

## Lab 5.3.4 Gym membership management system

### Objectives

Familiarize the student with:

- modelling real-world entities with classes and objects;
- limiting acceptable input range;
- managing multiple objects.

### Scenario

After working on our flight-booking system, you should have a grasp of basic object-oriented programming.

Now let's revisit the material and create a similar system from scratch!

Build a program that will manage gym member subscriptions.

The data we're going to store about each member is going to be:

- their user ID;
- their name;
- for how many months their membership is valid.

Our program should allow the following commands:

- the command "create [id] [name]" will try to create a new member with ID [id], name [name] and 0 months of subscription;
- the command "delete [id]" will try to remove the member with ID [id];
- the command "extend [id] [n]" will try to extend the membership number of months of the member by [n];
- the command "cancel [id]" will try to set the number of months of subscription to 0 of the member with the ID [id];
- if an operation fails for any reason, the program will issue the message "Cannot perform this operation". You can add a more helpful message to identify why the operation failed;
- the command "quit" will stop the execution of the program.

For the sake of simplicity, let's limit the maximum number of members handled to ten.

As a convention, we can assume that 0 is not a valid member ID, so a member with an ID of 0 may be considered as nonexistent.

### Example input

```
create 7 John Doe
create 8 Jane Doe
extend 7 6
extend 8 12
cancel 8
delete 7
quit
```

User prompts were omitted in the output

### Example output

No members in the system

Member 7 : John Doe, subscription valid for 0 months

Member 7 : John Doe, subscription valid for 0 months

Member 8 : Jane Doe, subscription valid for 0 months

Member 7 : John Doe, subscription valid for 6 months

Member 8 : Jane Doe, subscription valid for 12 months

Member 7 : John Doe, subscription valid for 6 months

Member 8 : Jane Doe, subscription valid for 0 months

Member 8 : Jane Doe, subscription valid for 0 months