Software System Verification and Validation

Topic Seminar 03 www.cs.ubbcluj.ro/~avescan

Seminar Objectives

Generating test cases based on white box testing.

Topics

- **Control Flow Graph**
- **Coverage criteria: statements, conditions/decisions, paths, loops**

Assignment 1 - 10 minutes - Discussion

Topics

- Control flow graph. Cyclometric complexity metric
- Coverage criteria: statement, condition/decision, paths, loops

Assignment 2 – 80-90 minutes – Test cases based on source code (CFG, coverage)

Based on White-Box Testing develop test cases for the following subalgorithms:

```
1  public boolean isPrime(int n) throws ValueException{

2       boolean b = true;
3       if(n<0){
4             throw new ValueException("data not valid");
        }
5       if(n<2){
6             b=false;
        }
        else{
7             int i=2;
8             while (i< (n/2)){
9                   if ((n % i) == 0){
10                        b=false;
                    }
                    else
11                        b=true;
12                  i++;
              }
        }
13      return b;
14  }
   public void SolveLongestSequence() throws ValueException{
     int posI=-1, lengthI=0, i=0;
     int posF=-1, lengthF=0;
     while(i<this.l.size()){
           if(isPrime((int)this.l.get(i))==true){
                 if(posI==-1){
                       posI=i;
                       lengthI=1;
                 }
                 else
                       lengthI++;
           }
           else{
                 if(lengthI>lengthF){
                       lengthF=lengthI;
                       posF = posI;
                 }
           }
           i++;
     }
     this.start =posF;
     this.length=lengthF;
  }
}
```