chararray[position2];
          chararray[position2] = temp;
            return new String(chararray);
        }



        private Scanner input=new Scanner(System.in);
        private final static String[] WORDS = { "programming", "fish", "cairo", "arabs",
"quraan", "sunnah", "editor",
                "photography", "artist", "software", "write", "read", "gaming", "lunch",
"participate", "lunch", "dinner",
                "house", "books", "animals" };



         private char[] originalWord;
         private char[] currentWord;
         private int misses;
```

```
public void GuessingGameStart() {

    boolean keepPlaying = true;

    while (keepPlaying) {
      // Choose a random word
      this.originalWord = chooseWord();
      this.currentWord = hideRealWord(originalWord);
      this.misses = 0;
      boolean finish = true;
      int count = 0;
      while (finish)
      {
       count = 0;
        for(int temp=0;temp<originalWord.length;temp++)
        {
              if(currentWord[temp] == '*')
              {
                    count++;
              }
        }
        if(count==0)
        {
              finish = false;
        }
        else
        {
              guess();
```

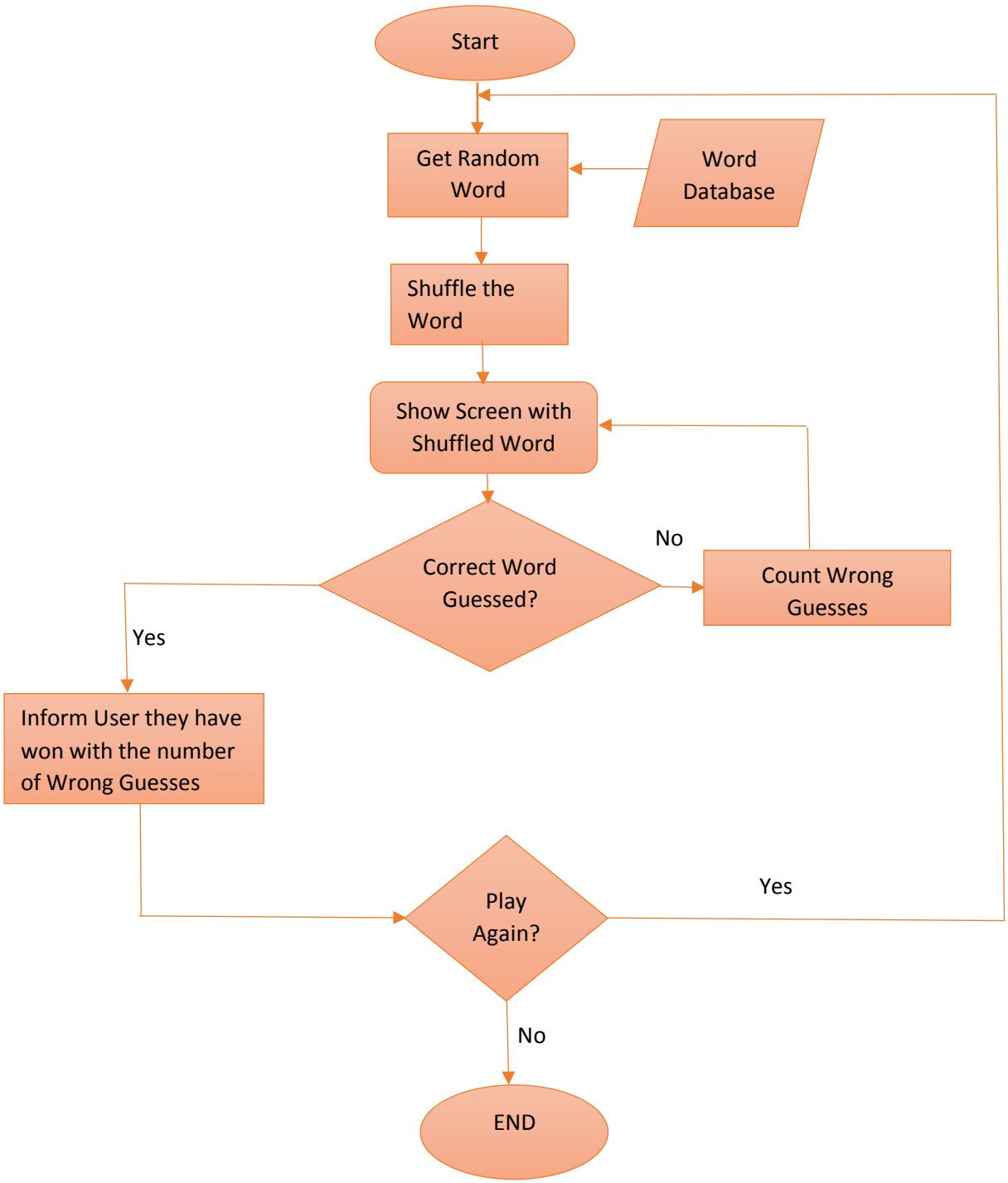
```
                }
            }

