Software Systems Verification and Validation

Administrative

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Experiment

- Problem statement: Given a natural number, compute the minimum number formed with the same digits.

```
Subalgorithm ComputeDigits(n, nDig, valDig):
        i= 0
        while n < > 0 execute
                valDig(i)= n mod 10
                n =  n div 10
                i= i+ 1
        endWh
        nDig= i
EndComputeDigits
```

```
Subalgorithm CreateNumber(nDig, valDig):
        newN= 0;
        for i= 1, nDig execute
                newN= newN* 10+ valDig(i)
        EndFor
        return newN
EndCreateNumber
```

```
Algorithm ComputeMinimWithDigits(n,nn):
        Read n
        ComputeDigits(n,nDig, valDig)
        nn= CreateNumber(nDig,valDig)
        Print nn
endComputeMinimWithDigits
```

- Lecture 1: Find as many errors as possible in the next 10 minutes!
- Lecture 12: Find as many errors as possible in the next 10 minutes!
- Compare the results!
  - Methods?
  - How many errors?

Course objectives

- To learn the verification and validation activities.
- To understand what a correct algorithm is.
  - To gain knowledge of designing correct algorithms and proving their correctness hand-in-hand.
  - To become used with building correct programs from specifications.
  - To use a tool that verifies the functional correctness of a program.
- To create test cases using black-box testing and white-box testing methods.
  - To use a tool to run the developed test cases.
- To acquire a modern programming style.

Class schedule (tentative)

Schedulers				
W	Date	Lecture	Seminar	Laboratory
1. 2.	22Feb 29Feb	Intro + Inspection Testing. BBT	Inspection	Inspection
3. 4.	7Mar 14Mar	Testing. WBT Levels of t.	BBT	BBT
5. 6.	21Mar 28Mar	Symbolic exe. Selenium Web Driver	WBT	WBT
7. 8.	4Apr 11Apr	Correctness Floyd Correctness Hoare	Levels	P+Levels
9. 10.	18Apr 25Apr	Quality Model cheking	Correctness	Web t.
11. 12.	9May 16May	SQA, SPI, CMM Reserved subject	ESCJava	ESCJava

Grading

- Final Examination grade
  - F = 25% L +25% P+ 10% S + 40% E
    - L is the grade obtained for lab activity;
    - P is the grade obtained for a practical lab activity (at the 4th lab);
    - S is the grade for the activity at the seminars;
    - $E >= 5$ is the grade for the paper at written examination.
  - Conditions to participate at the final exam
  - There is no restriction regarding the participation at the written examination (in normal or retake session) regarding obtained mark during Laboratory activity and Seminar activity.
    - Laboratory assignments/Practical laboratory work may not be redone in the retake session.
    - Seminar activity may not be redone in the retake session.
    - Written exams can be taken during the retake session.
  - Students from Previous Years to 2015-2016 -All the above rules apply to students from previous years.

Questions

- Thank You For Your Attention!