

## ASSIGNMENT: 5

Create a cell array, called studentData, of Names, Ages, and Total marks, e.g.,

studentData = {'Aamir', 7, 45;

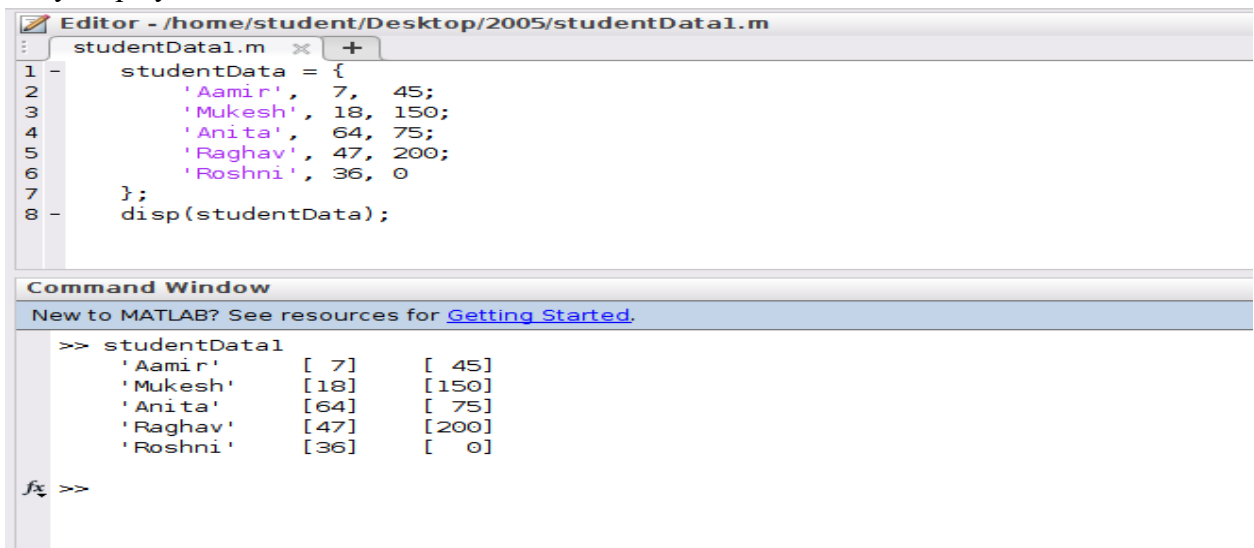
'Mukesh', 18, 150;

'Anita', 64, 75;

'Raghav', 47, 200;

'Roshni', 36, 0};

