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import java.io.*;
import java.util.*;

class esp
{
    //creating method to calculate the min
    public static int min(int [] grades)
    {
        int min = 100;
        for(int i=0; i<grades.length; i++)
        {
            if(min > grades[i])
            {
                min = grades[i];
            }
        }
        return min;
    }

    //creating method to calculate the max
    public static int max(int [] grades)
    {
        int max = 0;
        for(int i=0; i<grades.length; i++)
        {
            if(max < grades[i])
            {
                max = grades[i];
            }
        }
        return max;
    }

    public static void main(String [] args) throws IOException
    {
        //welcome the user to the program and prompt them to enter the file name
        System.out.println("Welcome to the Exam Statistics Program!\n");

        System.out.println("Please enter the name of your data file: ");
        Scanner cin=new Scanner(System.in);
        String file=cin.next();

        //create scanner to read in the scores from the file and put them in an array
        Scanner scorelist;
        scorelist=new Scanner(new FileReader(file));
        int scorecount;
        scorecount=scorelist.nextInt();

        int[] list=new int[scorecount];

        for(int i=0; i<scorecount; i++)

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{
    list[i] = scorelist.nextInt();
}

//run the min and max methods and print them out
System.out.println("\nMinimum score: " + min(list));

System.out.println("Maximum score: " + max(list));

//calculate the average and print it out
double sum = 0;
double avg = 0;

for(int i=0; i<scorecount; i++)
{
    sum += list[i];
}

avg = sum/scorecount;
System.out.println("Average score: " + avg + "\n");

//create counters for each letter grade
int numA=0;
int numB=0;
int numC=0;
int numD=0;
int numF=0;

//run each score through the loop to see which letter grade it is
for(int i=0; i<list.length; i++)
{
    if(list[i]<=100 && list[i]>=90)
    {
        numA++;
    }

    else if(list[i]<90 && list[i]>=80)
    {
        numB++;
    }

    else if(list[i]<80 && list[i]>=70)
    {
        numC++;
    }

    else if(list[i]<70 && list[i]>=60)
    {
        numD++;
    }
}

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        else if(list[i]<60)
        {
            numF++;
        }
    }
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//print out the letter grade totals and total number of scores
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System.out.println("Number of scores by letter grade:");
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System.out.println("\tA: " + numA);
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System.out.println("\tB: " + numB);
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System.out.println("\tC: " + numC);
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System.out.println("\tD: " + numD);
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System.out.println("\tF: " + numF);
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System.out.println("There are " + scorecount + " scores.");
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}
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}
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