```java
import java.io.*;
import java.util.*;
import java.lang.Math.*;

/**
 * Matrix class creates two methods to perform matrix addition and
 * multiplication
 *
 */
class Matrix {

    String header = "Matrix Operations";

    Random random = new Random();

    /*
     * matrixAddition takes the size of row and column of the matrix as arguments.
     * It initializes two 2D arrays and fills them with randomly generated elements,
     * using which it performs addition and returns the sum matrix.
     */
    int[][] matrixAddition(int m, int n) {
        Matrix M = new Matrix();

        int[][] A = new int[m][n];
        int[][] B = new int[m][n];
        int[][] Sum = new int[m][n];

        System.out.println("\nElements of Matrix A: ");
        for (int i = 0; i < m; i++) {
            for (int j = 0; j < n; j++) {
                A[i][j] = random.nextInt(100);
            }
        }
        M.showMatrix(A, m, n);

        System.out.println("\nElements of Matrix B: ");
        for (int i = 0; i < m; i++) {
            for (int j = 0; j < n; j++) {
                B[i][j] = random.nextInt(100);
            }
        }
        M.showMatrix(B, m, n);

        System.out.println("\nSum of matrix A and B: ");
        for (int i = 0; i < m; i++) {
            for (int j = 0; j < n; j++) {
                Sum[i][j] = A[i][j] + B[i][j];
            }
        }
        M.showMatrix(Sum, m, n);
        return Sum;
    }

    /*
     * matrixAddition takes the size of row and column of the matrix as arguments.
     * It initializes two 2D arrays and fills them with randomly generated elements,
     * using which it performs multiplication and returns the product matrix.
     */
    int[][] matrixMultiplation(int m, int n) {
        Matrix M = new Matrix();

        int[][] A = new int[m][n];
        int[][] B = new int[m][n];
        int[][] Product = new int[m][n];

        System.out.println("\nElements of Matrix A: ");
        for (int i = 0; i < m; i++) {
            for (int j = 0; j < n; j++) {
                A[i][j] = random.nextInt(100);
            }
        }
        M.showMatrix(A, m, n);

        System.out.println("\nElements of Matrix B: ");
        for (int i = 0; i < m; i++) {
            for (int j = 0; j < n; j++) {
                B[i][j] = random.nextInt(100);
            }
        }
        M.showMatrix(B, m, n);

        System.out.println("\nProduct of matrix A and B: ");
        for (int i = 0; i < m; i++) {
            for (int j = 0; j < n; j++) {
                Product[i][j] = A[i][j] * B[i][j];
            }
        }
        M.showMatrix(Product, m, n);
        return Product;
    }

    /*
     * showMatrix takes integer array, row size and column size as parameters and
     * outputs the matrix to the console
     */
    private void showMatrix(int[][] arr, int m, int n) {
        for (int i = 0; i < m; i++) {
            for (int j = 0; j < n; j++) {
                System.out.print(arr[i][j] + "\t");
            }
            System.out.println();
        }
    }
}

/**
 * public class includes the main method, main takes the size of row and column
 * from user
 */
public class Question2 {

    private static Scanner in = new Scanner(System.in);

    public static void main(String[] args) {

        Matrix m = new Matrix();
        System.out.println(m.header);
        int M, N;

        System.out.print("Enter the row size of the matrix: ");
        N = in.nextInt();

        System.out.print("Enter the column size of the matrix: ");
        M = in.nextInt();

        m.matrixAddition(N, M);
        m.matrixMultiplation(N, M);
        System.out.print("\n");
    }
}
```