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/** You will write a program that computes the length of a longest increasing subsequence
of a sequence of integers.
+takes input */
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public class Assignment2Task1 {

    public static void main(String[] args) {
        java.util.Scanner input = new java.util.Scanner(System.in);

        int[] user_sequence = Prompt_Sequence(input);

        System.out.print("\nMax Increasing Subsequence: " + MaxIncreasingSubsequence(user_sequence));
    }
    /** a program that computes the length of a longest increasing subsequence
of a sequence of integers. * */
    public static int MaxIncreasingSubsequence(int[] arr){
        //basecase
        if(arr == null || arr.length == 0)
            return 0;

        //not sure if the grader prefers d like the assignment pdf variable name or an actual
variable name like {counts} ; variable name is just ,like the assignment pdf, d to be safe
        //d[i] corresponds with arr[i]
        int[] d = new int[arr.length]; //keeps track of the COUNTS of the max increasing subsequence
        d[0] = 1; // d[0] will always be initialized to 1 as will any d[i] as that is the
basecase

        int max_count = 1; //intitilization step is 1

        for (int i = 1; i < arr.length;i++){ //i is always bigger than j
            d[i] = 1; //intitilized to 1 for the base case of no increasing subsequences
            for (int j = 0; j < i; j++){
                //if current element is greater than a previous element in the array and
                //if d[i] is greater than d[j] + 1 then d[i] count will go up
                if (arr[i] > arr[j]){
                    if (d[i] < d[j] + 1)
                        d[i] = d[j] + 1;
                }
            }
            //update max_count if d[i] is bigger
            if (d[i] > max_count)
                max_count = d[i];
        }

        return max_count;
    }

    /**reads the initial sequence which is entered by the user*/
    public static int[] Prompt_Sequence(java.util.Scanner input){
        int[] sequence;
        try {
            System.out.println("\nEnter the length of the sequence");
            sequence = new int[input.nextInt()];

            System.out.println("\nEnter the values of the sequence[]");

            for (int i = 0; i < sequence.length; i++){
                sequence[i] = input.nextInt();
            }
        }
    }
}
```

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        System.out.println("sequence[] = " + java.util.Arrays.toString(sequence));
        return sequence;
    } catch (java.util.InputMismatchException e) {
        input.nextLine();
        System.err.print("Integer Values only. Please Try again\n");
        Prompt_Sequence(input);
    }

    return null;
}

}
```