Question 9

So Many Plots

Your friend is a property tycoon and owns many plots of a given area.

However, he wants to merge the plots to make one big plot, for which he goes to an Agent.

The agent tells him that in one operation, any two plots can be merged, and in return, he will receive one plot of area $A_x + A_y$ (Where A_x and A_y are the areas of two plots merged in one operation) and the resulting plot will be added to his inventory of plots again, but the cost of one operation is equal to the merged area i.e. Cost $= A_x + A_y$.

This operation can be performed until he is left with one plot.

Help him merge the plots such that in the end, he is left with one plot whose area is the sum of all his current plots, but the cost shall remain minimum.

Also, let him know if it is profitable to merge the plots.

You are given the cost per unit area of each plot.

Max. score: 50.00 ⓘ

Minimum Substring

In this problem, let's call the alphabet string the string that consists of all uppercase English letters in the order they appear in the alphabet: "ABCDEFGHIJKLMNOPQRSTUVWXYZ". Given a string consisting of uppercase English letters, your task is to find the length of the shortest *substring* that contains the alphabet string as a *subsequence*.

Note

A *substring* is a contiguous sequence of characters within a string. For instance, "isipp" is a substring of "missisippi". For example, "Itwastimes" is a subsequence of "Itwasthebestoftimes" but not a substring.

A *subsequence* is a sequence that can be derived from another sequence by deleting zero or more elements without changing the order of the remaining elements. For example, for the string "book", some example subsequences are "b", "ok", "oo", "bk", and "book". However, "obk" and "kb" are not subsequences of "book" because they don't preserve the original order.

Example

Let's assume that the input string is "FORCESABCDEFDIVGHIJKLMNOPQRSTUVWXYZ". The shortest substring that contains the alphabet string as a subsequence is "ABCDEEDIVGHIJKLMNOPQRSTUVWXYZ" (note the

A subsequence is a sequence that can be derived from another sequence by deleting zero or more elements without changing the order of the remaining elements. For example, for the string "book", some example subsequences are "b", "ok", "oo", "bk", and "book". However, "obk" and "kb" are not subsequences of "book" because they don't preserve the original order.

Example

Let's assume that the input string is "FORCESABCDEFDIVGHIJKLMNOPQRSTUVWXYZ". The shortest substring that contains the alphabet string as a subsequence is "**ABCDEF**DIV**GHIJKLMNOPQRSTUVWXYZ**" (note the alphabet string in bold). Because its length is 29, the answer is 29.

Function description

Complete the *solve* function provided in the editor. This function takes the following 1 parameter and returns the length of the shortest substring that contains the alphabet string as a subsequence.

- *S*: Represents the String.

Input format

Note: This is the input format that you must use to provide custom input (available above the Compile and Test button).

Left sidebar (partially visible):

given the following information:

nsider a table named — 4.0
Which of these statements

the output of the following + 2.0
ode snippet.

estions

s + 20.0

tring + 50.0

are given the following information:

consider a table named
ts. Which of these statements

he the output of the following
t code snippet.

uestions

ots

string

Code snippets are written in languages C, C++, Java, Python.

Constraints

$26 \leq$ length of $S \leq 10^5$
S consists of uppercase English letters.
$It's$ guaranteed that there exists at least one such substring.

Sample input 1

Copy

```
ABCDEFDIVGHIJKLMNICPCOPQRSTUVWXYZO
```

Sample output 1

Copy

```
33
```

Explanation

- S: Represents the String.

Input format

Note: This is the input format that you must use to provide custom input (available above the Compile and Test button).

The first and only line contains a string S, consisting of uppercase English letters.

Output format

Print the length of the shortest substring that contains the alphabet string.

Code snippets

Code snippets are written in languages C, C++, Java, Python.

Constraints

$26 \leq length\ of\ S \leq 10^5$

S consists of uppercase English letters.

$It's$ guaranteed that there exists at least one such substring.

... information:

consider a table named
s. Which of these statements   +5.0

ne the output of the following   + 2.0
ot code snippet.

Explanation

The shortest substring that contains the alphabet string as a subsequence is "ABCDEFDIVGHIJKLMNICPCOPQRSTUVWXYZ".
This substring is created by removing the final character, O. Because its length is 33, that is the answer.

questions

ⓘ The following test cases are the actual test cases of this question that may be used to evaluate your submission.

lots   + 20.0

Note: Your code must be able to print the sample output from the provided sample input. However, your code is run against multiple hidden test cases. Therefore, your code must pass these hidden test cases to solve the problem statement.

