Engineering

RW344: Software Design

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Group Project:
Painting Programs by Numbers
Problem statement

Many program analysis methods associate numbers with each statement:

• how often it has been executed?
• how many failing test cases have executed it?
• how many models does it have?
• how long ago was it written? by whom?
• how often was it changed?
• ...?

The goal of this project is to collect and visualize this information in a normal text editor.
Problem statement

More precisely, this project should develop:

• a **generic visualization component as plugin** to **Eclipse**; this should be language-independent (or easily be customizable to different programming languages), metric-independent, and easily customizable by users; and

• a **tool suite to compute different metrics** suitable as input to the visualization component; the tool suite should cover at least three different areas (dynamic analysis, static analysis, development history).
Pretty (?) Pictures

```java
public class Demo {
    private static final String CONSTANT = "String";
    private Object o;

    /**
     * Creates a new demo.
     * @param o The object to demonstrate.
     */
    @SuppressWarnings(value="unused")
    public Demo(Object o) {
        this.o = o;
        String s = CONSTANT;
        int i = 1;
    }

    public static void main(String[] args) {
        Demo demo = new Demo(CONSTANT);
        demo.o = demo;

        some_error; // one line comment

        // Selection demo
        // Selection demo
    }
}
```
Pretty (?) Pictures
Pretty (?) Pictures

```java
class SwitchDemo2 {
    public static void main(String[] args) {
        int month = 2;
        int year = 2000;
        int numDays = 0;

        switch (month) {
            case 1:
                numDays = 31;
                break;
            case 4:
            case 6:
```
Your Tasks

• Requirements specification
  – work out what the system should do
  – submit IEEE-style requirements document

• Design
  – work out architecture, algorithms, data structures
  – submit design document

• Implementation
  – coding, testing, documentation
  – submit code & test cases, demonstrate system

• Management
  – work out team name & structure, keep minutes & logs
  – submit logs
Marking

- Overall weight 40%
  - requirements, design, demonstration (i.e., functionality)
  - 1:1:2 weights
- Only specified and implemented functionality counts
  - missing / broken essential requirements cost marks
  - need to prioritize requirements
- Base mark for group, “moderated” by individual contributions
  - based on team structure, group’s self-assessment
Schedule

- Draft requirements: Friday, Sep 11
- Feedback meetings: Monday, Sep 14
- Final requirements: Monday, Sep 11

- Draft design: Monday, Sep 28
- Feedback meetings: Friday, Oct 2
- Final design: Monday, Oct 12

- Code due: Friday, Oct 23
- Demonstration: Oct 26
# Group assignments

<table>
<thead>
<tr>
<th>Group 1</th>
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<td>17050111 FURSTENBURG</td>
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<td>16959787 KLEINHANS</td>
<td>PETRUS FREDERICK</td>
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<td>17675758 KOEVERT</td>
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