Table Data Type

Let's take a look at the table data type in MATLAB.

The following table contains the data of some students in IUT.

Name	ID	Gender	CGPA	Department
Sami	112	Male	3.7	EEE
Farhan	170	Male	3.8	ME
Taz	214	Male	3.9	CSE
Sowad	311	Male	3.8	EEE
luna	120	Female	3.85	EEE
lucy	220	Female	3.65	CE

How can we represent this data properly?

Think of like this way, all the students have these 4 attributes (ID, Gender, CGPA, Dep). So, to categorize this data properly, we can use a table.

Let’s see how to create a table first.

First create individual arrays (column vector) containing each category of data.

So, name = [“Sami”; “Farhan”; “Taz”; “Sowad”; “luna”; “lucy”]

ID = [112;170;214;311;120;220]

And so on.

- data=table(ID, gender, cgpa, department, 'rownames', name)

This will create a table of size (6,4).

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- Here, we used the name to define a row. If you write -
  - data("Taz",:)

  you'll be able to extract all the data of the student named "Taz".

- You may not use the 'rownames' option. Try this –
  - data2 = table (name, ID, gender, cgpa, department)

  Now to access a particular student data, you can use –

  - data2(2,:)

  This will return the data of the student Farhan.

- Add new variable to the table –
  - data.year=[3,3,2,2,2,3]'

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Categorical Data type:

- There is another datatype - named "categorical array".
  - data3=data2
  - data3.gender = categorical (data3.gender)

Now look at the table. You'll see the gender column has changed. That array is no longer a string array. It has become a categorical array.

The benefit of this will become more apparent when you work with a huge amount of data. For now, try writing the following code –

- summary(data2)
- summary (data3)

Can you find the difference? The group of students has been classified into two categories: male and female.

Try to categorize the department column as well. Then you'll be able to classify the students based on their department as well.

This will help you extract or summarize similar type of data much more efficiently.

If you have a very large dataset containing all the students of IUT since the beginning, categorized data can make it very easy to find out a particular group e.g. students of batch 2014 or the students of BTM department etc.

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