Time Limit: 1.0 sec(s) for each input file
Memory Limit: 512 MB
Source Limit: 1024 KB
Marking Scheme: Score is assigned if any testcase passes
Allowed Languages: Bash, C, C++, C++14, C++17, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, Java 14, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Python 3.8, Racket, Ruby, Rust, Scala, Swift-4.1, Swift, TypeScript, Visual Basic

ubstring   + 50.0

New Submission   All Submissions

Also, let him know if it is profitable to merge the plots.

You are given the cost per unit area of each plot.

The total cost of the plots = $\sum$ Area * cost per unit area

He considers it profitable to merge them if the cost to merge the plots is less than the total cost of the plots.

Example

Assumptions

- N = 2
- array plots = [10, 20]
- array costs_arr = [1, 1]

Approach

The total cost of the plots = $\sum$ Area * cost per unit area = 10 x 1 + 20 x 1 = 30

The cost to merge the plots [10, 20] is 10 + 20 = 30

As Cost to merge the plots is not less than the Total cost of the plots, Therefore it is not profitable to merge

- The next line contains N integers, denote the Cost per unit area of each plot separated by space

Output

print two lines, print the minimum cost to achieve one plot of the area after merging all the plots and the next line print **YES** if it is profitable to merge the plots otherwise print **NO**.

Constraints

$$1 \leq N \leq 10^4$$

$$1 \leq A_i \leq 10^4$$

$$1 \leq Cost \ per \ unit \ Area \leq 10$$

Code snippets (also called starter code/boilerplate code)

This question has code snippets for C, CPP, Java, and Python.

Sample input 1	Copy	Sample output 1	Copy

Sample input 1

```
5
10 20 35 70 150
2 4 6 1 3
```

Sample output 1

```
515
YES
```

... plots [10, 20] is 10 + 20 = 30

As Cost to merge the plots is not less than the Total cost of the plots, Therefore it is not profitable to merge them.

Function description

Complete the *solution* function provided in the editor. This function takes the following 3 parameters and print two lines, In the first line print minimum cost to merge all the plots and the next line print YES if it is profitable to merge the plots otherwise print NO:

- *N*: Represents the number of plots
- *plots*: Represents the array of length N denoting the areas of each plot
- *costs_arr*: Represents the array of length N denoting the cost per unit area of each plot

Input:

Note: This is the input format that you must use to provide custom input (available above the Compile and Test button).

- The first line contains N, the number of plots.
- The next line contains N integers, which denote the areas of each plot separated by space.
- The next line contains N integers denote the Cost per unit area of each plot separated by space
- The next line contains N integers denote the Cost per unit area of each plot separated by space

Sample Input 1

```
5
10 20 35 70 150
2 4 6 1 3
```

Sample Output 1

```
515
YES
```

Explanation

Initially, Cost = 0 and Plots = {10,20,35,70,150}

Plots of area 10 and 20 were merged which lead to Cost = 0+(10+20) = 30

And a Plot of area 30 was added to the inventory.

Now, Plots = {30,35,50,85}

Plots of area 30 and 35 were merged which lead to Cost = 30+(30+35) = 95

And a Plot of area 65 was added to the inventory.

owing information: +4.0

e named +4.0
se statements

f the following +2.0

+20.0

+50.0

Plots of area 10 and 20 were merged which lead to Cost = 0+(10+20) = 30

And a Plot of area 30 was added to the inventory.

Now, Plots = {30,35,50,85}

Plots of area 30 and 35 were merged which lead to Cost = 30+(30+35) = 95

And a Plot of area 65 was added to the inventory.

Now, Plots = {65,70,150}

Plots of area 65 and 70 were merged which lead to Cost = 95+(65+70) = 230

And a Plot of area 135 was added to the inventory.

Now, Plots = {135,150}

Plots of area 135 and 150 were merged which lead to Cost = 230+(135+150) = 515

And now we are left with one plot of area 285.

