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 - 10-15 minutes - Discussion

Topics

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

Assignment 2 – 60-80 minutes – Test cases based on source code (CFG, coverage)

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

1) isPrime
2) `SolveLongestSequence`

Assignment 3 – 5-10 minutes – Quiz (seminar content)

```
public boolean isPrime(int n) throws ValueException{
	boolean b = true;
	if(n<0){
		throw new ValueException("data not valid");
	}
	if(n<2){
		b=false;
	}
	else{
		int i=2;
		while (i< (n/2)){
			if ((n % i) == 0){
				b=false;
			}
			else
				b=true;
			i++;
		}
	}
	return b;
 }
```

```
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;
   }
}
```