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CSC 1051-1

Project 9

I thought the project was very beneficial and a challenge. I have been having trouble understanding how arrays within Java, so I was very nervous going into the project. There are some known errors in the project. First, I tried to utilize a sentinel value and eventually decided to take it out to make my code functional. I struggled with the overall algorithm of the project. I found myself having trouble within nested loops, but ultimately, I was able to get the project to be functional. Another thing I struggled with was the input and converting the input to integers. I decided to use a function that would convert all the strings to integers and put them in an array called numbers. I did learn a lot by trying to figure out how to input multiple integers within a single input line, but it was very challenging. Also, I think if I was able to set it up to input each number individually, I would have been able to incorporate a sentinel. Overall, I learned a lot from the project and I wish I had opportunities to devote more time to the project, but I found myself behind on labs and balancing a lot of different assignments.

**Source Code**

1 //\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
 2 // Project9.java Author: Kyle Carney  
 3 //  
 4 // Demonstrates the relationship between arrays and strings.  
 5 //\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
 6   
 7 import java.util.Scanner; // imports class so we can use Scanner object  
 8   
 9 public class Project9  
 10 {  
 11 public static void main( String[] args )  
 12 { //counters to print histogram  
 13 int counter10 = 0;  
 14 int counter20 = 0;  
 15 int counter30 = 0;  
 16 int counter40 = 0;  
 17 int counter50 = 0;  
 18 int counter60 = 0;  
 19 int counter70 = 0;  
 20 int counter80 = 0;  
 21 int counter90 = 0;  
 22 int counter100 = 0;  
 23   
 24 Scanner keyboard = new Scanner( System.in );  
 25   
 26 System.out.println ("Welcome to the histogram maker!");  
 27 System.out.println ("Please enter your numbers (in range 1... 100)" +  
 28 ", terminated by -1\n");  
 29   
 30 // This inputs the numbers and stores as one whole string value  
 31 // (e.g. if user entered 1 2 3, input = "1 2 3").  
 32 String input = keyboard.nextLine();  
 33   
 34 // This splits up the string every at every space and stores   
 35 //these values in an array called numbersStr.  
 36 // (e.g. if the input variable is   
 37 // "1 2 3", numbersStr would be {"1", "2", "3"} )  
 38 String[] numbersStr = input.split(" ");  
 39   
 40 // This makes an int[] array the same length as our string array  
 41 // called numbers. This is how each # is stored as an integer   
 42 // instead of a string when we have the values.  
 43 int[] numbers = new int[ numbersStr.length ];  
 44   
 45 // Starts a for loop which iterates through the whole array of the  
 46 // numbers as strings.  
 47 for ( int i = 0; i < numbersStr.length; i++ )  
 48 {  
 49 // Turns every value in the numbersStr array into an integer   
 50 // and puts it into the numbers array.  
 51 numbers[i] = Integer.parseInt( numbersStr[i] );  
 52 // OPTIONAL: Prints out each value in the numbers array.  
 53 //System.out.print( numbers[i] + ", " );  
 54 }  
 55 System.out.println("\n\nHistogram of values entered:");  
 56 System.out.println("============================");  
 57   
 58   
 59 // For loop to increment counters   
 60 for ( int x = 0; x < numbersStr.length; x++ )  
 61 {  
 62 if (numbers[x] >= 1 && numbers[x] <= 10)  
 63 {  
 64 counter10++;  
 65 }  
 66 else if (numbers[x] >= 11 && numbers[x] <= 20)  
 67 {  
 68 counter20++;  
 69 }  
 70 else if (numbers[x] >= 21 && numbers[x] <= 30)  
 71 {  
 72 counter30++;  
 73 }   
 74 else if (numbers[x] >= 31 && numbers[x] <= 40)  
 75 {  
 76 counter40++;  
 77 }   
 78 else if (numbers[x] >= 41 && numbers[x] <= 50)  
 79 {  
 80 counter50++;  
 81 }   
 82 else if (numbers[x] >= 51 && numbers[x] <= 60)  
 83 {  
 84 counter60++;  
 85 }   
 86 else if (numbers[x] >= 61 && numbers[x] <= 70)  
 87 {  
 88 counter70++;  
 89 }   
 90 else if (numbers[x] >= 71 && numbers[x] <= 80)  
 91 {  
 92 counter80++;  
 93 }   
 94 else if (numbers[x] >= 81 && numbers[x] <= 90)  
 95 {  
 96 counter90++;  
 97 }   
 98 else if (numbers[x] >= 51 && numbers[x] <= 100)  
 99 {  
100 counter100++;  
101 }   
102 }  
103 // Print values between 1-10  
104 int i = 0;  
105 System.out.print("\n\n | " + i + " - 10" + " | ");  
106 for (int x = 0; x < counter10; x++)  
107 {  
108 System.out.print("\*");  
109 }  
110 // Print values between 11-20  
111 i = 11;  
112 System.out.print("\n\n | " + i + " - " + (i+9) + " | ");  
113 for (int x = 0; x < counter20; x++)  
114 {  
115 System.out.print("\*");  
116 }   
117 // Print values between 21-30  
118 i = 21;  
119 System.out.print("\n\n | " + i + " - " + (i+9) + " | ");  
120 for (int x = 0; x < counter30; x++)  
121 {  
122 System.out.print("\*");  
123 }   
124 // Print values between 31-40  
125 i = 31;  
126 System.out.print("\n\n | " + i + " - " + (i+9) + " | ");  
127 for (int x = 0; x < counter40; x++)  
128 {  
129 System.out.print("\*");  
130 }   
131 // Print values between 41-50  
132 i = 41;  
133 System.out.print("\n\n | " + i + " - " + (i+9) + " | ");  
134 for (int x = 0; x < counter50; x++)  
135 {  
136 System.out.print("\*");  
137 }   
138 // Print values between 51-60  
139 i = 51;  
140 System.out.print("\n\n | " + i + " - " + (i+9) + " | ");  
141 for (int x = 0; x < counter60; x++)  
142 {  
143 System.out.print("\*");  
144 }   
145 // Print values between 61-70  
146 i = 61;  
147 System.out.print("\n\n | " + i + " - " + (i+9) + " | ");  
148 for (int x = 0; x < counter70; x++)  
149 {  
150 System.out.print("\*");  
151 }   
152 // Print values between 61-70  
153 i = 61;  
154 System.out.print("\n\n | " + i + " - " + (i+9) + " | ");  
155 for (int x = 0; x < counter70; x++)  
156 {  
157 System.out.print("\*");  
158 }   
159 // Print values between 71-80  
160 i = 71;  
161 System.out.print("\n\n | " + i + " - " + (i+9) + " | ");  
162 for (int x = 0; x < counter80; x++)  
163 {  
164 System.out.print("\*");  
165 }   
166 // Print values between 81-90  
167 i = 81;  
168 System.out.print("\n\n | " + i + " - " + (i+9) + " | ");  
169 for (int x = 0; x < counter90; x++)  
170 {  
171 System.out.print("\*");  
172 }   
173 // Print values between 91-100  
174 i = 91;  
175 System.out.print("\n\n | " + i + " - " + (i+9) + " | ");  
176 for (int x = 0; x < counter100; x++)  
177 {  
178 System.out.print("\*");  
179 }   
180   
181 System.out.print("\n\n\n============================");  
182 System.out.print("\nThank you for using my program.");  
183 }}

