21BDS0340

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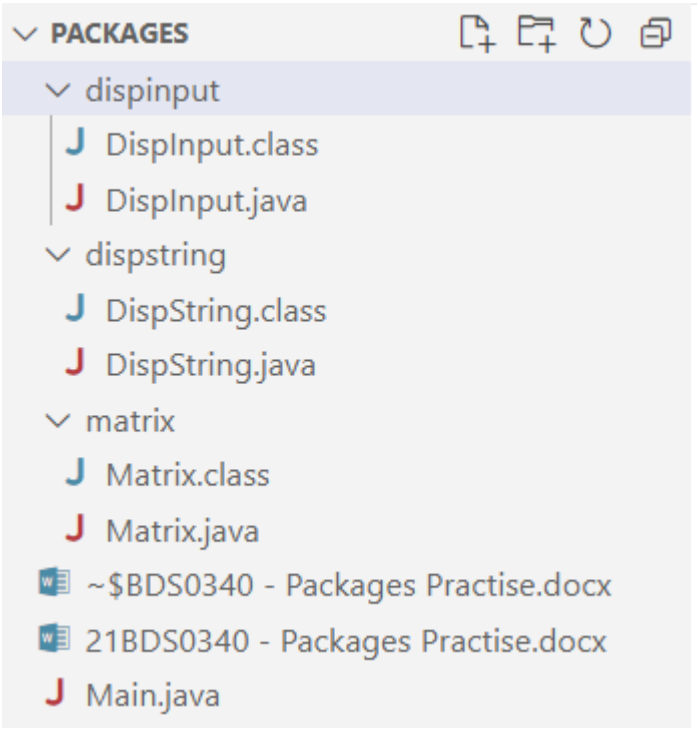
Java

Packages Practise

Package/File Hierarchy



DispInput.java Code

```java
package dispinput;

import java.util.Scanner;

public class DispInput {

  public void displayInput(Scanner s) {
    System.out.print("Enter string: ");
    String str = s.next();
    System.out.println(str);
  }
}
```

DispString.java Code

```java
package dispstring;

public class DispString {

  public void displayString() {
```

```
    System.out.println("Hello VIT");
  }
}
```

Matrix.java Code

```
package matrix;

import java.util.Scanner;

public class Matrix {

  public int[][] getMatrix(Scanner s, int size) {
    int matrix[][] = new int[size][size];
    for (int x = 0; x < size; x++) {
      for (int y = 0; y < size; y++) {
        System.out.print("Enter row " + x + " col " + y + ": ");
        matrix[x][y] = s.nextInt();
      }
    }
    return matrix;
  }

  public int[][] addMatrices(int mat1[][], int mat2[][], int size) {
    int out[][] = new int[size][size];
    for (int x = 0; x < size; x++) {
      for (int y = 0; y < size; y++) {
        out[x][y] = mat1[x][y] + mat2[x][y];
      }
    }
    return out;
  }

  public int[][] multiplyMatrices(int mat1[][], int mat2[][], int size) {
    int out[][] = new int[size][size];
    for (int x = 0; x < size; x++) {
      for (int y = 0; y < size; y++) {
        for (int z = 0; z < size; z++) {
          out[x][y] += mat1[x][z] * mat2[z][y];
        }
      }
    }
    return out;
  }

  public void displayMatrix(int mat[][], int size) {
    for (int x = 0; x < size; x++) {
      for (int y = 0; y < size; y++) {
        System.out.print(mat[x][y] + " ");
```

```
        }
        System.out.println("");
      }
    }

    public void doStuff(Scanner s) {
      System.out.println("Enter size: ");
      int size = s.nextInt();
      System.out.println("Matrix 1: ");
      int matrix1[][] = getMatrix(s, size);
      System.out.println("Matrix 2: ");
      int matrix2[][] = getMatrix(s, size);
      System.out.println("");
      int sum[][] = addMatrices(matrix1, matrix2, size);
      int prod[][] = multiplyMatrices(matrix1, matrix2, size);
      System.out.println("Sum: ");
      displayMatrix(sum, size);
      System.out.println("Product: ");
      displayMatrix(prod, size);
    }
}
```

Commands

```
D:\College Work\Year 2 Semester 1 (Sem 3)\Java\Packages>"C:\Program Files
 (x86)\Java\java-1.8.0-openjdk-1.8.0.345-1.b01.redhat.windows.x86_64\bin\
javac" -d . dispinput/DispInput.java

D:\College Work\Year 2 Semester 1 (Sem 3)\Java\Packages>"C:\Program Files
 (x86)\Java\java-1.8.0-openjdk-1.8.0.345-1.b01.redhat.windows.x86_64\bin\
javac" -d . dispstring/DispString.java

D:\College Work\Year 2 Semester 1 (Sem 3)\Java\Packages>"C:\Program Files
 (x86)\Java\java-1.8.0-openjdk-1.8.0.345-1.b01.redhat.windows.x86_64\bin\
javac" -d . matrix/Matrix.java
```

Main.java Code

```java
import dispinput.DispInput;
import dispstring.DispString;
import java.util.Scanner;
import matrix.Matrix;

public class Main {

  public static void main(String[] args) {
    Scanner s = new Scanner(System.in);
    (new DispString()).displayString();
    (new DispInput()).displayInput(s);
    (new Matrix()).doStuff(s);
    s.close();
  }
}
```

Output Screenshot

```
Hello VIT
Enter string: Something
Something
Enter size:
3
Matrix 1:
Enter row 0 col 0: 1
Enter row 0 col 1: 2
Enter row 0 col 2: 3
Enter row 1 col 0: 3
Enter row 1 col 1: 2
Enter row 1 col 2: 1
Enter row 2 col 0: 2
Enter row 2 col 1: 3
Enter row 2 col 2: 1
Matrix 2:
Enter row 0 col 0: 8
Enter row 0 col 1: 4
Enter row 0 col 2: 1
Enter row 1 col 0: 3
Enter row 1 col 1: 6
Enter row 1 col 2: 3
Enter row 2 col 0: 8
Enter row 2 col 1: 3
Enter row 2 col 2: 1

Sum:
9 6 4
6 8 4
10 6 2
Product:
38 25 10
38 27 10
33 29 12
```