Mindbender Quiz Game Java Project Submission

## 1. Introduction

This document contains the source code and explanation for the 'MindBender Quiz Game' developed as part of the Programming Assignment Unit 1 for CS 1102-01. The program is a simple Java console-based quiz that asks five multiple-choice questions, validates user input, evaluates the answers, calculates the score, and displays a final result.

## 2. Assignment Requirements

The assignment requires implementing a quiz program in Java that:  
- Asks 5 multiple-choice questions  
- Validates input (A, B, C, or D)  
- Uses if and switch statements  
- Calculates score as percentage  
- Displays results  
- Includes proper formatting, structure, and code readability

## 3. Java Code

Below is the complete Java code for the quiz game:

import java.util.Scanner;  
  
public class MindBenderQuiz {  
 public static void main(String[] args) {  
 Scanner scanner = new Scanner(System.in);  
 int score = 0;  
  
 System.out.println("🌟 Welcome to the MindBender Quiz Challenge! 🌟");  
 System.out.println("Answer the following 5 questions by typing A, B, C, or D.\n");  
  
 char[] correctAnswers = {'B', 'C', 'A', 'D', 'C'};  
 char[] userAnswers = new char[5];  
  
 String[] questions = {  
 "1. What is the output of: System.out.println(3 + \"7\");",  
 "2. Which Java keyword is used to inherit a class?",  
 "3. What is the default value of a boolean in Java?",  
 "4. Which data type would you use for a single 16-bit Unicode character?",  
 "5. What is the result of: 10 > 9 && 5 < 2?"  
 };  
  
 String[][] options = {  
 {"A. 10", "B. 37", "C. Error", "D. 3 + 7"},  
 {"A. implement", "B. implements", "C. extends", "D. inherit"},  
 {"A. false", "B. true", "C. null", "D. 0"},  
 {"A. byte", "B. int", "C. string", "D. char"},  
 {"A. true", "B. false", "C. false", "D. Compilation error"}  
 };  
  
 for (int i = 0; i < 5; i++) {  
 System.out.println(questions[i]);  
 for (String option : options[i]) {  
 System.out.println(option);  
 }  
  
 System.out.print("Your answer (A/B/C/D): ");  
 char answer = scanner.next().toUpperCase().charAt(0);  
  
 while (answer != 'A' && answer != 'B' && answer != 'C' && answer != 'D') {  
 System.out.print("Invalid input. Please enter A, B, C, or D: ");  
 answer = scanner.next().toUpperCase().charAt(0);  
 }  
  
 userAnswers[i] = answer;  
  
 switch (answer) {  
 case 'A':  
 case 'B':  
 case 'C':  
 case 'D':  
 if (answer == correctAnswers[i]) {  
 score++;  
 }  
 break;  
 }  
  
 System.out.println();  
 }  
  
 double percentage = (score / 5.0) \* 100;  
  
 System.out.println("🧠 Quiz Completed!");  
 System.out.println("You answered " + score + " out of 5 questions correctly.");  
 System.out.printf("Final Score: %.2f%%\n", percentage);  
  
 if (percentage == 100) {  
 System.out.println("🎉 Perfect score! You're a Java genius!");  
 } else if (percentage >= 80) {  
 System.out.println("💪 Great job! You're on your way!");  
 } else if (percentage >= 50) {  
 System.out.println("👍 Good effort. Keep practicing!");  
 } else {  
 System.out.println("📚 Don't worry. Study up and try again!");  
 }  
  
 scanner.close();  
 }  
}

## 4. Code Explanation

- The program starts by welcoming the user and explaining the quiz format.  
- It uses arrays to store questions, options, and correct answers.  
- A for-loop iterates over each question and prints it with options.  
- The program validates user input using a while-loop.  
- A switch statement checks if the user's answer matches the correct one.  
- The final score is calculated as a percentage.  
- The user is shown feedback based on their score.

## 5. Testing and Output

The program was tested with various inputs to ensure:  
- Proper validation of input  
- Accurate calculation of score  
- Smooth program flow  
- Friendly output messaging  
  
Screenshots of the program running in the IDE and the console output are included separately in the submission.

## 6. Conclusion

This Java quiz game fulfills all the requirements of the assignment by demonstrating proper use of control structures, input validation, code organization, and user interaction. It is a simple yet effective example of applying fundamental programming concepts.

## 7. Sample Output (Console View)

🌟 Welcome to the MindBender Quiz Challenge! 🌟  
Answer the following 5 questions by typing A, B, C, or D.  
  
1. What is the output of: System.out.println(3 + "7");  
A. 10  
B. 37  
C. Error  
D. 3 + 7  
Your answer (A/B/C/D): B  
  
2. Which Java keyword is used to inherit a class?  
A. implement  
B. implements  
C. extends  
D. inherit  
Your answer (A/B/C/D): C  
  
3. What is the default value of a boolean in Java?  
A. false  
B. true  
C. null  
D. 0  
Your answer (A/B/C/D): A  
  
4. Which data type would you use for a single 16-bit Unicode character?  
A. byte  
B. int  
C. string  
D. char  
Your answer (A/B/C/D): D  
  
5. What is the result of: 10 > 9 && 5 < 2?  
A. true  
B. false  
C. false  
D. Compilation error  
Your answer (A/B/C/D): C  
  
🧠 Quiz Completed!  
You answered 5 out of 5 questions correctly.  
Final Score: 100.00%  
🎉 Perfect score! You're a Java genius!