Problem 1:

Assume `s` is a string of lower case characters.

Write a program that counts up the number of vowels contained in the string `s`. Valid vowels are: `'a'`, `'e'`, `'i'`, `'o'`, and `'u'`. For example, if `s = 'azcbobobegghakl'`, your program should print:

```
Number of vowels: 5
```

Problem 2:

Assume `s` is a string of lower case characters.

Write a program that prints the number of times the string `'bob'` occurs in `s`. For example, if `s = 'azcbobobegghakl'`, then your program should print

```
Number of times bob occurs is: 2
```

Problem 3:

Assume `s` is a string of lower case characters.

Write a program that prints the longest substring of `s` in which the letters occur in alphabetical order. For example, if `s = 'azcbobobegghakl'`, then your program should print

```
Longest substring in alphabetical order is: beggh
```

In the case of ties, print the first substring. For example, if `s = 'abcbcd'`, then your program should print

```
Longest substring in alphabetical order is: abc
```

Note: This problem may be challenging. We encourage you to work smart. If you've spent more than a few hours on this problem, we suggest that you move on to a different part of the course. If you have time, come back to this problem after you've had a break and cleared your head.