

Project gym management system

Introduction to the project:

Nowadays gyms are essential for everyone, to combats diseases, keep in good shape or even to lift the mood and improve sleeping! And we all can see its effect on our society since it's an unneglectable part of everyone's routine.

This gym management system was designed using object-oriented programming by applying all its concepts!

The system was made to deal with both the trainers and members. to manage the trainers' affairs, to help members in bookings, and to assist the new clients to join by taking their personal information, the clients have different packages to choose from, they differ in features, some of them offer a dietary plan and give access to different number of sports. Each sport has a maximum number of trainees, only one trainer, fixed durations. every trainer can train 1or 3 (at most) sports.

All to achieve the institution's goals with no mistakes

How can the user use this program?

First of all, our program will display to the user a menu consist of a services in our gym

```
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
```

Firstly, the First choice "You are an old member" it for pre-registered members that means if the user has a pre-subscription in one of our packages in the gym she can selected then it will display a specific services as it shown bellow

```
Choose the service
1-Enquiry
2-change email
3-change phone number
4-subscription renew
5-cancel membership
```

After the user select one of them the program will ask the user to entered its id to make her able to modify her data which always appear after the user create its membership.

First choice "Enquiry " it to inquire about the beginning and end of a user subscription to one of the packages in our gym

The second choice "change an email" it to change the attribute email address that the user has to another email address.

The third choice "change phone number" it to change the attribute phone number that the user has to another phone number.

The fourth choice "subscription renew" it to subscription renew to any of available packages

In this choice the program will display to the user all available packages and their characteristics to choose one of them then it will get a subscription to one of them available packages as shown bellow:

```
Menu of Packages:
1- Golden Package, duration: 12 month, price: 3000.0 SR
Available Diets:
AtkinsDiet, How it works: It focuses on controlling the levels of insulin, by avoiding carbohydrates and eating as much protein and fat as you like.
Vegetarian diet, How it works: A Vegetarian should cut animal-based foods, except for eggs, dairy, and honey.
Vegan diet, How it works: A vegan does not eat anything that is animal-based, including eggs, dairy, and honey.
gluten-free diet, How it works: A gluten-free diet excludes any foods that contain gluten, which is a protein found in wheat and several other grains.
balanced diet, How it works: balanced diet is a diet that contains differing kinds of foods in certain quantities and proportions so that the requirement for calories, proteins,
Available workouts:
- class: Cardio, classDuration: 30, Trainer: Maram, Number phone: 0555501234, Id: 100, Email: maram1@gmail.com
- class: Zumba, classDuration: 60, Trainer: esraa, Number phone: 0519372973, Id: 101, Email: esraas@gmail.com
- class: Pilates, classDuration: 50, Trainer: rafiaa, Number phone: 0551937503, Id: 102, Email: rafiaa_02@gmail.com
- class: Boot Camp, classDuration: 60, Trainer: raghad, Number phone: 0559255570, Id: 103, Email: raghad2@gmail.com
- class: Spinning, classDuration: 40, Trainer: ahlam, Number phone: 0599958326, Id: 104, Email: ahlam00@gmail.com
- class: CrossFit, classDuration: 30, Trainer: sara, Number phone: 0599913329, Id: 105, Email: sara_3@gmail.com
- class: Boxing, classDuration: 60, Trainer: dana, Number phone: 0594413000, Id: 106, Email: dana@gmail.com
- class: Weightlifting, classDuration: 50, Trainer: areej, Number phone: 0588837503, Id: 107, Email: areejk@gmail.com
.....
2- Popular Package, duration: 6 month, price: 1600.0 SR
Available Diets:
AtkinsDiet, How it works: It focuses on controlling the levels of insulin, by avoiding carbohydrates and eating as much protein and fat as you like.
Vegetarian diet, How it works: A Vegetarian should cut animal-based foods, except for eggs, dairy, and honey.
balanced diet, How it works: balanced diet is a diet that contains differing kinds of foods in certain quantities and proportions so that the requirement for calories, proteins,
Available workouts:
- class: Cardio, classDuration: 30, Trainer: Maram, Number phone: 0555501234, Id: 100, Email: maram1@gmail.com
- class: Pilates, classDuration: 50, Trainer: rafiaa, Number phone: 0551937503, Id: 102, Email: rafiaa_02@gmail.com
- class: Zumba, classDuration: 60, Trainer: esraa, Number phone: 0519372973, Id: 101, Email: esraas@gmail.com
- class: Spinning, classDuration: 40, Trainer: ahlam, Number phone: 0599958326, Id: 104, Email: ahlam00@gmail.com
- class: Weightlifting, classDuration: 50, Trainer: areej, Number phone: 0588837503, Id: 107, Email: areejk@gmail.com
.....
3- Standard package, duration: 3 month, price: 900.0 SR
Available Diets:
personal selection, How it works: Depends on your own preferences
Available workouts:
- class: Cardio, classDuration: 30, Trainer: Maram, Number phone: 0555501234, Id: 100, Email: maram1@gmail.com
- class: Pilates, classDuration: 50, Trainer: rafiaa, Number phone: 0551937503, Id: 102, Email: rafiaa_02@gmail.com
- class: Weightlifting, classDuration: 50, Trainer: areej, Number phone: 0588837503, Id: 107, Email: areejk@gmail.com
.....
```

Fifth choice "cancel membership" this choice will terminate the member's subscription in our gym.