            // Display result
            System.out.println("The word is " + String.valueOf(this.originalWord) +
(misses == 0 ? " .You are correct"
                : " .You missed " + (misses == 1 ? " one time" : " " + misses + " times")));

            // Ask for another game
            keepPlaying = userWantsAnotherGame();
        }
    }

    private boolean userWantsAnotherGame() {
        System.out.print("Do you want to start another word? Enter y or no>");
        char gameCase = this.input.nextLine().charAt(0);
        return (gameCase == 'y');
    }

    private void guess() {

        System.out.print("(Guess) Enter a letter in word " + String.valueOf(currentWord)
+ " ");
        char ch = this.input.nextLine().charAt(0);

        //Check if already made this guess
        for (int j = 0; j < this.currentWord.length; j++) {
            if (this.currentWord[j] == ch) {
                System.out.println(ch + " Already in the word");
                misses++;
```

```
                return;
            }
        }

        boolean isCorrect = false;
        for (int j = 0; j < this.originalWord.length; j++) {
            if (this.originalWord[j] == ch) {
                currentWord[j]=  ch;
                isCorrect = true;
            }
        }
        if (!isCorrect) {
            System.out.println(ch + " is not in the word");
            misses++;
        }
    }

    private static char[] hideRealWord(char[] originalWord) {
        char[] hiddenWord = new char[originalWord.length];
        for (int i = 0; i < originalWord.length; i++) {
            hiddenWord[i] = '*';
        }
        return hiddenWord;
    }