Hence Cost = 515

Now, Cost per unit area = {2,4,6,1,3}

OneDrive   mohd faizan

10:51 AM

ng information: -4.0

amed +4.0
statements

ne following +2.0

+20.0

+50.0

Now, Cost per unit area = (2,4,6,1,3)

Cost of a Plot = Area * Cost per unit Area

Hence, Total Cost of all Plots = $(10*2) + (20*4) + (35*6) + (70*1) + (150*3) = 830$

As Cost to merge the plots is less than the Total cost of the plots, it is profitable to merge them.

ⓘ The following test cases are the actual test cases of this question that may be used to evaluate your submission.

Note: Your code must be able to print the sample output from the provided sample input. However, your code is run against multiple hidden test cases. Therefore, your code must pass these hidden test cases to solve the problem statement.

Time Limit: 5.0 sec(s) for each input file
Memory Limit: 256 MB
Source Limit: 1024 KB
Marking Scheme: Score is assigned if any testcase passes
Allowed Languages: Bash, C, C++, C++14, C++17, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, Java 14, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Python 3.8, Racket, Ruby, Rust, Scala, Swift-4.1, Swift, TypeScript, Visual Basic

Activate Windows
Go to Settings to activate Wind

All Submissions

New Submission

Question 4

In OOP, which of these helps the compiler process objects differently based on their data type or class?

In Object-Oriented Programming, which of the following is used by the compiler process objects based on the data type or class?

- ● Inheritance

- ○ Polymorphism

- ○ Abstraction

- ○ Encapsulation

↺ Reset Answer

Activate Windows
Go to Settings to activate Windows

mohd faizan

Desktop   OneDrive

11:00 AM
9/25/2021

score: 100

Tara downloaded a movie on her laptop and want to share it with his friend. So she connects her friend's phone to the laptop and started copying it to the phone. While the movie was still transferring, suddenly due to low charging the laptop got shut down. After Backing it up the movie was not copied into her friend's phone and the movie file was safe on her laptop. She wanted to know why the data(Movie file) wasn't lost in the middle of a process. Which of the following statements will give Tara a better understanding of the situation?

- 6.0

- 2.0

Statements

1. Data stored on the buffer get lost during system crashes.
2. Data stored on the buffer does not get lost during system crashes.
3. Data stored on the disk get lost during disk crashes.
4. Data stored on the disk does not get lost during disk crashes.

- 6.0

- 2.0

1 and 3

1 and 4

- 4.0

10:17 AM
9/25/2021

mohd faizan

1. Data stored on the buffer get lost during system crashes.
2. Data stored on the buffer does not get lost during system crashes.
3. Data stored on the disk get lost during disk crashes.
4. Data stored on the disk does not get lost during disk crashes.

○ 1 and 3

○ 1 and 4

○ 2 and 3

○ 2 and 4

↺ Reset Answer

ns

movie on her laptop **+8.0**
t with his friend. So

wing algorithms **+2.0**
lement is found and

rking on Data **+6.0**
given a set of

se helps the **+2.0**
ects differently

named **+4.0**
ning columns

Question 2

Max. score: 2.00 ⊘

In which of the following algorithms first the maximum element is found and then placed at the end?

○ Heap Sort

○ Recursive Bubble Sort

○ Bubble Sort

○ None of these

↺ Reset Answer

Activate Windows
Go to Settings to activate Windows

Desktop ☁ OneDrive   📷 mohd faizan

10:17 AM
9/25/2021

Question 3

Max. score: 6.00 ?

Consider you are working on Data Structures. You are given a set of integers and your task is to partition the given set into two subsets such that the absolute difference of the sum of two subsets is minimum.

Example

The set of numbers is {1, 6, 8}

the possible Partitions are

{ 1 }, {6, 8} -> Sums are 1, 14 -> Absolute Difference is **13**

{ 6 }, {1, 8} -> Sums are 6, 9 -> Absolute Difference is **3**

{ 8 }, {1, 6} -> Sums are 8, 7 -> Absolute Difference is **1**

The minimum absolute difference after partitioning into 2 subsets is **1**.

So you have implemented a function **Min_Abs_Diff** that takes array **arr** of integers and n the total number of integers in the array as input and returns the minimum absolute difference of the sum of two subsets as output.

