Fundamentals of Computer Programming
Lab 8
Strings & Classes

I) String Class

Text book： "Y. Daniel Liang, Introduction to Programming with C++, Pearson Educational Limited 2014"

Problems

10.1) (Anagrams)

10.3) (Bioinformatics: find genes)

10.5) (Check palindrome)

10.8) (Financial application: monetary units)

II) Classes

Problems

10.10) (The MyInteger class)

10.13) (Geometry: n-sided regular polygon)

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(Ducks in the swimming pool) design a class named ducks that contains the following:

- A float data field called area
- A float data field called diameter
- A no-arg constructor that sets diameter to zero as default
- A constructor that creates an object with a specific diameter.
- A static float function called gettotalarea(); that calculates the total area covered in the pool with ducks
- A setter that takes diameter from user , float set_diameter(float diam);
- A private data field to store the total area static float totalarea;

You have 100 ducks with different sizes assuming the area covered with each dick will be considered as a circle. You are required to place them one by one and whenever the pool is full you should stop placing them, And know the number of ducks inside.

Each duck will be an object with a unique diameter. and you need to use a static member to count total area covered with ducks.

You will ask the user about them one by one when there is still a place print "**there is a space for another Duck**" and ask for the radius for the new duck object.
When the pool is full print "**No other one could be added there are already x ducks inside the pool**"

```
there is a space for another Duck
diameter : 11                                   34.54
there is a space for another Duck
diameter : 11                                   69.08
there is a space for another Duck
diameter : 9                                    97.34
there is a space for another Duck
diameter : 2                                    103.62
No other one could be added there are already  3 ducks inside the pool
```