

Homework-2

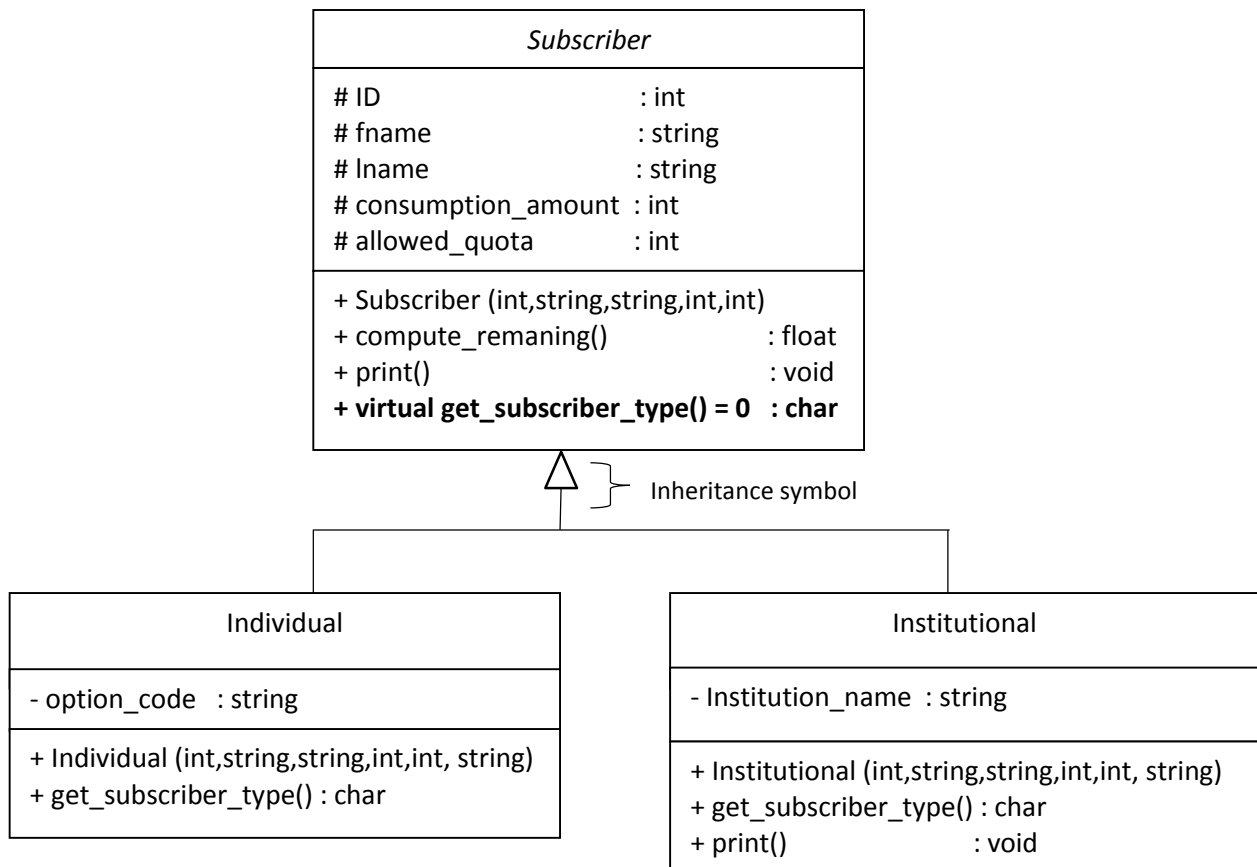
Assignment Date : 10.11.2015 Due Date : 01.12.2015 at 18:00
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You are given a text file called “**SUBSCRIBERS.TXT**” which contains information about subscribers of a telecom company. Each row in file consists of the following information:

- Type of subscriber
 - S : Institutional
 - IT : Individual - Trial
 - IN : Individual - Normal
 - IP : Individual - Premium
- ID (Identification number) of subscriber
- First name and Last name of subscriber
- Consumption amount of subscriber
- Institution name (only for those whose type is S)

Write the C++ classes whose inheritance hierarchies are shown in the following UML class diagram.

Meanings of access symbols: - private, # protected , + public.



IMPORTANT: The base class **Subscriber** must be an abstract base class.
 Its **get_subscriber_type** function must be pure virtual.

The **get_subscriber_type** functions in each derived class should return a relevant string:

S : Institutional

IT : Individual - Trial

IN : Individual - Normal

IP : Individual - Premium

Option codes in the **Individual** class are:

T : Trial, N : Normal, P : Premium

The constructor functions (parametered) in derived classes should initialize the data members. Allowed quota should be initialized by each class constructors according to the following table.

Type of subscriber	Allowed quota
Institutional	5000
Individual - Trial	100
Individual - Normal	400
Individual - Premium	2000

The **compute_remaning** function in Subscriber class should calculate the remaing amount of the subscriber: (Allowed Quota minus Consumption Amount).

The **print** function in Subscriber class should print following information:

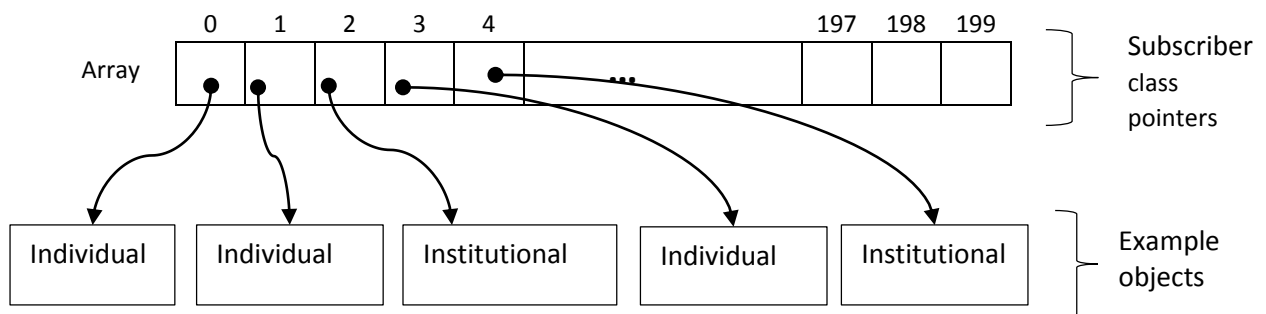
- ID of subscriber
- First and Last name of subscriber
- Remaining amount of subscriber

MAIN PROGRAM

In main program, declare an array of pointers for base class Subscriber (maximum of 200 elements).

Read records from the “**SUBSCRIBERS.TXT**” file and dynamically allocate a relevant object based on the type of subscriber, by invoking constructors with parameters that was read from the file.

The pointer array will be a **polymorphic array** which will store memory addresses of different types of Subscriber objects. The following figure shows an example of the objects involved.



All dynamically allocated objects should be deleted from memory, at the end of main program.

SCREEN OUTPUT

Your program should print the student number, first name, and last name of students as separate groups.

List of Institutional Subscribers:

ID	FirstName	LastName	InstitutionName	RemainingAmount
111	Aaaa	Bbbb	Cccc	11
...				

List of Individual-Trial Subscribers:

ID	FirstName	LastName	RemainingAmount
222	Dddd	Eeee	22
...			
...			

List of Individual-Normal Subscribers:

...

...

List of Individual-Premium Subscribers:

...

...