Inspection of object oriented construction
A study of Reading Techniques tailored for inspection of Design Models expressed in UML
SIF8094 – Prediploma Thesis
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Project Context

Isern - International Software Engineering Research Network
Esernet - objective of the project is to establish a leading network in the field of Experimental Software Engineering
University of Maryland - contributes to this aim in various ways including inspection research
Software Inspections

Inspection Procedure
- Preparation
- Reading
- Collection
- Repair
- Reporting

Roles
- Organizer
- Observer
- Executor
- Author

Artifacts
- Requirements
- Design
- Code
- Test cases

Reading Techniques
- Reading
- Collection
- Repair
- Preparation

Requirements
- Ad-hoc
- Checklist Based Reading
- Defect Based Reading
- Perspective Based Reading
- Traceability Based Reading

Software Inspections - Fagan

Simplified overview of Fagan's inspection process

Product with defects

Rules
- Techniques
- Checklists

Entry Exit
- Code
- Artifacts

Requirements Artifacts
- Class Diagrams
- State Diagrams
- Sequence Diagrams
- Use Case Diagrams

Design Artifacts
- OORT-1
- OORT-2
- OORT-3
- OORT-4
- OORT-5
- OORT-6
- OORT-7

Reading Techniques
Sample Artifacts

Description of requirements document

<table>
<thead>
<tr>
<th>Parking Garage</th>
<th>Loan Arranger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain Experience</td>
<td>Familiar</td>
</tr>
<tr>
<td>Pages</td>
<td>7</td>
</tr>
<tr>
<td>Requirements</td>
<td>11, 15 functional</td>
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<tr>
<td>Predefined Defects</td>
<td>2(UMD)</td>
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</tbody>
</table>

Description of design documents

<table>
<thead>
<tr>
<th>Parking Garage</th>
<th>Loan Arranger</th>
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</thead>
<tbody>
<tr>
<td>Use Cases</td>
<td>6</td>
</tr>
<tr>
<td>Classes</td>
<td>4</td>
</tr>
<tr>
<td>State Diagrams</td>
<td>3</td>
</tr>
<tr>
<td>Sequence Diagrams</td>
<td>5</td>
</tr>
</tbody>
</table>

Results

New and old defects and comments

<table>
<thead>
<tr>
<th>Parking Garage</th>
<th>Loan Arranger</th>
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</thead>
<tbody>
<tr>
<td>Previously identified defects</td>
<td>19</td>
</tr>
<tr>
<td>Newly identified comments</td>
<td>7</td>
</tr>
<tr>
<td>Newly identified defects</td>
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</tr>
<tr>
<td>Discrepancies in total</td>
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</tr>
<tr>
<td>Time spent (in min.)</td>
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</tr>
</tbody>
</table>

Results - Improvements

- Organization is good, keep it
- Add more explanatory comments
- Level of detail
- Automated checking
- Focus on reading techniques that are inappropriate for automation
- Mediocre artefacts