Programming Assignment 2-8

Write a program that asks the user to enter a String. The program then writes to console all substrings of this `String`. (By "substring", we mean any sequence of characters that occur consecutively and in the same order in the given `String`. Therefore, "erg" is a substring of "energy", but "gre" and "eng" are not. Note that the empty string "" is considered a substring of every string.)

Note: You will need to make sure that you do not output the same substring twice. For instance, if the user types in "abbab", you might accidentally output the String "ab" twice, since it occurs in two places in this String.

Here is typical output:

```
Type in a string: what
Substrings of length 0
  []
Substrings of length 1
  [w]
  [h]
  [a]
  [t]
Substrings of length 2
  [wh]
  [ha]
  [at]
Substrings of length 3
  [wha]
  [hat]
Substrings of length 4
  [what]
```