package School\_Programs.Class\_Programs;  
  
import java.util.Scanner;  
  
public class border\_matrix {  
 public static void print\_array(int[] arr) {  
 for (int i = 0; i < arr.length; i++) {  
 System.*out*.print(arr[i]+" ");  
 }  
 System.*out*.println();  
 }  
  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.print("Enter the number of rows in the matrix :- ");  
 int row = sc.nextInt();  
 System.*out*.print("Enter the number of columns in the matrix :- ");  
 int col = sc.nextInt();  
 System.*out*.println("Enter the elements of the matrix :- ");  
 int[][] dda = new int[row][col];  
 for (int i = 0; i < row; i++) {  
 for (int j = 0; j < col; j++) {  
 dda[i][j] = sc.nextInt();  
 }  
 }  
 System.*out*.println("The border elements are :- ");  
 *print\_array*(dda[0]);  
 for (int i = 1; i < row-1; i++) {  
 for (int j = 0; j < col; j++) {  
 if (j == 0 || j == col-1)  
 System.*out*.print(dda[i][j]+" ");  
 else  
 System.*out*.print(" ");  
 }  
 System.*out*.println();  
 }  
 *print\_array*(dda[row - 1]);  
 }  
}

package School\_Programs.Class\_Programs;  
  
import java.util.Scanner;  
  
public class matrix\_transpose {  
 public static void print\_array(int[] arr) {  
 for (int i = 0; i < arr.length; i++) {  
 System.*out*.print(arr[i] + " ");  
 }  
 System.*out*.println();  
 }  
  
 public static int[] col\_extractor(int mat[][], int row) {  
 int[] arr = new int[mat.length];  
 for (int i = 0; i < mat.length; i++) {  
 arr[i] = mat[i][row];  
 }  
 return arr;  
 }  
  
 public static void main(String[] args) {  
 Scanner sc = new Scanner(System.*in*);  
 int row = sc.nextInt();  
 int col = sc.nextInt();  
 int[][] dda = new int[row][col];  
 for (int i = 0; i < row; i++) {  
 for (int j = 0; j < col; j++) {  
 dda[i][j] = sc.nextInt();  
 }  
 }  
 for (int i = 0; i < col; i++) {  
 *print\_array*(*col\_extractor*(dda, i));  
 }  
 }  
}

package School\_Programs.Class\_Programs;  
  
import java.util.Scanner;  
  
public class matrix\_multiplication {  
 public static void main(String args[]) {  
 int row1, row2, col1, col2, i, j, k, sum;  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.print("Enter the number of rows of matrix1 : ");  
 row1 = sc.nextInt();  
 System.*out*.print("Enter the number columns of matrix 1 :- ");  
 col1 = sc.nextInt();  
 System.*out*.print("Enter the number of rows of matrix2 :- ");  
 row2 = sc.nextInt();  
 System.*out*.print("Enter the number of columns of matrix 2 :- ");  
 col2 = sc.nextInt();  
 if (col1 == row2) {  
 int mat1[][] = new int[row1][col1];  
 int mat2[][] = new int[row2][col2];  
 int res[][] = new int[row1][col2];  
 System.*out*.println("Enter the elements of matrix1 :- ");  
 for (i = 0; i < row1; i++) {  
 for (j = 0; j < col1; j++)  
 mat1[i][j] = sc.nextInt();  
 }  
 System.*out*.println("Enter the elements of matrix2 :- ");  
 for (i = 0; i < row2; i++) {  
 for (j = 0; j < col2; j++)  
 mat2[i][j] = sc.nextInt();  
 }  
 System.*out*.println("\nResultant matrix :-");  
 for (i = 0; i < row1; i++)  
 for (j = 0; j < col2; j++) {  
 sum = 0;  
 for (k = 0; k < row2; k++) {  
 sum += mat1[i][k] \* mat2[k][j];  
 }  
 res[i][j] = sum;  
 }  
 for (i = 0; i < row1; i++) {  
 for (j = 0; j < col2; j++)  
 System.*out*.print(res[i][j] + " ");  
 System.*out*.println();  
 }  
 } else  
 System.*out*.print("Multiplication of matrix cannot be performed!");  
 }  
}