PROJECT 1: TYPING SPEED CALCULATOR



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It gave me an immense pleasure while doing this project because it was not just a project but, a source to learn not just about chapter but also I inculcated many qualities like responsibility, punctuality, confidence and what not.

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Doing work on time is something everyone needs to learn and through this project I have improved my timing and also it made my thinking skills better.

A project is a bridge between theoretical and practical learning and with this thinking I worked on the project and made it successful due to timely support and efforts of all who helped me.

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**A BRIEF OVERVIEW ON THE PROJECT**:

This Java project is a general-purpose, concurrent, class-based, object- oriented computer programming language that is specifically designed to have as few implementation dependencies as possible and it helps to learn how to define and call the function in code.

It is intended to let application developers "write once, run anywhere" (WORA), meaning that code that runs on one platform does not need to be recompiled to run on another and from doing this project we get know about class must allow the objects to cooperate during the execution.

# 2. ADVANTAGES AND CHALLENGES WHILE COMPLETING THE PROJECT.

**Advantages:**

1. Modular Design:

The programs follow a modular design, separating the user input and difficulty level selection logic from the actual challenge implementation. This enhances code readability and maintainability.

1. Object-Oriented Approach:

The use of classes and methods follows an object-oriented approach, promoting code organization and reusability. Each class has a clear responsibility, making the code more manageable.

1. User-Friendly Interface:

The user interface is well-designed, with a clear difficulty level menu and a countdown before the challenge starts. This enhances the user experience and makes the game more engaging.

1. Dynamic Word Lists:

The inclusion of different word lists for easy, medium, and hard difficulty levels adds variety to the game, providing a more comprehensive and enjoyable experience for users.

1. Timing Accuracy:

The programs use the LocalTime class to accurately measure the time it takes for users to complete the challenge. This precision contributes to accurate Words Per Minute (WPM) calculations.

Challenges Faced:

1. Error Handling:

Proper error handling mechanisms, especially when dealing with user input, are crucial. The code could benefit from additional input validation to handle unexpected user entries, preventing runtime exceptions.

1. Code Duplication:

Some sections of code, such as the countdown sequence in the Challenge class, are duplicated. Consider creating a separate utility method for repetitive tasks to improve code maintainability.

1. Scalability:

The current implementation supports predefined difficulty levels. However, scaling the application to accommodate a wider range of difficulty levels or user customization might require additional adjustments and flexibility in the code structure.

1. Exception Handling:

While the code includes exception handling for InterruptedException, more comprehensive error handling and logging mechanisms could be implemented to catch and handle unexpected exceptions gracefully.

1. User Feedback:

Providing more detailed feedback to the user during and after the challenge could enhance the overall experience. Consider incorporating prompts or messages to guide the user through the challenge and convey results more effectively.

**SOFTWARE AND HARDWARE REQUIRMENTS FOR JAVA PROJECT:**

# Hardware Requirement for Java:

Minimum hardware requirement to download Java on your Windows operating system as follows:

* Minimum Windows 95 software
* IBM-compatible 486 system
* Hard Drive and Minimum of 8 MB memory
* A CD-ROM drive
* Mouse, keyboard and sound card

# Software requirement for Java:

Nowadays, Java is supported by almost every operating systems. Whether it is a Windows, Macintosh and UNIX all supports the Java application development. So you can download any of the operating system on your personal computer. Here are the minimum requirement.

The software require for project includes package necessary to successfully compile and build the program.S

* Operating System
* Java SDK or JRE 1.6 or higher
* Java Servlet Container (Free Servlet Container available)
* Supported Database and library that supports the database connection with Java.