Pseudocode

```
FUNCTION Min_Abs_Diff( arr,  n)
    INT sum = 0
```

Pseudocode

```
FUNCTION Min_Abs_Diff( arr,  n)
        INT sum = 0
        FOR i -> 0 to n-1
                sum += arr[i]
        ENDFOR


        DECLARE dp = ARRAY[n+1][sum+1] of BOOL


        FOR i -> 0 to n
                dp[i][0] = TRUE
        ENDFOR


        FOR i -> 1 to sum
                dp[0][i] = FALSE
        ENDFOR
```

n her laptop − 6.0
s friend. So

gorithms + 2.0
s found and

Data + 6.0
et of

the + 2.0
erently

+ 4.0

umns

Total score: 100

ons

a movie on her laptop   + 6.0
it with his friend. So

lowing algorithms   + 2.0
element is found and

vorking on Data   + 6.0
given a set of

ese helps the   + 2.0
ojects differently

e named   + 4.0
aining columns

```
FOR i -> 1 to sum
        dp[0][i] = FALSE
ENDFOR


FOR i -> 1 to n
        FOR j -> 1 to sum
                dp[i][j] = dp[i-1][j]


            IF (arr[i-1] <= j)
                    dp[i][j] |= dp[i-1][j-arr[i-1]]
                ENDIF
        ENDFOR
ENDFOR


INT d = INT_MAX


FOR j -> X to 0                    // Line 22
    IF (dp[n][j] == TRUE)
            d = sum-Y              // Line 24
```

ice questions

nloaded a movie on her laptop + 6.0
to share it with his friend. So

of the following algorithms + 2.0
aximum element is found and

ou are working on Data + 6.0
You are given a set of

ch of these helps the + 2.0
cess objects differently

a table named + 4.0
b containing columns

In the above pseudocode what should be the values of X and Y at **Lines 22** and **24** such that the pseudocode always gives the correct output when executed?

○ X = sum*2, Y = j*2

○ X = sum*2, Y = j/2

○ X = sum/2, Y = j/2

○ X = sum/2, Y = j*2

↺ Reset Answer

End test

Desktop OneDrive mohd faizan

Total score: 100

tions

d a movie on her laptop   + 6.0
re it with his friend. So

ollowing algorithms   + 2.0
m element is found and

working on Data   + 6.0
e given a set of

hese helps the   + 2.0
bjects differently

le named   + 4.0
aining columns

Note :

1. **INT_MAX** is the maximum default value provided by the system
2. You need to consider all the elements i.e merging the 2 subsets should give the complete set of integers
3. Don't consider NULL subset i.e { }
4. The total number of elements in the set would be greater than 1

In the above pseudocode what should be the values of X and Y at **Lines 22** and **24** such that the pseudocode always gives the correct output when executed?

○ X = sum*2, Y = j*2

○ X = sum*2, Y = j/2

○ X = sum/2, Y = j/2

Desktop   OneDrive   mohd faizan

10:19 AM
9/25/2021

ma175587@gmail.com

End test

You are given a table named Members_club containing columns named as, member_name and member_ID. What will be the result of the following SQL query?

```
Select member_name from Members_club order by 2 desc;
```

○ The member_name of all the records will be displayed in the decreasing order of member_ID

○ The member_name of all the records will be displayed irrespective of the order

○ The member_name of all the records will be displayed in the decreasing order of member_name

○ An error will be displayed while executing the query

↻ Reset Answer

(Partial left-side panel, cut off)

ded a movie on her laptop
hare it with his friend. So

e following algorithms
um element is found and

re working on Data
are given a set of

of these helps the
s objects differently

table named
ontaining columns

e following information:

Total score: 100

n her laptop `+ 6.0`
friend. So

```
                        ENDFOR
                ENDFOR


                INT d = INT_MAX


                FOR j -> X to 0              // Line 22
                    IF (dp[n][j] == TRUE)
                            d = sum-Y            // Line 24
                            BREAK;
                    ENDIF
                ENDFOR


                RETURN d
```

orithms `+ 2.0`
found and

Data `+ 6.0`
t of

```
        ENDFUN
```

the `+ 2.0`
rently

`+ 4.0`

mns

Note :

1. **INT_MAX** is the maximum default value provided by the system
2. You need to consider all the elements i.e merging the 2 subsets should give the complete set of integers

Desktop OneDrive   mohd faizan

10:19 AM
9/25/2021

Question 6

Max. score: 4.00

You are given the following information:

1. P $ Q means P is the brother of Q
2. P # Q means P is the mother of Q
3. P * Q means P is the daughter of Q

Which of the following relationships directly implies that D is a father?

