

1) Email

Write a shell script which takes as input the name and surname of a person and creates an institutional email address of the form:

- First letter of the name – Surname - @epoka.edu.al

2) Email 2

Write a shell script which takes as input the name and surname of a person and creates an institutional email address and a temporary password.

Email:

- First letter of the name

- Surname (if not larger than 9 chars, otherwise just take first 9 chars) -
@epoka.edu.al

Password:

- Three last letters of the name capitalized

-#

- Three last letters of the surname in lowercase

3) Print in order

```
public class Foo {  
    public void first() { print("first"); }  
    public void second() { print("second"); }  
    public void third() { print("third"); }  
}
```

The same instance of `Foo` will be passed to three different threads. Thread A will call `first()`, thread B will call `second()`, and thread C will call `third()`. Design a mechanism and modify the program to ensure that `second()` is executed after `first()`, and `third()` is executed after `second()`

4) Building H2O

There are two kinds of threads: `oxygen` and `hydrogen`. Your goal is to group these threads to form water molecules.

There is a barrier where each thread has to wait until a complete molecule can be formed. Hydrogen and oxygen threads will be

given `releaseHydrogen` and `releaseOxygen` methods respectively, which will allow them to pass the barrier. These threads should pass the barrier in groups of three, and they must immediately bond with each other to form a water molecule. You must guarantee that all the threads from one molecule bond before any other threads from the next molecule do

In other words:

- If an oxygen thread arrives at the barrier when no hydrogen threads are present, it must wait for two hydrogen threads.

- If a hydrogen thread arrives at the barrier when no other threads are present, it must wait for an oxygen thread and another hydrogen thread.

We do not have to worry about matching the threads up explicitly; the threads do not necessarily know which other threads they are paired up with. The key is that threads pass the barriers in complete sets; thus, if we examine the sequence of threads that bind and divide them into groups of three, each group should contain one oxygen and two hydrogen threads.

Write synchronization code for oxygen and hydrogen molecules that enforces these constraints.

Example 1:

Input: water = "HOH"

Output: "HHO"

Explanation: "HOH" and "OHH" are also valid answers.

Example 2:

Input: water = "OOHHHH"

Output: "HHOHHO"

Explanation: "HOHHHO", "OHHHHO", "HHOHOH", "HOHHOH", "OHHHOH", "HHOOHH", "HOHOHH" and "OHHOHH" are also valid answers.