CS100 – Fall 2015

Homework #4

Due: Up to you ☺

IMPORTANT NOTE:
This homework is voluntary. You will not be graded from this homework. You will neither get extra points by doing this homework, nor lose points by ignoring it. However, some of the questions of this homework will be asked in the third midterm.

Problem 1

In this question, firstly user will enter a text with the following structure: Each sentence ends with a period (.). There is only one space after each sentence and no space at the beginning or at the end of the text. The words in a sentence are separated with one space. The only punctuation to be used in the given text is periods (.) and commas (,).

You are **not** allowed to use strrep, findstr, strfind, regexp, regexpi, regexprep functions of Octave. However, you can use the functions that you've written in the third homework.

In the program, the user will be able to make queries about the words of the sentence. There will be two types of queries:

- nthWord: Receives a text string and a number n. Returns the nth word in the given text. If n is greater than the number of words of the text, it will return a warning: !!!Index out of bounds!!!.

Example:

```
nthWord(' Bir dalda bir kartal, dal tartar, kartal kalkar.',3)  → bir
nthWord(' Bir dalda bir kartal, dal tartar, kartal kalkar.',9)  → !!!Index
out of bounds!!!
```

- wordIsAt: Receives a text string and a word (string again). Returns all occurrences of the given word in the given text in a case insensitive manner and finding only whole words.

Example:

```
wordIsAt('Kirk kantar, kirkar kirkar kantar tartar.','kantar')  → 2 5
wordIsAt('Kirk kantar, kirkar kirkar kantar tartar.','kirk')  → 1
wordIsAt('Kirk kantar, kirkar kirkar kantar tartar.','tar')  → 0
```

A sample run is as follows. The menu list and their actions are self explanatory.

```
hw4
Enter text: Bu corbayi nanelemeli mi de yemeli nanelememeli mi de yemeli.

NW:     nthWord
WA:     Word is At
NT:     New Text
Q:      Quit

Enter your choice: nw
Enter a number: 4
mi


NW:     nthWord
WA:     Word is At
NT:     New Text
Q:      Quit

Enter your choice: nw
Enter a number: 30
!!!Index out of bounds!!!

NW:     nthWord
WA:     Word is At
NT:     New Text
Q:      Quit

Enter your choice: wa
Enter a word to be searched for: de
This word is at position(s): 5   9

NW:     nthWord
WA:     Word is At
NT:     New Text
Q:      Quit

Enter your choice: wa
Enter a word to be searched for: nane
This word is at position(s): 0

NW:     nthWord
WA:     Word is At
NT:     New Text
Q:      Quit

Enter your choice: nt
Enter a new text: A be kuru dayi ne kuru sari dari bu dari a be kuru dayi.

NW:     nthWord
WA:     Word is At
NT:     New Text
Q:      Quit

Enter your choice: wa
Enter a word to be searched for: kuru
This word is at position(s): 3 6 13

NW:     nthWord
WA:     Word is At
NT:     New Text
Q:      Quit

Enter your choice: q
BYE
```

Problem 2

In this question, you are required to write a **randomPlot** function. This function, given an integer **x** and a power value **n** computes all the powers of **x** from **1** to **n** and plots them by using the **plot** function.

For each **x**, **randomPlot** should generate a distinguishable curve/line. The following three specifications **(line color, marker types, line style)** of each curve/line should be generated at random.

For instance, for one run of **randomPlot** with **n = 3**, your functions might plot
blue/solid/marker diamond for $\mathbf{x}^1$
red/dotted/marker circle for $\mathbf{x}^2$
black/dashed/marker square for $\mathbf{x}^3$

Then, in the next run of **randomPlot** with **n = 4**, your functions might plot
green/dashed/marker diamond for $\mathbf{x}^1$
magenta/dotted/marker circle for $\mathbf{x}^2$
black/dashed/marker dot for $\mathbf{x}^3$
blue/solid/marker star for $\mathbf{x}^4$

- See the slide set **09-plotting** (page 9) for the line specification options.
- You may assume that **n** will not exceed
- You may use the **rand** or **randi** or **randperm** built-in functions if you need.