1. Display the cell array using the MATLAB disp() function. How is the data in the cell array displayed?



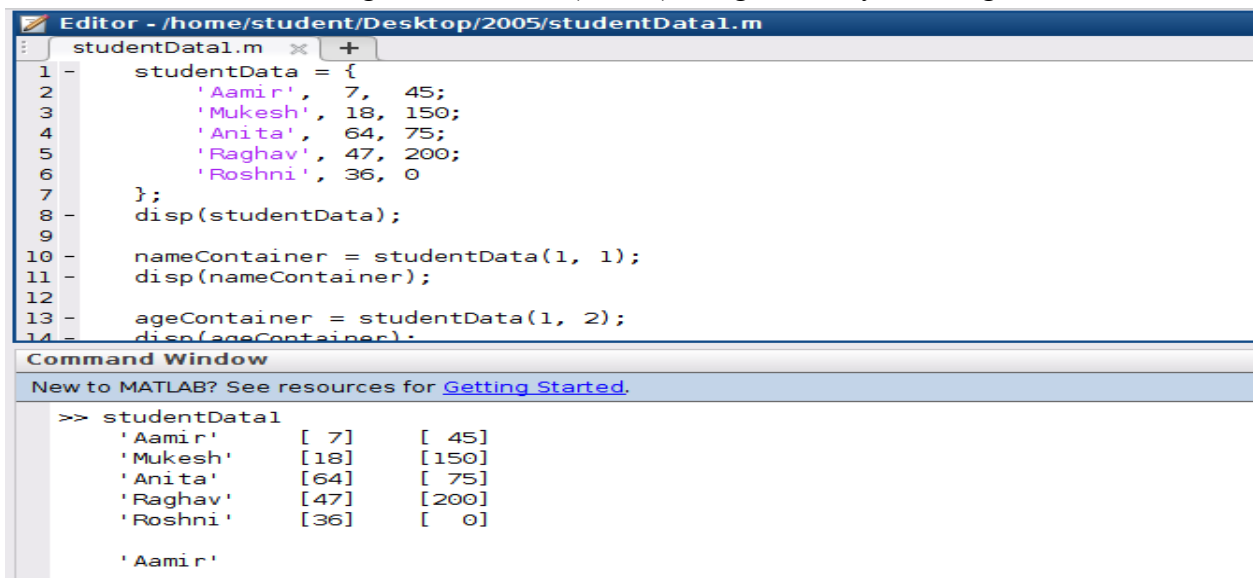
The screenshot shows the MATLAB Editor with a file named studentData1.m. The code defines a cell array studentData with 5 rows and 3 columns. The first column contains names, the second contains ages, and the third contains total marks. The Command Window shows the output of the disp(studentData) command, which displays the cell array in a tabular format.

```
Editor - /home/student/Desktop/2005/studentData1.m
studentData1.m
1 - studentData = {
2     'Aamir', 7, 45;
3     'Mukesh', 18, 150;
4     'Anita', 64, 75;
5     'Raghav', 47, 200;
6     'Roshni', 36, 0
7 };
8 - disp(studentData);

Command Window
New to MATLAB? See resources for Getting Started.

>> studentData
    'Aamir'    [ 7]    [ 45]
    'Mukesh'   [18]   [150]
    'Anita'    [64]    [ 75]
    'Raghav'   [47]   [200]
    'Roshni'   [36]    [ 0]
```

2. Extract the container holding the first name (Aamir) using cell array indexing.



The screenshot shows the MATLAB Editor with the same file studentData1.m. The code now includes additional lines to extract the first name from the cell array using indexing. The Command Window shows the output of the disp(nameContainer) command, which displays the string 'Aamir'.

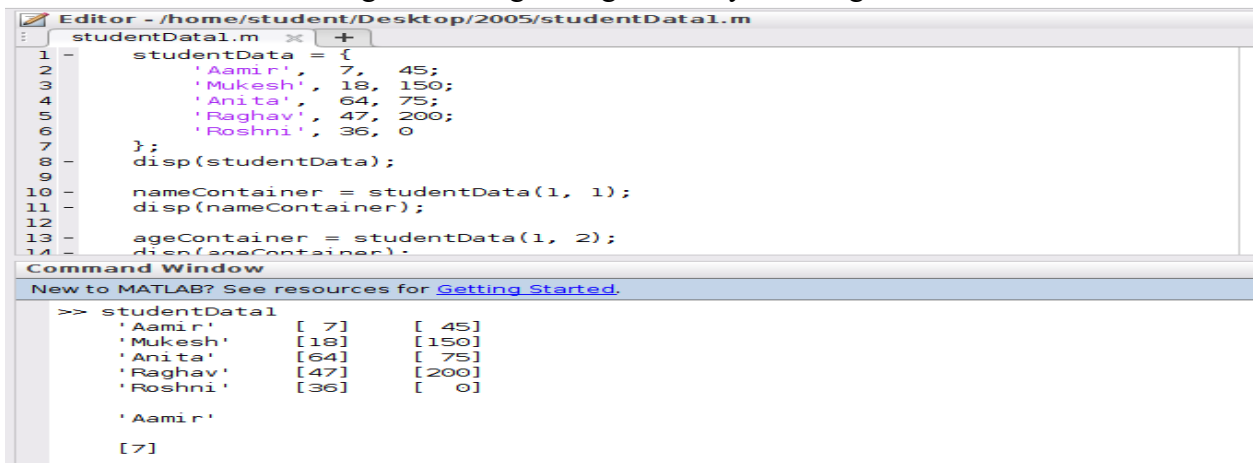
```
Editor - /home/student/Desktop/2005/studentData1.m
studentData1.m
1 - studentData = {
2     'Aamir', 7, 45;
3     'Mukesh', 18, 150;
4     'Anita', 64, 75;
5     'Raghav', 47, 200;
6     'Roshni', 36, 0
7 };
8 - disp(studentData);
9
10 - nameContainer = studentData(1, 1);
11 - disp(nameContainer);
12
13 - ageContainer = studentData(1, 2);
14 - disp(ageContainer);

Command Window
New to MATLAB? See resources for Getting Started.

>> studentData
    'Aamir'    [ 7]    [ 45]
    'Mukesh'   [18]   [150]
    'Anita'    [64]    [ 75]
    'Raghav'   [47]   [200]
    'Roshni'   [36]    [ 0]

'Aamir'
```