**Code:**

**package** WPM;

**import** java.time.LocalTime;

**import** java.util.Random;

**import** java.util.Scanner;

**import** java.util.concurrent.TimeUnit;

**public** **class** Challenge {

**static** **final** String[] ***words*** = {"again", "bought", "catch", "eight", "island", "black", "white",

"there", "chips", "rumble", "robot", "wizard", "walk", "lemon", "ronaldo", "charlie", "romeo",

"giraffe", "zebra"};

**static** **final** String[] ***easywords*** = {"cat", "done", "mad", "full", "go", "eat", "dog",

"war", "chip", "toy", "milk", "joy", "fox", "easy", "fish", "hi", "sun",

"fun", "hug"};

**static** **final** String[] ***hardwords*** = {"excellent", "neighbour", "is", "definitely", "demolish", "humble", "dog",

"exaggerate", "magazine", "grumpy", "selfish", "beautiful", "schedule", "conscience", "restaurant", "embarrass", "appearance",

"pilgrimage", "moustache"};

**public** **static** **void** main(String[] args) {

**try** {

*chal*(15);

} **catch** (InterruptedException e) {

e.printStackTrace();

}

}

**public** **static** **void** chal(**int** n) **throws** InterruptedException {

Scanner scan = **new** Scanner(System.***in***);

System.***out***.print("3");

TimeUnit.***SECONDS***.sleep(1);

System.***out***.print(" 2");

TimeUnit.***SECONDS***.sleep(1);

System.***out***.println(" 1");

TimeUnit.***SECONDS***.sleep(1);

Random rand = **new** Random();

// Generate random words based on the difficulty level

String[] challengeWords = *generateChallengeWords*(n, rand);

// Display the challenge words

**for** (String word : challengeWords) {

System.***out***.print(word + " ");

}

System.***out***.println();

System.***out***.println("TYPE!: ");

**double** start = LocalTime.*now*().toNanoOfDay();

// Get user input

String typedWords = scan.nextLine();

**double** end = LocalTime.*now*().toNanoOfDay();

**double** elapsedTime = end - start;

**double** seconds = elapsedTime / 1000000000.0;

**int** numChars = typedWords.length();

// Calculate words per minute (WPM)

**int** wpm = (**int**) ((((**double**) numChars / 5) / seconds) \* 60);

// Check correctness and calculate accuracy

**int** correctWords = *countCorrectWords*(challengeWords, typedWords);

**double** accuracy = ((**double**) correctWords / challengeWords.length) \* 100;

// Print results

System.***out***.println("Your words per minute is: " + wpm + "!");

System.***out***.println("Accuracy: " + accuracy + "%");

scan.close();

}

**private** **static** String[] generateChallengeWords(**int** n, Random rand) {

**switch** (n) {

**case** 8:

**return** *getRandomWords*(***easywords***, rand, 8);

**case** 11:

**return** *getRandomWords*(***words***, rand, 11);

**case** 15:

**return** *getRandomWords*(***hardwords***, rand, 15);

**default**:

**throw** **new** IllegalArgumentException("Invalid difficulty level");

}

}

**private** **static** String[] getRandomWords(String[] wordList, Random rand, **int** count) {

String[] result = **new** String[count];

**for** (**int** i = 0; i < count; i++) {

result[i] = wordList[rand.nextInt(wordList.length)];

}

**return** result;

}

**private** **static** **int** countCorrectWords(String[] challengeWords, String typedWords) {

String[] typedArray = typedWords.split("\\s+");

**int** correctCount = 0;

**for** (**int** i = 0; i < Math.*min*(challengeWords.length, typedArray.length); i++) {

**if** (challengeWords[i].equalsIgnoreCase(typedArray[i])) {

correctCount++;

}

}

**return** correctCount;

}

}

**Code Main:**

**package** WPM;

**import** java.util.Scanner;

**public** **class** Main {

**public** **static** **void** main(String[] args) **throws** InterruptedException {

Scanner scan = **new** Scanner(System.***in***);

**int** dif=0;

**boolean** invalid = **false**;

**do**{

System.***out***.println("Select Difficulty: "); //Difficulty level menu

System.***out***.println("1. Easy \n"

+"2. Medium \n"

+"3. Hard \n"

+"4. Custom");

System.***out***.println();

dif=scan.nextInt();

**switch** (dif) { //use of switch case to execute test in desired level

**case** 1:

Challenge.*chal*(8);

**break**;

**case** 2:

Challenge.*chal*(11);

**break**;

**case** 3:

Challenge.*chal*(15); //8, 11 and 15 are the predefined number of words in the particular level

