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Data Structures and Algorithms II

Project 4

Functional Decomposition

Setup and Compilation

1. Download and unzip the submission from eLearning on a Linux box in the multi-platform lab.
2. The submission includes:
   - main.c
   - part1.c
   - part2.c
   - functions.c
   - main.h
   - part1.h
   - part2.h
   - functions.h
   - SimParameters.txt
   - c1.txt
   - c2.txt
   - c3.txt
   - c4.txt
   - FunctionalDecomposition.txt
   - makefile
   - Users Manual for Project 4.docx (This document)
3. Environment: This program was designed and tested on Eclipse. It has also been tested in in the Linux lab and does work as expected.
4. This program includes a Makefile. At the command line in Linux, type make. The program produces an executable entitled "project4".

Running the program

Be sure the following files are in the same directory as the executable: "c1.txt" "c2.txt" "c3.txt" "c4.txt" and "SimParameters.txt". While in the Linux Lab, navigate to the folder containing all of the files associated with Project4 and issue the command "make" followed by "./project4". User input is required to select whether Part1 or Part2 should run. A menu will be displayed

Output: All output goes to the console. Output for Part 1 will be similar to this:

```
Simulation 1

      N: 10
      Simulated Result: 2.70
      Expected Result: 3.67
      Error percent: 0.26364
```

Final output for Part2 will be similar to this:

```
Run 1:
Number of batches of items:                    100
Number of items in each batch:                 2000
Percentage of batches containing bad items:    24%
Percentage of items that are bad in a bad set:       7%
Items sampled from each set:                   30
Base = 0.930000 exponent = 30
P(failure to detect bad item) = 0.113367
P(batch is good) = 0.886633
Percentage of bad batches detected = 92%
```