Lab 5 - Nick McCullough, Ryan McLenithan, Brandon MacLaren

March 4, 2022

Problem 8.10

```
% Nick McCullough, Brendan MacLaren, Ryan McLenithan, Lab 5, prob 8.10
% explain the difference between the following cell array outputs

% create pets cell array
pets = {'cat','dog','snake'};

- - - -(insert your solution here)
pets(1:2) % creates a 1x2 cell array
pets{1:2} % shows cell 1 and cell 2 in separate ans lines
[p1 p2] = pets{1:2} % assigns variables p1 and p2 to cell 1 and cell 2
```

Output 1:

------*(insert output (your results) here)*

```
>> lab6

ans =

  1×2 cell array

    {'cat'}    {'dog'}



ans =

    'cat'



ans =
```

'dog'

p1 =

'cat'

p2 =

'dog'

>>

Problem 8.26

Given a vector of structures defined by the following statements:

```
kit(2) = struct('sub', ...
      struct('id',123,'wt',4.4,'code','a'),...
      'name', 'xyz', 'lens', [4 7])
kit(1) = struct('sub', ...
      struct('id',33,'wt',11.11,'code','q'), ...
      'name', 'rst', 'lens', 5:6)
```

Which of the following expressions are valid? If the expression is valid, give its value. If it

is not valid, explain why.

>> kit(1).sub

>> kit(2).lens(1)

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```
>> kit(1).code
>> kit(2).sub.id == kit(1).sub.id
>> strfind(kit(1).name, 's')
```

- - - -*(insert your solution here)*

They are all valid except kit(1).code.

```
kit(1).sub =
ans =

        id: 33
        wt: 11.1100
        code: 'q'

kit(2).lens(1) =
ans =

        4

kit(2).sub.id == kit(1).sub.id =
ans =

  logical

   0

strfind(kit(1).name, 's')
ans =
```

```
    2
kit(1).code
ans =

Unrecognized field name "code".

Error in lab6 (line 10)
kit(1).code
```

% the reason this doesn't work is because because calling on code by itself won't work. You need to call upon sub first. The answer for code would be 'q'. So the correct way to write this is:

```
kit(1).sub.code
ans =

     'q'
```

Problem 9.12

A set of data files named "exfile1.dat", "exfile2.dat", etc. has been created by a series of experiments. It is not known exactly how many there are, but the files are numbered sequentially with integers beginning with 1. The files all store combinations of numbers and characters, and are not in the same format. Write a script that will count how many lines total are in the files. Note that you do not have to process the data in the files in any way; just count the number of lines.

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- - - -*(insert your solution here)*

```
clear,clc
% Nick McCullough, Brandon MacLaren, Ryan McLenithan, Lab 5, Prob 9.12


i = 1;
%initializes i as a variable to be used and later counted.


fid = 0;
%initializes fid as a variable with a value/


while fid ~= -1 %statement that runs the loop as long as the files can be
    %opened

    filename = sprintf('exfile%d.dat',i);
    %sets the filenames as a variable with the sprintf function and changes
    %each time the while.

    fid = fopen (filename);
    %opens text file

    i = i +1;
    %increases i per time the while loop is ran to change the filenames.

    if fid == -1 %if statement to check if file was opened or not
        disp('File open was not successful.')
    else
        disp('File open was successful.')
```

```
    x = 0;
    %initializes x as a variable

    while feof(fid) == 0 %sets while loop for it to read all lines in the
        %text file.

        aline = fgetl(fid);
        %reads lines from a text file as a character vector

        x = x + 1;

    end %ends while loop

    fprintf('The  number of lines in exfile1.dat is %g. \n',x)

    closeresult = fclose(fid);
    if closeresult == 0
        disp('File close successful.')
    else
        disp('File close not successful.')
    end %closes if statement for closing the file
  end %close the if statement for when it was opened
end %closes the while loop
```

Output 1:

------*(insert output (your results) here)*

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File open was successful.

The number of lines in the file is 4.

File close successful.

File open was successful.

The number of lines in the file is 1.

File close successful.

File open was not successful.