**break**;

**case** 4:

System.***out***.println("Enter no. of words: ");

**int** w=scan.nextInt();

Challenge.*chal*(w);

**default**:System.***out***.println("Enter Valid No.");

invalid=**true**;

}

}**while**(invalid);

scan.close();

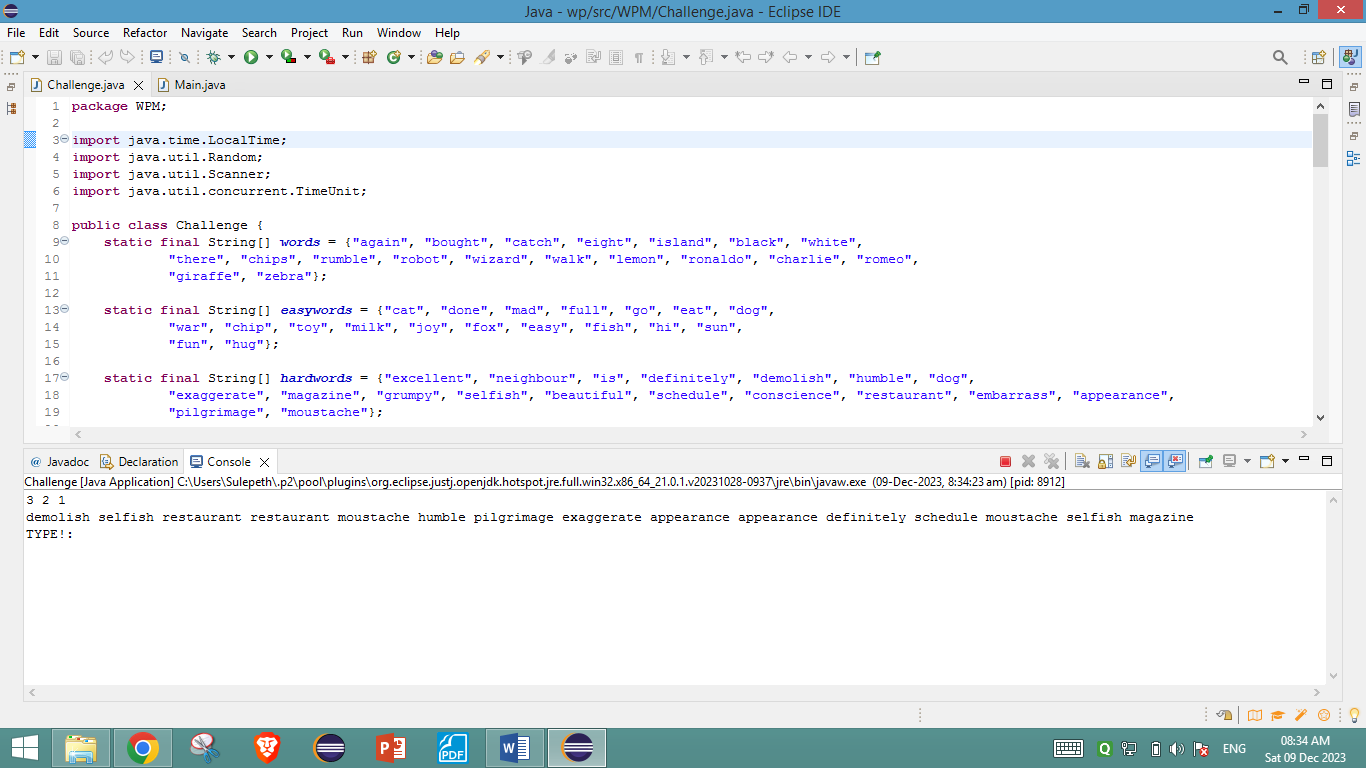
}

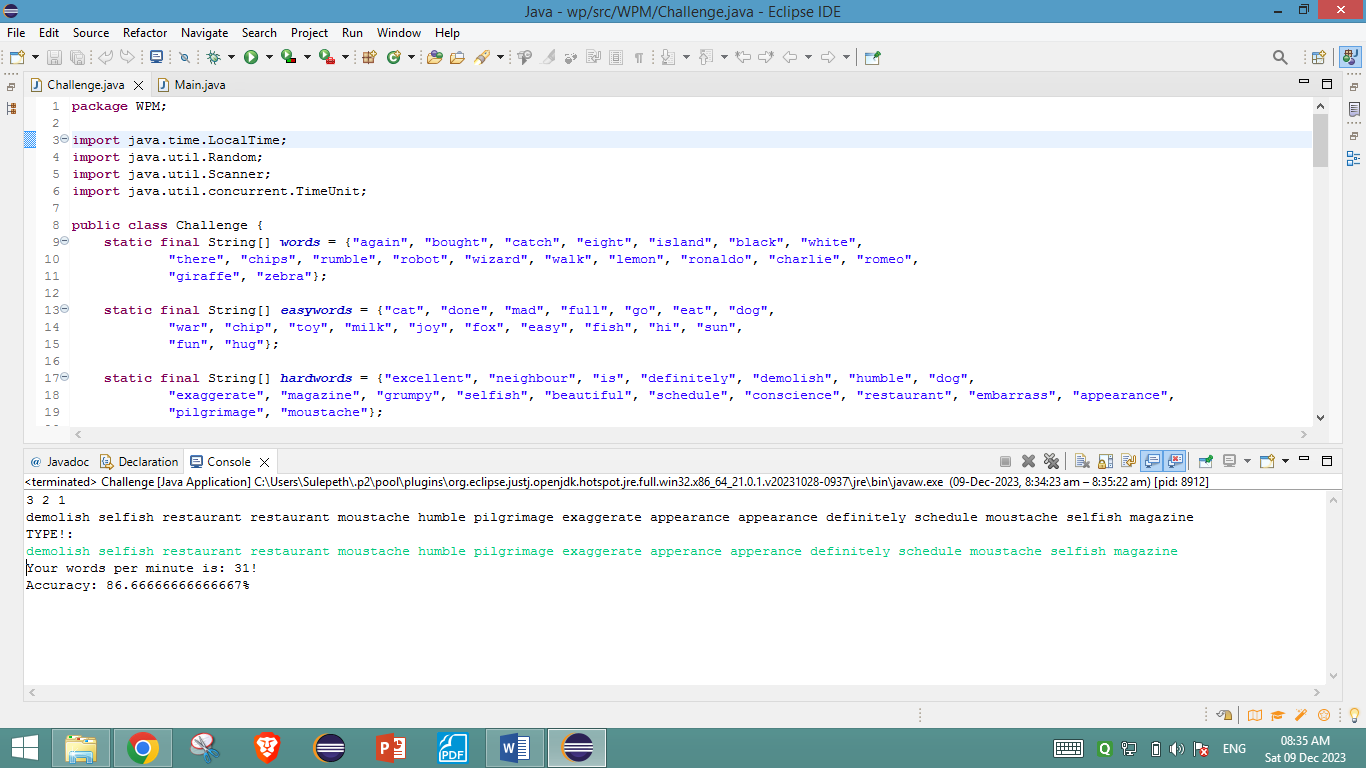
}

**Source of the code:**

[**GitHub**](https://github.com/ch374nvj/Typing-Speed-Calculator/commit/c318d76615efa8b144212034f890f4b01c216705#diff-be0159e984bf4db2b8977957a4901cd2adcd35f2401f50e9e16cf001cdb73f27)

IMPLEMENTATION OF THE PROJECT with Screenshots:





CONCLUSION:

In conclusion, this typing speed calculator project is a very valuable program aimed at enhancing the typing skills of the user and allowing them to correct and improve themselves by following the advices given to them after their each typing trail.

The additional advantages of this project is that it is a user friendly interface, it’s timer functionality, it’s text passage generation, it’s accuracy and it’s ability to calculate speed through words per minute (wpm).

This project is not only useful for individual development skill but it also finds its use in educational and corporate level training programs.

Thus this program creates a positive impact on the users typing skills .With continuous testing and improvements on this project we can make it even more reliable and take this project to further heights and make sure it is accessible to a even larger group of people and let more people be benefitted form this project.

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