Relationships

1. A # B $ C * D

2. B * A $ C # D

3. C # B * A $ D

Left sidebar (partial):

wnloaded a movie on her laptop
nt to share it with his friend. So

of the following algorithms — · 2.0
maximum element is found and

you are working on Data — · 6.0
s. You are given a set of

hich of these helps the — · 2.0
rocess objects differently

en a table named — · 4.0
lub containing columns

n the following information: — · 4.0

Desktop · OneDrive · mohd faizan

01 :23 :19

wnloaded a movie on her laptop
nt to share it with his friend. So

of the following algorithms
maximum element is found and

you are working on Data
. You are given a set of

ich of these helps the
rocess objects differently

en a table named
ub containing columns

the following information:

1. A # B $ C * D

2. B * A $ C # D

3. C # B * A $ D

◯ 1

◯ 2

◯ 3

◯ None of these

↺ Reset Answer

Desktop   OneDrive   mohd faizan

10:20 AM
9/25/2021

4. In OOP, which of these helps the compiler process objects differently   `- 2.0`

5. You are given a table named Members_club containing columns   `- 4.0`

6. You are given the following information: `- 4.0`

7. In SQL, consider a table named Students. Which of these statements   `- 4.0`

8. Determine the output of the following Javascript code snippet.   `- 2.0`

Programming questions

`- 20.0`

Question 7

Max. score: 4.00 ⊘

In SQL, consider a table named **Students**. Which of these statements can be used to change the name 'Smith' into 'Jones' in the **LastName** column?

○ UPDATE Students SET LastName= 'Smith' INTO LastName= 'Jones';

○ MODIFY Students SET LastName= 'Jones' WHERE LastName= 'Smith';

○ MODIFY Students SET LastName= 'Smith' INTO LastName= 'Jones';

○ UPDATE Students SET LastName= 'Jones' WHERE LastName= 'Smith';

↺ Reset Answer

Activate Windows
Go to Settings to activate Windows

10 questions   Total score: 100

8 Multiple choice questions

1. Tara downloaded a movie on her laptop   + 6.0
   and want to share it with his friend. So

2. In which of the following algorithms   + 2.0
   first the maximum element is found and

3. Consider you are working on Data   + 6.0
   Structures. You are given a set of

4. In OOP, which of these helps the   + 2.0
   compiler process objects differently

5. You are given a table named   + 4.0
   Members_club containing columns

Question 4

Max. score: 2.00 ❓

In OOP, which of these helps the compiler process objects differently based on their data type or class?

In Object-Oriented Programming, which of the following is used by the compiler process objects based on the data type or class?

⭘ Inheritance

⭘ Polymorphism

⭘ Abstraction

⭘ Encapsulation

Activate Windows
Go to Settings to activate Windows

↺ Reset Answer

OOP, which of these helps the
mpiler process objects differently

`+ 2.0`

are given a table named
mbers_club containing columns

`+ 4.0`

are given the following information: `+ 4.0`

L, consider a table named
nts. Which of these statements

`+ 4.0`

mine the output of the following
cript code snippet.

`+ 2.0`

ng questions

`+ 20.0`

Question 8

Max. score: 2.00 ⦁

Determine the output of the following Javascript code snippet.

Code

```javascript
var hack = 5;
var hacker1 = [];
for (var h = 0; h < hack; h++);
{
    hacker1.push(h + 1);
}

console.log(hacker1);
```

Output

In OOP, which of these helps the
compiler process objects differently

+2.0

```
console.log(hacker1);
```

You are given a table named
Members_club containing columns

+4.0

Output

1. [6]

You are given the following information:

+4.0

2. [1, 2, 3, 4, 5]

n SQL, consider a table named
Students. Which of these statements

+4.0

3. [5]

○ 3

Determine the output of the following
avascript code snippet.

+2.0

○ 1

amming questions

○ 2

4. In OOP, which of these helps the compiler process objects differently   -2.0

5. You are given a table named Members_club containing columns   +4.0

6. You are given the following information: +4.0

7. In SQL, consider a table named Students. Which of these statements   +4.0

8. Determine the output of the following Javascript code snippet.   +2.0

1. [6]

2. [1, 2, 3, 4, 5]

3. [5]

○ 3

○ 1

○ 2

○ The code gives a compilation error

↺ Reset Answer