**Gianmarco Iannario, Project 1**

**User Manual**

**Project 1: Dynamic Programming Solution**

Welcome to the user manual for the Dynamic Programming Solution (DPSolutionMC) project. This manual will guide you through the steps required to compile and execute the program, as well as provide an overview of its functionality.

**Submission folder content:**

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-DPSolutionMC.java

-matrixDimension.txt

-userManual.docx

-results.txt

**Compiling the Program**:

-Open a terminal window.

-Navigate to the directory containing the Java file named DPSolutionMC.java. This directory will also contain the input file matrixDimension.txt.

-Compile the Java file using the javac command:

javac DPSolutionMC.java

(This command will compile the Java source code and generate the corresponding class files)

-Executing the Program:

Once the program has been successfully compiled, you can execute it using the java command:

java DPSolutionMC

(This command will run the compiled Java program, executing all five parts of the project as specified)

**Program Functionality**:

The DPSolutionMC program fulfills all five parts of the project as outlined below:

**Part 1**:

Matrix Dimension Input: The program reads the input matrix dimensions from the matrixDimension.txt file located in the same directory as the Java file.

**Part 2**:

Matrix Parenthesization: The matrices M and S, along with the optimal parenthesization, are displayed on the terminal.

**Part 3**:

Infix and Postfix Expressions: Infix and postfix expressions are printed to the terminal.

**Part 4 and 5** :

Writing Results to File: The program automatically processes and writes the results of optimal and worst-case parenthesization to a file named results.txt.

File Location: The results.txt file is generated in the parent directory of the current directory. This means that the user can find the output file in the directory above the one containing the Java and input files.

**Output:**

From terminal the program will print the part 2 and 3

To results.txt the program will write the part 4 and 5

**Problems: no problems found**