**Test Runs**

----jGRASP exec: java Project9  
Welcome to the histogram maker!  
Please enter your numbers (in range 1... 100), terminated by -1  
  
0 1 2 3 4 5 6 7 8 9 10 11 20 -33 79 80 81 99 100 101 102 -1  
  
  
Histogram of values entered:  
============================  
  
  
 | 0 - 10 | \*\*\*\*\*\*\*\*\*\*  
  
 | 11 - 20 | \*\*  
  
 | 21 - 30 |   
  
 | 31 - 40 |   
  
 | 41 - 50 |   
  
 | 51 - 60 |   
  
 | 61 - 70 |   
  
 | 61 - 70 |   
  
 | 71 - 80 | \*\*  
  
 | 81 - 90 | \*  
  
 | 91 - 100 | \*\*  
  
  
============================  
Thank you for using my program.  
 ----jGRASP: operation complete.



 ----jGRASP exec: java Project9  
Welcome to the histogram maker!  
Please enter your numbers (in range 1... 100), terminated by -1  
  
-1  
  
  
Histogram of values entered:  
============================  
  
  
 | 0 - 10 |   
  
 | 11 - 20 |   
  
 | 21 - 30 |   
  
 | 31 - 40 |   
  
 | 41 - 50 |   
  
 | 51 - 60 |   
  
 | 61 - 70 |   
  
 | 61 - 70 |   
  
 | 71 - 80 |   
  
 | 81 - 90 |   
  
 | 91 - 100 |   
  
  
============================  
Thank you for using my program.  
 ----jGRASP: operation complete.  


----jGRASP exec: java Project9  
Welcome to the histogram maker!  
Please enter your numbers (in range 1... 100), terminated by -1  
  
1 20 34 49 51 54 54 60 61 62 93 74 63 34 88 99 98 97 -1  
  
  
Histogram of values entered:  
============================  
  
  
 | 0 - 10 | \*  
  
 | 11 - 20 | \*  
  
 | 21 - 30 |   
  
 | 31 - 40 | \*\*  
  
 | 41 - 50 | \*  
  
 | 51 - 60 | \*\*\*\*  
  
 | 61 - 70 | \*\*\*  
  
 | 61 - 70 | \*\*\*  
  
 | 71 - 80 | \*  
  
 | 81 - 90 | \*  
  
 | 91 - 100 | \*\*\*\*  
  
  
============================  
Thank you for using my program.  
 ----jGRASP: operation complete.