Lab 4: MATLAB Reading from and Writing to Files

Me: Ok, now let's use the 0th entry of this array.

Matlab:

Agenda

- **Practice Questions**
- Lab 4 assignment
- Weekly Reminders
- Q&A

Practice Problem #1

Say we want to concatenate two words: `Yay` and `Coding` to make `Yay Coding`. Which of the options is the **correct** way to do this?

A.
```
>> "Yay " + "Coding"
```

B.
```
>> 'Yay    ' + 'Coding'
```

C.
```
>> 'Yay ' + 'Coding'
```

Practice Problem #1 Solution

Answer is A

Example outputs to the right:

```
>> "Yay " + "Coding"

ans =

    "Yay Coding"

>> 'Yay ' + 'Coding'
Matrix dimensions must agree.

>> 'Yay   ' + 'Coding'

ans =

   156   208   221   137   142   135
```

Practice Problem #2

Different syntax is used to index/reference elements in arrays, cell arrays, and structs.

Which option correctly lists the syntax used to index into array, cell array, and struct, respectively?

A. `{}  .  ()`
B. `{}  ()  .`
C. `()  {}  .`
D. `[]  {}  .`

Practice Problem #2 Solution

Different syntax is used to index/reference elements in arrays, cell arrays, and structs.

Which option correctly lists the syntax used to index into array, cell array, and struct, respectively?

A. {} . ()
B. {} () .
C. () {} .
D. [] {} .

Practice Problem #3

Assume this is a represented as an N x 6 matrix called **nutri_mat.**

How would you find which rows have a calcium content of 0?

Listed from highest to lowest nutrition score.

Product	Serving size	Calories	Dietary fiber (g)	Sugars (g)	Sodium (mg)	Iron (%DV)	Calcium (%DV)
VERY GOOD *Relatively low in sugars,*							
General Mills Cheerios	1 cu	100	3	1	190	45	10
General Mills Kix	1¼ cu	110	3	3	210	45	15
Quaker Oats Life	¾ cu	120	2	6	160	45	10
General Mills Honey Nut Cheerios	¾ cu	110	2	9	190	25	10
GOOD *Room for improvement in suga*			*s and/or fiber; high in or a good source of iron.*				
Kellogg's Frosted Mini-Wheats Bite Size	24 bisc	200	6	12	5	90	0
Kellogg's Frosted Flakes Gold	¾ cu	110	3	10	190	25	0
General Mills Cookie Crisp	¾ cu	100	1	11	150	25	10
General Mills Golden Grahams Honey Graham	¾ cu	120	1	11	270	25	10
General Mills Lucky Charms	¾ cu	110	1	11	190	25	10
General Mills Cocoa Puffs	¾ cu	110	1	12	150	25	10
General Mills Cinnamon Toast Crunch	¾ cu	130	1	10	220	25	10
General Mills Trix	1 cu	120	1	13	180	25	10
General Mills Reese's Puffs	¾ cu	120	1	12	180	25	10
Post Fruity Pebbles	¾ cu	110	3	11	180	10	0
Post Honey-Comb	1½ cu	130	2	10	180	15	0
Post Cocoa Pebbles	¾ cu	110	3	11	180	10	0
Kellogg's Frosted Flakes	¾ cu	110	1	11	140	25	0
Kellogg's Cocoa Krispies *	¾ cu	120	less than 1	12	160	25	4
Kellogg's Frosted Flakes Reduced Sugar	1 cu	120	less than 1	8	180	25	0

Assume this is a represented as an N x 6 matrix called **nutri_mat.**

How would you find which rows have a calcium content of 0?

A. find(nutri_mat(:,6) == 0)

B. find(nutri_mat(:,5) == 0)

C. nutri_mat(nutri_mat(:,5) == 0)

D. nutri_mat(nutri_mat(:,6) == 0)

Listed from highest to lowest nutrition score.

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General Mills Reese's Puffs	¾ cu	120	1	12	180	25	10
Post Fruity Pebbles	¾ cu	110	3	11	180	10	0
Post Honey-Comb	1½ cu	130	2	10	180	15	0
Post Cocoa Pebbles	¾ cu	110	3	11	180	10	0
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Kellogg's Frosted Flakes Reduced Sugar	1 cu	120	less than 1	8	180	25	0

Practice Problem #4

Assume this is a represented as an N x 6 matrix called **nutri_mat.**

How would you find which rows have **iron content greater than 25?**

Listed from highest to lowest nutrition score.

Product	Serving size	Calories	Dietary fiber (g)	Sugars (g)	Sodium (mg)	Iron (%DV)	Calcium (%DV)
VERY GOOD *Relatively low in sugars,*							
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General Mills Reese's Puffs	¾ cu	120	1	12	180	25	10
Post Fruity Pebbles	¾ cu	110	3	11	180	10	0
Post Honey-Comb	1½ cu	130	2	10	180	15	0
Post Cocoa Pebbles	¾ cu	110	3	11	180	10	0
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Kellogg's Frosted Flakes Reduced Sugar	1 cu	120	less than 1	8	180	25	0

Assume this is a represented as an N x 6 matrix called **nutri_mat.**

How would you find which rows have **iron content greater than 25?**

A. find(nutri_mat(:,6) > 25)

B. find(nutri_mat(:,5) > 25)

C. nutri_mat(nutri_mat(:,5) > 0)

D. nutri_mat(nutri_mat(:,6) > 0)

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D. nutri_mat(nutri_mat(:,6) > 0)

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Agenda

- Practice Questions
- **Lab 4 assignment**
- Weekly Reminders
- Q&A

Lab 4 Assignment

- Data analysis with MATLAB
- Reading from and writing to Excel sheets using MATLAB
- Functions for Lab 4
  - readmatrix()
  - writematrix()
  - categorical()
  - bar()
  - find()

Questions?