Software Eng. 2AO4 - Software Design I - 2001

The laboratory exercises deal with rectangles that have two properties:

- The coordinates of all corners, both the horizontal (x) and vertical (y), are integers.
- Their sides are parallel to the horizontal and vertical axes.

All exercises will require you to write programs that create, delete, modify and return information about such rectangles. With the exception of the final exercise, the programs that must be written are very simple. The focus of the exercises is on precise satisfaction of specifications, not algorithms.

Each assignment will be given to you in the Friday laboratory session and you will work on it for a week. In the first week, you (working by yourself) will write a program to satisfy a specification that we give you. You should analyse the specification and report any problems that you find before implementing. During the week you should implement the specification and test it with a separate test program that is based only on the specification. Note that this should be a “black box” test; your test program should be able to test any program written to satisfy the same specification, not just your program. You may do additional testing, but your “black box” test program must be separate so you can use it in the second week of the lab.

At the second lab for each problem you will exchange programs with a partner that we designate. In the second week you will test and inspect that partner’s program and write a complete report on it. During the week you will demonstrate any problems that you found to your partner and your partner will do the same for you. You will then prepare a project report. The report is due two weeks after the assignment is given, i.e. at the end of the second week. It will be collected at the lab. No late reports will be accepted without a medical excuse. At that lab, you will also be asked to demonstrate your partner’s program to a TA.

You should keep a log of all major decisions and all errors discovered. This log will become a part of your laboratory report. If you consult with anyone on the design of these programs, summarise that conversation in your log. Your log should clearly indicate your role on each program.

The project report should contain 7 sections:

1. The specification and a discussion of any problems that you found in it.
2. The program that you wrote to satisfy the specification and an explanation of that program.
3. Your test program and an explanation of the test procedure that it implements.
4. Your report on the results of testing your program.
5. The results of testing your partner’s program.
6. A discussion of your partner’s test results and what happened during the exercise.
7. Your log for this problem.

Note:

The laboratory assignments are expected to work on the Sun equipment in the laboratory. There are differences between operating systems and language implementations. You may do some of your development on other machines but the assignment is to get it working in our laboratory. Test reports must refer to the behaviour of the system in the laboratory.