3. Extract the container holding Aamir's age using cell array indexing.



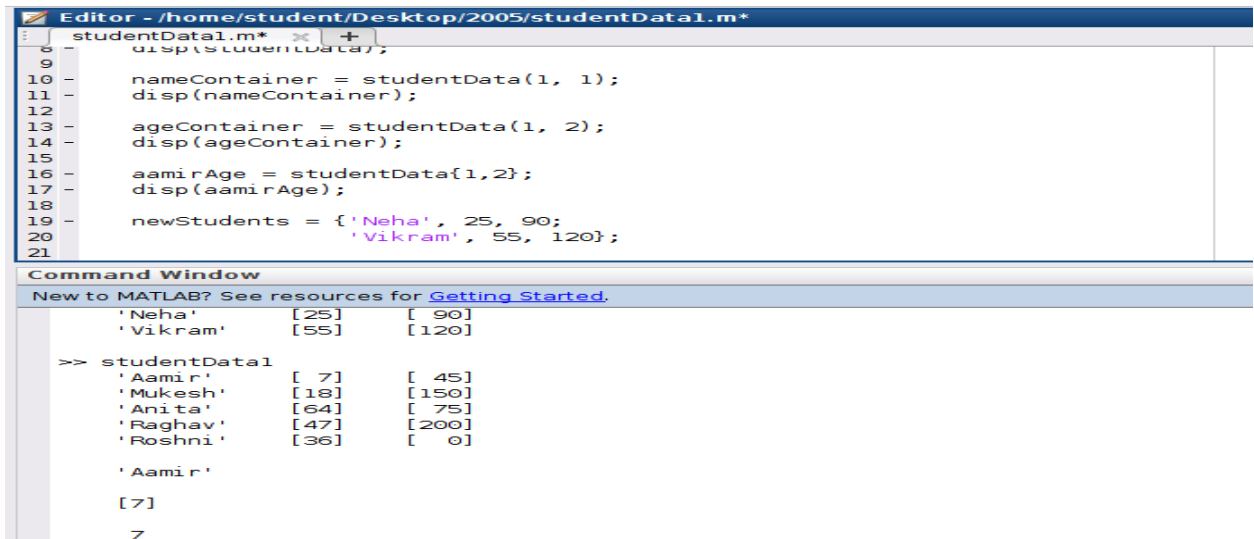
The MATLAB Editor shows a script named `studentData1.m` with the following code:

```
1 studentData = {  
2     'Aamir', 7, 45;  
3     'Mukesh', 18, 150;  
4     'Anita', 64, 75;  
5     'Raghav', 47, 200;  
6     'Roshni', 36, 0  
7 };  
8 disp(studentData);  
9  
10 nameContainer = studentData(1, 1);  
11 disp(nameContainer);  
12  
13 ageContainer = studentData(1, 2);  
14 disp(ageContainer);
```