    private static char[] chooseWord() {
        return WORDS[(int) (Math.random() * WORDS.length)].toCharArray();
    }
}
```

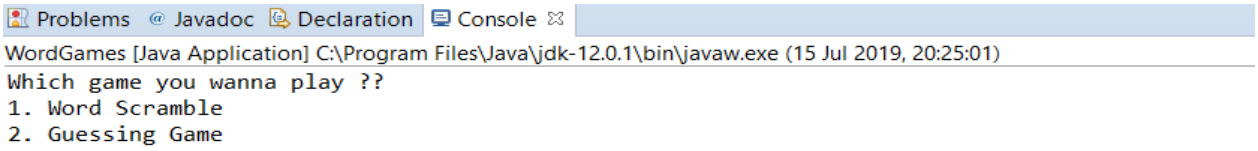
Flowchart of Guessing Game:

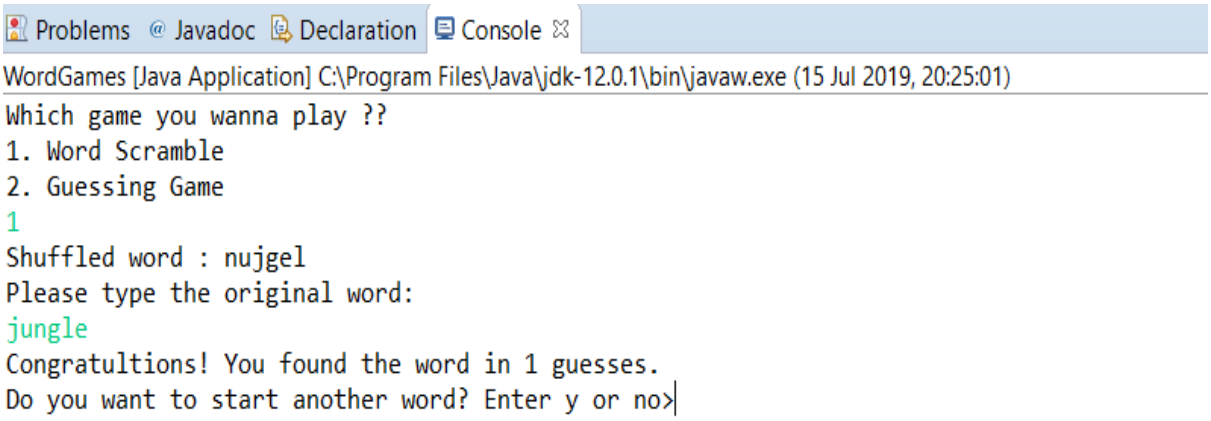


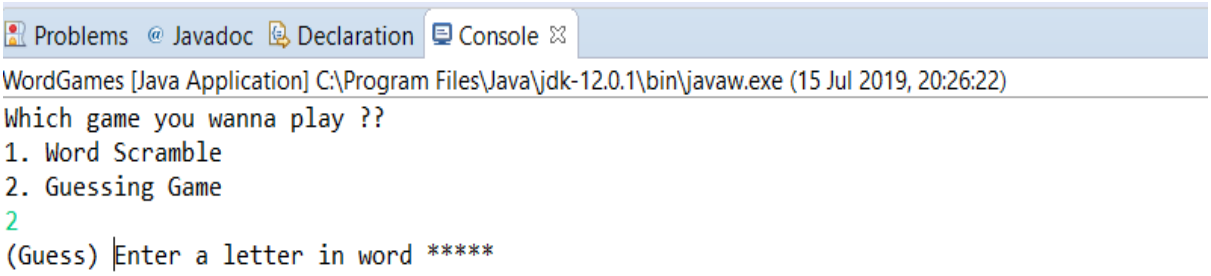
Flowchart of Word Scramble :

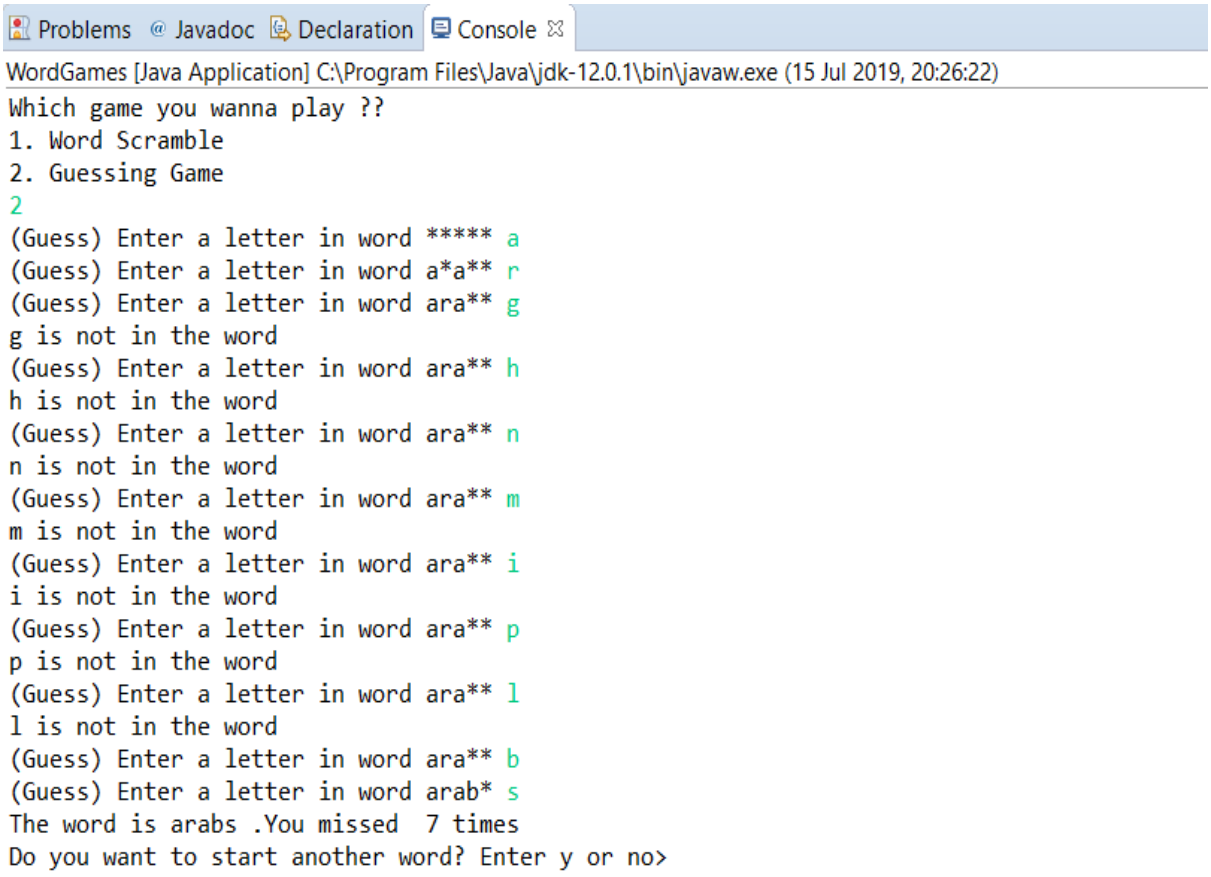


OUTPUT


Problems
Javadoc
Declaration
Console
WordGames [Java Application] C:\Program Files\Java\jdk-12.0.1\bin\javaw.exe (15 Jul 2019, 20:25:01)
Which game you wanna play ??
1. Word Scramble
2. Guessing Game


Problems
Javadoc
Declaration
Console
WordGames [Java Application] C:\Program Files\Java\jdk-12.0.1\bin\javaw.exe (15 Jul 2019, 20:25:01)
Which game you wanna play ??
1. Word Scramble
2. Guessing Game
1
Shuffled word : nujgel
Please type the original word:
jungle
Congratultions! You found the word in 1 guesses.
Do you want to start another word? Enter y or no>


Problems
Javadoc
Declaration
Console
WordGames [Java Application] C:\Program Files\Java\jdk-12.0.1\bin\javaw.exe (15 Jul 2019, 20:26:22)
Which game you wanna play ??
1. Word Scramble
2. Guessing Game
2
(Guess) Enter a letter in word *****


Problems
Javadoc
Declaration
Console
WordGames [Java Application] C:\Program Files\Java\jdk-12.0.1\bin\javaw.exe (15 Jul 2019, 20:26:22)
Which game you wanna play ??
1. Word Scramble
2. Guessing Game
2
(Guess) Enter a letter in word ***** a
