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Data Structures and Algorithms II

Project 4

User’s Manual

Setup and Compilation

1. Download and unzip the submission from eLearning on a Linux box in the multi-platform lab.
2. The submission includes:
   1. Start.c
   2. MonteCarlo.c
   3. MonteCarloAlgorithm.c
   4. SimParameters.dat
   5. Makefile
   6. UserManual.docx
   7. FunctionalDecomposition.txt
   8. c1.txt
   9. c2.txt
   10. c3.txt
   11. c4.txt
3. Enviroment: The program has been tested in the multiplatform lab and Ubuntu Bash. The program runs in both.
4. Compiling: This program contains a makefile. In command line, run the command “make -f makefile”. The program will have the name Start.
5. Running: Use command ./Start

NOTE: You can run the program one at a time by simply modifying Start.c

launchMonteCarlo() //Part A

launchMonteCarloAlgorithm()//Part B

Example of output:

MonteCarlo.c:

Simulation 1

N: 500  
Simulated result: 3.63  
Expected value: 3.33  
Error percent: 0.0901

MonteCarloAlforithm.c

Running:   
   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

Generating data sets:  
  Create bad set batch #  4, totBad =  133 total =  2000 badpct =  7  
  Create bad set batch #  8, totBad =  145 total =  2000 badpct =  7  
…  
  Create bad set batch # 92, totBad =  145 total =  2000 badpct =  7  
  Create bad set batch # 96, totBad =  158 total =  2000 badpct =  7  
  Total bad sets = 24  
  
Analyzing Data Sets:  
  batch #0 is bad  
  batch #4 is bad  
  …

batch #88 is bad  
  batch #92 is bad  
  
Base = 0.930000 exponent = 30  
P(failure to detect bad item) = 0.113367  
P(batch is good) = 0.886633  
Percentage of bad batches detected =  88%

Summary:

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  
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