

Algorithm Lab (Course Code: MC504)

Assignment - 11

Submission Deadline: by 12:00 PM, (08/04/2022)

Total Marks: 50

Instructions:

- Proper indentation is mandatory.
 - Program files **must** be compiled using **linux gcc compiler**.
 - **VERY IMPORTANT:** You must add comments whenever necessary, to make the code understandable.
 - Markings will be based on the correctness and soundness of the outputs. Marks will be deducted in case of plagiarism.
 - Take inputs from users. Make necessary assumptions if required.
 - **ANSWER FILE:** Source code: (file name) e.g. A11_Q1.c, A11_PP.c
 - **Compress all the source code in a single zip/rar file(e.g. Rollno_Name.zip) and Upload on Teams.**
 - **Each source code file must contain your name and roll no as comments.**
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Q1.

Assume you are an awesome parent and want to give your children some cookies. But, you should give each child at most one cookie.

Each child i has a greed factor $g[i]$, which is the minimum size of a cookie that the child will be content with; and each cookie j has a size $s[j]$. If $s[j] \geq g[i]$, we can assign the cookie j to the child i , and the child i will be content. Your goal is to maximize the number of your content children and output the maximum number.

Example 1:

Input: $g = [1, 2, 3]$, $s = [1, 1]$

Output: 1

Explanation: You have 3 children and 2 cookies. The greed factors of 3 children are 1, 2, 3.

And even though you have 2 cookies, since their size is both 1, you could only make the child whose greed factor is 1 content. You need to output 1.

Example 2:**Input:** g = [1,2], s = [1,2,3]**Output:** 2**Explanation:** You have 2 children and 3 cookies. The greed factors of 2 children are 1, 2.

You have 3 cookies and their sizes are big enough to gratify all of the children,

You need to output 2.

Q2.

Suppose you have a mirror cutting business. You have a mirror of length 8, and you want to cut up the mirror and sell the pieces in a way that maximizes the total amount of money you get.

Write a program to calculate the maximum total amount of money you earn.(Hint: Use greedy algorithm approach)

A piece of length i is price p in rupees that is given in the following table :

Length i	1	2	3	4	5	6	7	8
Price p	1	5	8	9	10	17	17	20

Input:

array1=[1,2,3,4,5,6,7,8]

array2=[1,5,8,9,10,17,17,20]

Output: 22