

31251 Data Structures and Algorithms

Workshop 2

Preparation

Go through learning module 2, studying the material contains in each of its sub-modules. Do each of the quizzes in the sub-modules and the final module quiz. Make sure you understand the questions and the answers.

Go through the problems below and prepare solutions to be brought to the workshop.

Problem 1

This problem follows on from the Diamond problem of Workshop 1.

The new program will use command line arguments. The first arguments will be the diamond size, the seconds the border character and the third the diamond fill character. For example, assume the program has been compiled to a.out. Then

```
rerun% ./a.out 3 # *  
rerun% #  
rerun% #*#  
rerun% #
```

One disadvantage of using command line parameters is you can't use a space as a fill character.

As part of this problem you are not to output the diamond to the screen directly. You must first dynamically allocate a two dimensional array of char, fill that char with the required characters, and then run a function which goes through the array, printing it to the screen.

Problem 2

Devise a set of tests to thoroughly test the program.

Note: Please read the Functionality menu item on SUBNET for how to do this.

Problem 3

How could you modify the program so it could print a space as a fill while only using command line arguments (no asking the user to input anything) and still being able to use any other character as a fill?