CSc600 – Homework   **Dr. Jozo Dujmović**

Ruby-Introduction

The goal of this homework is to introduce a Ruby environment and to practice basic programming.

1. Function rand(n+1) returns a random integer between 0 and n. Write a function that creates an array of 100 random numbers between 0 and 10 [slide 143].

2. Make a function show(v) that displays the array v [slides 137, 143].

3. Make a function hist(v) that plots a histogram of values stored in array v. For example:

```
 0   * * * * * * * * * *
 1   * * * * * * * *
 2   * * * * * * * * *
 3   * * * * * * * * * * *
 4   * * * * * * *
 5   * * * * * * * * * * * *
 6   * * * * * * * * * * *
 7   * * * * * * * * *
 8   * * * * * * * * * * * * *
 9   * * * * * * * * * * *
10   * * * * * * * * *
```

4. Write a function mean(v) that returns the mean value of numbers stored in the array v.

5. Write a function sigma(v) that returns the standard deviation of numbers stored in the array v.

6. Write a function mean_sigma(v) that returns two values: the mean value and the standard deviation of numbers stored in the array v [Slide 141 shows how to return two values].

7. Write a function sort(v) that returns the sorted array v. Do not use Ruby sort methods; write your own sort. Array v must remain unchanged. [Slide 137 shows how to return an array]

8. Write a function binarysearch(v, x) that returns the index i of the sorted array v where v[i]=x. Return -1 if x does not belong to v.

9. Write function minmax(v) that returns minimum and maximum value of the array v. [Slide 141]

10. Write a main program that illustrates the work of all the above functions.