

Write a Java Program to determine whether a given matrix is a sparse matrix

```
import java.util.*;

public class SparseMatrix
{
    public static void main(String[] args) {
        int rows, cols, size, count = 0,i,j;

        int a[][] = new int[10][10];

        Scanner sc=new Scanner(System.in);

        System.out.println("enter num of rows and column:");

        rows=sc.nextInt();

        cols=sc.nextInt();

        System.out.println("Enter " +(rows*cols)+ " Array Elements : ");

        for(i=0; i<rows; i++)
        {
            for(j=0; j<cols; j++)
            {
                a[i][j] = sc.nextInt();
            }
        }

        System.out.print("The Array is :\n");

        for(i=0; i<rows; i++)
        {
            for(j=0; j<cols; j++)
            {
                System.out.print(a[i][j]+ " ");
```

```
}  
  
    System.out.println();  
}  
  
size = rows * cols;  
for( i = 0; i < rows; i++){  
    for( j = 0; j < cols; j++){  
        if(a[i][j] == 0)  
            count++;  
    }  
}  
  
if(count > (size/2))  
    System.out.println("Given matrix is a sparse matrix");  
else  
    System.out.println("Given matrix is not a sparse matrix");  
}  
}
```

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```
1 import java.util.*;
2 public class SparseMatrix
3 {
4     public static void main(String[] args) {
5         int rows, cols, size, count = 0, i, j;
6         int a[][] = new int[10][10];
7         Scanner sc = new Scanner(System.in);
8         System.out.println("enter num of rows and column:");
9         rows = sc.nextInt();
10        cols = sc.nextInt();
11        System.out.println("Enter " + (rows * cols) + " Array Elements : ");
12        for(i=0; i<rows; i++)
13        {
14            for(j=0; j<cols; j++)
15            {
16                a[i][j] = sc.nextInt();
17            }
18        }
19        System.out.print("The Array is :\n");
20        for(i=0; i<rows; i++)
21        {
22            for(j=0; j<cols; j++)
23            {
24                System.out.print(a[i][j] + " ");
25            }
26            System.out.println();
27        }
28
29        size = rows * cols;
30        for(i = 0; i < rows; i++){
31            for(j = 0; j < cols; j++){
32                if(a[i][j] == 0)
33                    count++;
34            }
35        }
36
37        if(count > (size/2))
38            System.out.println("Given matrix is a sparse matrix");
39        else
40            System.out.println("Given matrix is not a sparse matrix");
41    }
}
```

Execute Mode, Version, Inputs & Arguments

CommandLine Arguments

JDK 11.0.4

Interactive

Execute

Result

compiled and executed in 14.707 sec(s)

```
enter num of rows and column:
3
3
Enter 9 Array Elements :
4
0
0
0
0
5
0
0
6
The Array is :
4 0 0
0 5 0
0 0 6
Given matrix is a sparse matrix
|
```

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