The Command Window shows the output of the script:

```
>> studentData  
'Aamir'      [ 7]      [ 45]  
'Mukesh'     [18]     [150]  
'Anita'      [64]      [ 75]  
'Raghav'     [47]     [200]  
'Roshni'     [36]      [  0]  
  
'Aamir'  
[7]
```

4. Extract the numeric data for Aamir's age using cell array indexing.



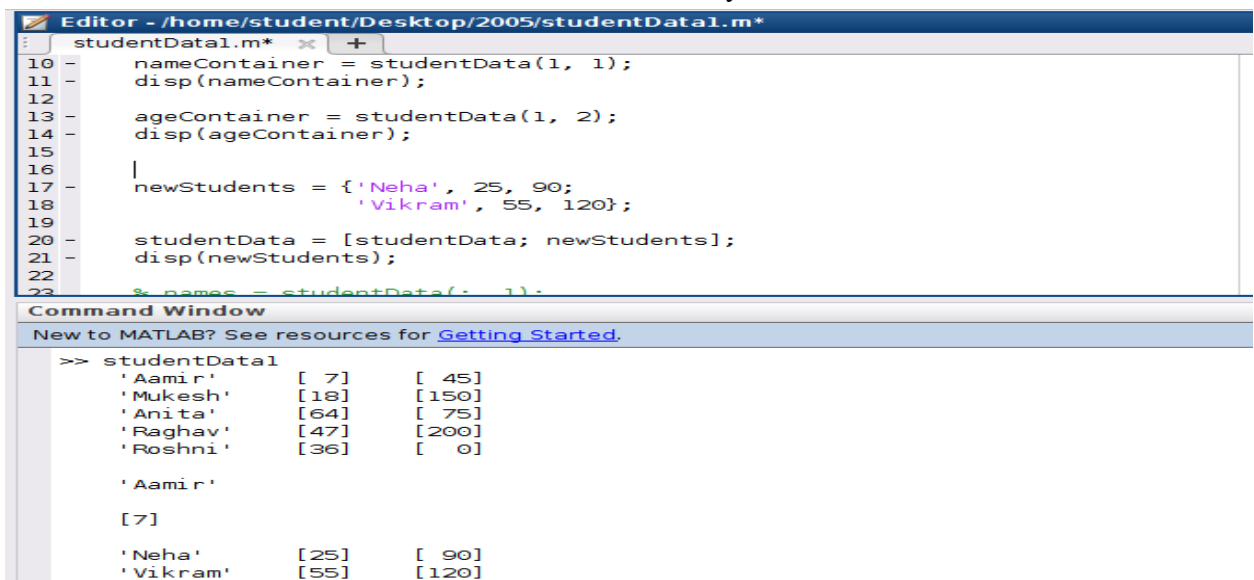
The MATLAB Editor shows a script named `studentData1.m` with the following code:

```
8 disp(studentData);  
9  
10 nameContainer = studentData(1, 1);  
11 disp(nameContainer);  
12  
13 ageContainer = studentData(1, 2);  
14 disp(ageContainer);  
15  
16 aamirAge = studentData{1,2};  
17 disp(aamirAge);  
18  
19 newStudents = {'Neha', 25, 90;  
20               'Vikram', 55, 120};  
21
```

The Command Window shows the output of the script:

```
'Neha'      [25]      [ 90]  
'Vikram'     [55]     [120]  
  
>> studentData  
'Aamir'      [ 7]      [ 45]  
'Mukesh'     [18]     [150]  
'Anita'      [64]      [ 75]  
'Raghav'     [47]     [200]  
'Roshni'     [36]      [  0]  
  
'Aamir'  
[7]  
  
7
```

