# CS1371 Fall 13 Test 2 – Oct 16, 2013 VERSION A

Name: KEY	
GT Username(gburdell3):	
Section:	

- -You will have 50 min for this exam
- -This is a closed note/closed computer exam
- -You are allowed one piece of paper for a crib sheet, front side only
- -You are allowed to print off Appendix A to use as a reference during the exam

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# Question 1:

The following cell array is given:

Which of the following commands give x = 'o'

a.) 
$$x = cell\{2\}(3)$$

$$x = cell(2)\{1\}(3)$$

c.) 
$$x = cell(2)\{1\}\{3\}$$

$$(d.)$$
 = cell{2}{1}(3)

e.) 
$$x = cell(2)(1)(3)$$



## Question 2:

After the following code is run, what is the value of line2?

```
fh = fopen('file.txt', 'r')
line1 = fgetl(fh)
line2 = char(line1(line1>='a' & line1<='z') + ('A' - 'a'))</pre>
```

- a.) 'CS 1371 IS AWESOME'
- b.) 'cs 1371 is awesome'
- (c.) ISAWESOME'
- d.) 'CS IS AWESOME
- e.) 'cs 1371 IS AWESOME

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# Question 3:

The following code is run in MATLAB:

```
vec = [3, 4, 6, 10, 2]
out = [];
for i = 1:length(vec)
    if vec(i) > 3
        out = [out vec(i)];
    else
        out = [out 100];
    end
end
```

After the following lines of code are run, what is the value of out?

```
A.) out = [100 \ 10 \ 6 \ 4 \ 100]
```

$$B.)$$
 out = [4 6 10 100 100]

$$C.)$$
 out = [100 100 4 6 10]

E.) out = 
$$[3 \ 100 \ 100 \ 100 \ 2]$$

### **Question 4:**

The following data is in 'PlayerStats.xls'

```
|Player Name|Total Matches|Goals|Assists|
                         3001
                               165|
                                         321
|Ronaldo
                               2101
                                         501
|Messi
                         290
Beckham
                         5851
                                991
                                         101
|Bale
                          91
                                801
                                         261
```

The following code is run in Matlab:

```
[num, text, raw] = xlsread('PlayerStats.xls');
A = class(num);
B = [raw{2,2:4}];
[r,c] = size(raw);
for i=1:r
    type = class(raw{i,4});
    if strcmp(type, 'double')
        raw{i,4} = floor(raw{i,4}/2);
    elseif strcmp(type,'char')
        raw{i,4} = 'Goal Assists';
    end
    if(strcmp(raw{i,1},'Ronaldo'))
        C=raw(i,:);
    end
end
D = raw(:, 4);
```

After the above script is run, what are the values of the following variables? If a line produces an error, answer ERROR for that variable and assume the rest of the code is still run.

Enter the values as they would be entered into MATLAB:

- vectors and arrays in [square brackets]
- strings in 'single quotes'
- logicals as true or false
- cell arrays in {curly braces}
- if the answer is error write ERROR

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#### **Question 5:**

Function Name: ruts

Function Inputs (1): (char) The filename of a .txt file

Function Outputs: None

Output Files (1): A .txt file formatted as below

As every Georgia Tech student knows, shortcuts cause ruts. But how much can we drill that into your brain? Let's find out! The input to the function is the name of a file. Each line of the file reads 'Day A: Y ruts', where A and Y are integers. Your job is to count up the total number of ruts caused over every day included in the text file. Then, print the phrase 'SHORTCUTS CAUSE RUTS!' to a new text file, one time for each "rut". The name of the new text file should be 'solution q7.txt'.

#### Notes:

- -Each 'SHORTCUTS CAUSE RUTS' should be on a separate line. Don't worry about deleting an extra line in the output file, though.
- -The number of ruts will always be integers greater than or equal to zero.

Test Case: The file 'Week5.txt' contains the following text (ignore the asterisks, they are not part of the text file itself)

```
(the **** are not part of the file)
*********
Day 1: 2 ruts
Day 2: 4 ruts
Day 3: 0 ruts
Day 4: 1 ruts
**********
ruts('week5.txt')=>
Creates an output file called 'solution q7.txt' with the
following written in it: (the **** are not part of the file)
***********
SHORTCUTS CAUSE RUTS!
************
```

FUN Ction ruts (Filename) **Solution to Question 5:** th > topen (filename) % open file with read permosons line = Eget/ (fh) % Read in 157 line num=0 % Initialize counter for nuts While is char (line) % coop until we reach end of file [ tok rest] = stotok (line, !: ) % Separates string MARUE STEDAMETEST [numRuts rest] = strtok (rest, ': r') % I solutes

num: num + stranum (numRuts) % Adds the ruts the number

to the counter

line = fgetl(fh) % Gets the next line that fopen ('solution\_97. txt', 'w') ? opens the new file write news for i=1: num 1/2 writes line num times end forintf(tha, 'SHORT CUTS MAKE RUTSM) % Closes Files. fclose (fh) fclose (+h2) end

# Question 6:

Function Name: chartHelp

Function Inputs (2): -(char) the name of a file containing medical data

-(double) a number representing a patient ID

Function Outputs (1): -(double) the dose of medication to give to a patient

# Function Description:

You work for a medical software company and are working on a program that will automatically calculate the dosage of a drug to administer to a given patient. Write a function called chartHelp that will take in a filename and output a number that represents the dosage of a medication that should be administered to a patient. The excel file will contain headers in the first row and patient names in the first column. Here is an example of what the excel sheet might look like:

Patient Name	į	Age		Room	#		Weight	1	Allergies
Benjamin C.		23		G05		1	200	1	none
Kara J.	-	56	1	G15			150	-	peanuts
Belinda K.		47	1	G14			175		none
Joe B.		80	1	G19			130		tylenol

As you can see, the file may contain some extraneous data. Your goal is to use the given functions along with some code to calculate the dose given the two inputs.

## Assume:

- -All information given or needed will always exist in the file (for example, the patient's name and weight, etc.).
- -The names of the patients will always be in the first column.
- -There will always be a column named "Weight" exactly that contains the weights, however, it could be any column (except the first, of course).

You already have access to the following built-in functions that will help you solve this problem:

```
function dose=doseCalc(weight, gender)
```

%This function takes in the patient's weight as a double and the gender as a string (either 'female' or 'male') and calculates the drug dose for you.

```
function [name row] = findPatient(cellArr, patientID)
```

%This function takes in a cell array containing all of the medical data along with a patient ID (a double). This function will look up the patient ID in another database and return the name associated with that ID as a string. It will also return the row number (double) which contains that patient's name and other data.

```
function logicValue=patientGender(name)
```

%This function takes in a name (char) and returns a logical true or false: true if the given name is female, and false if the given name is male.

# Solution to Question 6:

Function dose = chartfelp (filename, patID)

Enums txt raw] = xlsread (filename) ? Reads in data

[name row] = findPatient (raw, patID) % Finds the Patient's name

logic Value = patient Gender (name); % peterminas the patient's

weight (al = find (streng (raw (1,1), weight')) % peterminas

neight = raw ( raw, weight (al ? & Gets the weight the weight are

if logic Value

dose = dose (alc (weight, female!) % calculates

the dose

dose = dose (alc (weight, male!) based on the

gender,

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