

## **CS 49000 Software Testing**

Guidelines for Final Project Report

Project: Model-based Testing

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Revised: Based on discussions with team members

### **A. Title page**

Include: Project title, course number/name, department and University, date, names of team members, instructor, name and affiliation of the project sponsor (Peter Shier, Microsoft Corporation).

### **B. General style**

- Font size: 11pt
- Font type: Use standard such as Times, Geneva, Bookman, Helvetica, etc.
- Double sided printing, interline spacing of 16pt.
- Use past tense unless you refer to something that will happen in the future.
- Number every page except for the title page. Start page numbers at 2 (title page is page 1 but is not explicitly numbered).
- Do not skip a page when starting a new section; simply let the sections flow from page to the next with an appropriate inter-section spacing given by Word (or whichever typesetter you use).
- Ensure that all figures are readable. Specifically, FSMs and tests generated by Spec Explorer must be carefully placed in your report, perhaps after a bit of enlargement.
- Use short but not too short, paragraphs. A paragraph with only one sentence will be considered too short whereas one that runs to a  $\frac{3}{4}$  page or more in length will be considered too long.
- Number, caption, and cite all figures.

### **C. Organization**

#### **Table of Contents**

This should be the second page.

#### **List of Figures**

This should start on a new page and list the number, caption, and the page number of each figure in the report.

## List of Tables

This should start on a new page and list the number, caption, and the page number of each table in the report. Skip this section if you do not have any tables.

### 1. Introduction

This is the first section of your report. It introduces the purpose of your report, about the course, the sponsor, and enumerates the learning objectives of the project. Details of the project are *not* to be included in this section. End the section with a paragraph that indicates the organization of the remainder of the report. For example, you may write:

“ The remainder of this report is organized as follows. Section 2 is a brief introduction to model-based testing, the Spec Explorer tool, and the ADO.net API. Section 3 describes the aspect of ADO.net that our team decided to focus on for testing using Spec Explorer...”

### 2. Model-based testing

Briefly describe in your own words what is model-based testing. Indicate the steps in model-based testing. Use a figure to show the steps in conformance testing. Explain what is conformance testing. Then introduce the Spec Explorer tool. Again, use a figure to show various components that are generated when using Spec Explorer (the model, Cord file, test cases, test adapter) and relate these to each other and the system under test. Finally introduce ADO.net.

### 3. Selecting an aspect of ADO.net

Explain clearly what aspect of the ADO.net API did you decide to test and why. Explain this aspect by giving short examples that use the specific API that is of interest in your project.

### 4. Testing ADO.net

Divide this section into subsections as follows (number each subsection as 4.1, 4.2, etc.).

#### Methodology

Show using a diagram what procedure you used to test ADO.net. The steps include understanding ADO.net behavior, modeling the expected behavior, generating tests, running the tests, observing the actual behavior and comparing it with the expected behavior, and analyzing the results.

### **Expected behavior**

Explain in simple words what behavior you expect from the ADO.net aspect that you have selected to test.

### **The model**

Show various aspects of your model together with a clear explanation of what each action, each state variable, each constraint, etc., are meant to capture.

### **Sample FSMs**

Generate a few FSMs from your model and explain each with direct reference to the model.

### **Sample Tests**

Generate a few tests (2 or 3) from your model/FSM and explain what aspect of the ADO.net behavior are these tests meant to test.

### **Results**

Explain how did you run the tests and the outcome. Summarize in a table the number of tests generated, the average size of the tests, and the time taken to generate and run the tests.

### **Discussion**

Discuss the results. For example, answer the following questions. What is it that you tested: ADO.net, or your implementation, or both? Why was there no failure, or why was there a failure? Is model-based testing a useful technique? Why or why not?

## **5. Summary**

Summarize the entire project. What did you learn? What mistakes you made (individually and as a team)? What would you do differently if you were to do this project again?

## **Acknowledgements**

## **References**

List all documents that you have cited in the report. These should include all documents, including those at the Web sites, related to the tools you and the articles you might have read.

## **Appendices**

<End of document>