(Guess) Enter a letter in word a*a** r
(Guess) Enter a letter in word ara** g
g is not in the word
(Guess) Enter a letter in word ara** h
h is not in the word
(Guess) Enter a letter in word ara** n
n is not in the word
(Guess) Enter a letter in word ara** m
m is not in the word
(Guess) Enter a letter in word ara** i
i is not in the word
(Guess) Enter a letter in word ara** p
p is not in the word
(Guess) Enter a letter in word ara** l
l is not in the word
(Guess) Enter a letter in word ara** b
(Guess) Enter a letter in word arab* s
The word is arabs .You missed 7 times
Do you want to start another word? Enter y or no>

CONCLUSION

This project has been a good tutor as far as practical aspects of programming are concerned. I planned the project with my friends. After drafting the source code , I punched it in the computer followed by debugging and testing it, both at home while at the time of summer vacation and also while the time of submitting the project. Subsequently, I was able to get an error free code to put it in my project.

BIBLIOGRAPHY

These are the following books I have referred to for completing my project: -

➢ Understanding Computer Application by Pandey & Dey, APC
➢ Computer Application by Gautam Roy

These are the following websites which help me throughout for debugging my source code: -

➢ Scribd.com
➢ Stackoverflow.com
➢ Geeksforgeeks.com