Evan Chen

CIS15C Data Structures

Professor Nguyen

Lab Assignment #1

**Structure Chart**

**Algorithm (For Histogram and Mode Value)**

**printHistogram algorithm**

algorithm printHistogram (val stuArray <Student []>,

val numScores <int>)

This function prints out the histogram to show the frequency of each score.

Pre: stuArray and numScores must be initialized

Post: The Histogram is printed out

Return: Nothing

1 Initialize currentNum to 0

2 print Histogram header to stdout

3 for loop (until numScores is reached)

1 assign current score in stuArray to currentNum

2 print the currentNum

3 for loop(until numScores is reached)

1 if currentNum equals current score in stuArray

1 print “x” to stdout

2 increment the index of the outside for loop

4 decrease the index of the outside loop by 1

5 print a newline

end printHistogram

**calcMode algorithm**

algorithm calcMode (val stuArray <Student []>,

val numScore <int>)

This function will calculate the mode of the scores in stuArray

Pre: stuArray and numScores must be initialized

Post: Nothing

Return: mode will be returned if there is one

0 will be returned if there is no mode

1 Initialize variables

1 modeCounter = 0

2 currentNum = 0

3 maxNum = 0

4 mode = 0

5 noMode = 0

2 for loop (until numScores is reached)

1 if currentNum does not equal the current score in stuArray

1 assign current score to currentNum

2 assign 1 to modeCounter

2 else

1 increment modeCounter by 1

3 if modeCounter equals maxNum

1 assign 0 to noMode

4 if modeCounter is greater than maxNum

1 assign modeCounter to maxNum

2 assign modeCounter to noMode

3 assign currentNum to mode

3 if noMode equals 0

1 return 0

4 else

1 return mode

end calcMode