

Perse Coding Team Challenge



Round 1 Sample Paper

There are 10 questions with 40 minutes allowed.

In this sample paper, all 10 questions are worth three points. Later questions may be worth a slightly higher number of points in the real competition.

Practice submissions may be entered and tested here:

<https://www.hackerrank.com/contests/pctc-round-1-demo-questions/>

- Students will work in pairs on one shared computer (they may also take it solo if required)
- Each group will require a hackerrank login to make their submission. Hackerrank usernames should ideally be anonymised and can be set after sign-up. Hackerrank site conditions require 13+ for sign-up : some schools setup some team logins for the competition e.g. team1@schooldomain

Question 1

Say hello



Input two words (on two separate lines) The first word will be a greeting word such as Hello. The second word will a name such as Bob

Output a full greeting as a single line consisting of the greeting word, a space and then the name.

Input Format

Two separate lines each containing a single word

Constraints

All inputs will be less than 20 characters long

Output Format

A single line of text

Example Input

```
Hi  
Lucy
```

Example Output

```
Hi Lucy
```

Question 2



Find the difference

Input two positive whole numbers. Output the result of subtracting the smaller one from the larger one.

Input Format

Two lines of input each containing a positive whole number.

Constraints

- Input numbers will be between 0 and 1000 inclusive
- The two numbers will never be the same as each other

Output Format

A single positive whole number

Example Input

```
17
5
```

Example Output

```
12
```

Question 3

Grow the message



Input a single word.

Output this word repeated as many times as necessary (without spaces or line breaks) so that the length of the output is *greater* than 30 characters (with no more repeats than are needed)

Input Format

A single line containing a single word

Constraints

- The initial 'word' will be less than 50 characters long
- All 'words' will consist only of lowercase characters from the alphabet

Output Format

A single line of text with no spaces

Example Input

```
challenge
```

Example Output

```
challengechallengechallengechallenge
```

Example Explanation:

Challenge has 9 characters so it must be repeated four times before the output is first greater than 30 characters.

Question 4



From pseudocode

Convert the following pseudocode to run in your programming language. The pseudocode is not perfect and there is also a syntactical errors in it to spot & correct. The code is inputting a whole number between 1 and 100 inclusive and printing out *yes dream big* if it is greater than 50 and *on the small side* otherwise.

```
numberChoice <- USERINPUT
IF numberChoice > 50
  THEN
    OUTPUT "yes dream big"
  ELSE
    OUTPUT "on the small side"
ENDIF
```

Input Format

A single line containing a single positive whole number

Constraints

The whole number will be between 1 and 100 inclusive

Output Format

A single line of text

Example Input

```
76
```

Example Output

```
yes dream big
```

Question 5



Mini-calculator

is coding a simple calculator which inputs a whole number and then an operation and then another whole number and outputs the result. The operations he is supporting are only + and * so it will be one of these two. Write some code to implement his mini-calculator.

Input Format

Three lines of input, the first and third will be integers (whole numbers) and the middle one will be a single character, either + or *

Constraints

All inputs will be whole numbers between -100 and 100

Output Format

A single whole number giving the result of the requested calculation.

Example Input

```
-5
*
7
```

Example Output

```
-35
```

Question 6

How did I do?



Ellie took part in the 100m sprint at her school with four other competitors. Five names will be provided, one on each line, to indicate the finishing order with the first name coming 1st and the last name coming 5th. Ellie will be one of those names, written *exactly* as shown here. She would like to know what position she came: 1st/2nd/3rd/4th/5th.

Input Format

5 lines of input giving 5 names, one of which will be Ellie.

Constraints

-

Output Format

A single placement written as one of 1st/2nd/3rd/4th/5th to indicate Ellie's placement.

Example Input

```
Jack  
Amy  
Ellie  
Mary  
Rishvi
```

Example Output

```
3rd
```

Question 7



In order

Input two single uppercase characters (one on each line) and print them as a combined line of text in alphabetical order.

Input Format

Two lines of input, each as a single text character

Output Format

A single line of text consisting of two characters

Example Input

```
H  
D
```

Example Output

```
DH
```


Question 8



Watering can

Every day that Amy waters her plant the stem grows by one extra cm as represented here by a | character. The top of her plant is represented by \. / characters which includes a full-stop character in-between.

Input the number of days that she waters her plant for and output a character drawing of her plant after that many days. The diagram should use the full stop (.) as a background character to create a rectangular output of width 3 characters.

Input Format

A single positive whole number

Constraints

The input will be a positive integer between 1 and 100 inclusive.

Output Format

A character drawing of her plant using | \ / and . characters over multiple lines.

Example Input

```
3
```

Example Output

```
\. /  
. | .  
. | .  
. | .
```



Question 9

Text Dance

Jamie's text 'dance' instructions are given as a sequence of 4 characters. These are `<+&>`. The sequence repeats, so after the `>` move, next is the `<` move.

He wants a program to print out 8 dance moves, but starting at any character which will be given as input.

Input his first dance character and print out his completed two-cycle dance.

Input Format

A single character from one of `< + & >`

Output Format

A completed two-cycle text dance consisting of 8 characters on a single line of output.

Example Input

```
+
```

Example Output

```
+&><+&><
```

Question 10



Icecream milkshake mixer

Ellen's opinion of a valid (good) icecream milkshake has two portions of ice-cream (indicated by the character I), one portion of milk (M), three ice cubes (C) and one portion of whipped cream (W).

She just sticks it all in the blender and doesn't have the cream on top (a bit odd) so she doesn't mind what order she puts the ingredients in the blender. Input a string of SIX characters and output the missing character to state the ingredient that Ellen needs to add to make a valid icecream milkshare once blended.

Input Format

A single line consisting of six characters

Output Format

A single letter (character) either I,M C or W to indicate the missing ingredient needed to make a valid milkshake

Example Input

```
IMICWC
```

Example Output

```
C
```