**SPECIFICATION-BASED TESTING**

Suppose a software component (called a Grader component) has been implemented to

automatically compute a grade in a course. A course taught at a university has two exams.

and a project. To pass the course with grade C a student must score at least 45 points in

the Exam-1, 50 points in Exam-2, and 50 points in Project. Students pass the course with

grade B if they score at least 60 points in the Exam-1, 55 points in Exam-2, and 60 points.

in Project. If, in addition to this, the average of the exams is at least 80 points and they

score at least 70 points in Project then students are awarded a grade A. Final grade for

the course are A, B, C, and E. The Grader component accepts six inputs:

Last name

First name

Student #

Exam-1

Exam-2

Project

**Assumptions:**

1. Assume Exam-1, Exam-2, Project are integers.

2. The ranges for the exam scores are:

3. 0  Exam-1  90

4. 0  Exam-2  100

5. 0  Project  80

6. The maximum size of the “First name” is 15 characters and “Last name” is 20

characters.

7. Student # is a number represented as a 9-character string in the following format:

AXXXXXXXX, where X is a digit.

**Sample test case for the Grader component:**

Test #1: Last name=Smith, First name=John, Student #=A11112222, Exam-1=57, Exam-2 = 64, Project = 75

**PROBLEM: Boundary-Value Testing**

Design:

1. Normal Boundary-Value Analysis test cases.

2. Robust Boundary Value test cases.