5. Add records for two more students in the above cell array.



The MATLAB Editor shows a script named `studentData1.m` with the following code:

```
10 nameContainer = studentData(1, 1);  
11 disp(nameContainer);  
12  
13 ageContainer = studentData(1, 2);  
14 disp(ageContainer);  
15  
16  
17 newStudents = {'Neha', 25, 90;  
18               'Vikram', 55, 120};  
19  
20 studentData = [studentData; newStudents];  
21 disp(newStudents);  
22  
23 % names = studentData(:, 1);
```

The Command Window shows the output of the script:

```
>> studentData  
'Aamir'      [ 7]      [ 45]  
'Mukesh'     [18]     [150]  
'Anita'      [64]      [ 75]  
'Raghav'     [47]     [200]  
'Roshni'     [36]      [  0]  
  
'Aamir'  
[7]  
  
'Neha'       [25]      [ 90]  
'Vikram'     [55]     [120]
```

6. Sort studentData in ascending order of Ages.

```
27 - ages = cell2mat(studentData(:,2));
28 - [~,idx] = sort(ages);
29 - studentData = studentData(idx, :);
30 - disp(studentData);
31
```

#### Command Window

New to MATLAB? See resources for [Getting Started](#).

```
>> studentData
'Aamir'      [ 7]      [ 45]
'Mukesh'     [18]     [150]
'Roshni'     [36]      [ 0]
'Raghav'     [47]     [200]
'Anita'      [64]     [ 75]

>> studentData
'Aamir'      [ 7]      [ 45]
'Mukesh'     [18]     [150]
'Anita'      [64]     [ 75]
'Raghav'     [47]     [200]
'Roshni'     [36]      [ 0]

'Aamir'      [ 7]      [ 45]
'Mukesh'     [18]     [150]
'Roshni'     [36]      [ 0]
'Raghav'     [47]     [200]
'Anita'      [64]     [ 75]
```

7. Extract Names column as a single vector.

```
Editor - /home/student/Desktop/2005/studentData1.m
studentData1.m  x +
21 %
22 % studentData = [studentData; newStudents];
23 % disp(newStudents);
24
25 % names = studentData(:, 1);
26
27 - ages = cell2mat(studentData(:,2));
28 - [~,idx] = sort(ages);
29 - studentData = studentData(idx, :);
30 - disp(studentData);
31
32 - names = studentData(:,1);
33 - disp(names);
34
```

#### Command Window

New to MATLAB? See resources for [Getting Started](#).

```
>> studentData
'Aamir'      [ 7]      [ 45]
'Mukesh'     [18]     [150]
'Anita'      [64]     [ 75]
'Raghav'     [47]     [200]
'Roshni'     [36]      [ 0]

'Aamir'      [ 7]      [ 45]
'Mukesh'     [18]     [150]
'Roshni'     [36]      [ 0]
'Raghav'     [47]     [200]
'Anita'      [64]     [ 75]

'Aamir'
'Mukesh'
'Roshni'
'Raghav'
'Anita'
```

Replace the Total marks for all students from figures to words (e.g. 45 should be replaced with 'Forty five') in studentData.

```
Editor - /home/student/Desktop/2005/studentData1.m
studentData1.m  x +
1 % ----- Main Script Code -----
2 - studentData = {
3     'Aamir', 7, 45;
4     'Mukesh', 18, 150;
5     'Anita', 64, 75;
6     'Raghav', 47, 200;
7     'Roshni', 36, 0
8 };
9
10 % Add two more students
11 - newStudents = {
12     'Sanjay', 29, 88;
13     'Leena', 54, 120
14 }
```

#### Command Window

New to MATLAB? See resources for [Getting Started](#).

```
>> studentData
'Aamir'      [ 7]      'Forty five'
'Mukesh'     [18]     'One hundred and Fifty'
'Sanjay'     [29]     'Eighty eight'
'Roshni'     [36]     'Zero'
'Raghav'     [47]     'One hundred and One hundred'
'Leena'      [54]     'One hundred and Twenty'
'Anita'      [64]     'Seventy five'
```