Secondly, now we will explain how a member can register with us in our gym so that he can then, if he wants to change his data, as we explained that above From the menu of all services that will appear when the program running (as I showed at the beginning) the user must select second choice" **You are a new member** " then the program will request from the user set of information to insert it correctly then it will save its information,,, as shown bellow

```
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 2
Enter your name:esra
Enter your age:45
Enter your phone number :0581119796
Enter your email address in the right format (xxxx@xxxx.com)esro@gmail.com
Enter your weight :45
Enter your height :145
```

after the user entered its data correctly the program will display the menu of all available packages (as I showed it before) to select just one of them then it will get a membership in one of them in our gym

After the user finished from enter its information and select which package she wants, the program will display to the user its own information and its id can use it to change its information as she wants

, As show bellow

```

.....
Please enter your choice of these packages that you want to get: 2
You got this package : Popular Package, duration: 6 month, price: 1600.0 SR
Your information :Name: esra, Id: 1, Email: esra@gmail.com,number Phone: 0581119796, age: 45 weight: 45.0, length: 145.0

```

Thirdly, the third choice from the menu "You are a trainer"

Method isTrainer offers us some trainer services that we will learn about, At the beginning, a welcome sentence appears to the trainer, which is "hello trainer" It also asks for the trainer's ID number to make sure of her membership in the gym and so that she can benefit from the services, The ID is confined to a specific area between 100-107 ($Id > 99 \ \&\& \ Id < 108$)

```

run:
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 107
Do you want display that you have today? please answer with yes or no: |

```

Here we entered the **ID number that exists** for one of the trainers, then Immediately after that, a message appeared "Do you want a display that you have today, please answer with yes or no "

```

***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 108
couldn't find your ID

```

Here we entered a **non-existent ID number** for one of the trainers, so a message appeared "couldn't find ID"

If the trainer entered the correct ID number, we ask her "Do you want display that you have today, please answer with yes or no "

```

***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: yes
hi Raghad today you have following workout .....BootCamp

```

If the trainer answers **yes or YES or Yes**, we welcome her and show her today's training

```

-
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: no
you can follow your work , good luck and have a nice day

```

If she answers no or NO or No, she can follow her work and we wish her a nice day "you can follow your work, good luck, and have a nice day"

```

4.4.11.
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: rrrr
what do you mean by rrrr , please anwser "yes" or "no"
try again
rrrr
what do you mean by rrrr , please anwser "yes" or "no"
try again
no
you can follow your work , good luck and have a nice day

```

When not answering yes or no, he gives the trainer attempts to give an honest answer "yes or no"

```

-
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: yes
hi Raghad today you have following workout .....BootCamp
Do you want to update your information ?

```

After she finishes answering the first question, we show her the second question about whether she wants to update her information or not, and this is the second service found in this method

The same thing here. She must answer yes or no. Otherwise, we give her attempts until she gives an explicit answer

```

run:
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: yes
hi Raghad today you have following workout .....BootCamp
Do you want to update your information ? yes
Enter number "1" to change your number phone
Enter number "2" to change your Email
Your choice:|

```

If the answer is yes, The list of things that can be updated will appear

```

run:
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: yes
hi Raghad today you have following workout .....BootCamp
Do you want to update your information ? no
your information will remain the same

```

if the answer is no, the message will appear "your information will remain the same"

```

your information will remain the same
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes
hi Raghad today you have following workout .....BootCamp
Do you want to update your information ? rrrr
what do you mean by rrrr please anwser "yes" or "no"
try again
rrrr
what do you mean by rrrrr please anwser "yes" or "no"
try again
rrrr
what do you mean by rrrrr please anwser "yes" or "no"
try again
no
your information will remain the same
*****

```

Otherwise, we give her attempts until she gives an explicit answer of yes or no

```

run:
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: yes
hi Raghad today you have following workout .....BootCamp
Do you want to update your information ? yes
Enter number "1" to change your number phone
Enter number "2" to change your Email
Your choice:|

```

As we saw at the beginning when the trainer answered yes that she wants to update her information, two options will appear for her, the first is to update the phone number, and the second is to update the email

If she chooses number 1, she can update the phone number, but choose 2 to update the email, or otherwise, she can try again until she gets hit

```

***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: yes
hi Raghad today you have following workout .....BootCamp
Do you want to update your information ? yes
Enter number "1" to change your number phone
Enter number "2" to change your Email
Your choice:1
Now you can change your number phone .
please enter your new number:

```

Case 1

```

***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: yes
hi Raghad today you have following workout .....BootCamp
Do you want to update your information ? yes
Enter number "1" to change your number phone
Enter number "2" to change your Email
Your choice:2
now you can update your email:
Enter new Email: |

```

Case 2

```

***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: yes
hi Raghad today you have following workout .....BootCamp
Do you want to update your information ? yes
Enter number "1" to change your number phone
Enter number "2" to change your Email
Your choice:3
this options is unavailable , Please try again
Your choice:3
this options is unavailable , Please try again
Your choice:3
this options is unavailable , Please try again
Your choice:1
Now you can change your number phone .
please enter your new number:
|

```

In this case, when I entered an undirected number, attempts were given until entering the number 1 or 2 by printing the default message **"this option unavailable, please try again"**

```

System.out.println(" please enter your new number: ");
newNumberPhone = input.next();
if (newNumberPhone.length() == 10) {

```

Well, first, we would like more details when updating the number. First, the phone number is usually required to be 10 digits, and we also set it to a string type, so we stipulated that this condition be at the beginning

```

int number = Integer.parseInt(newNumberPhone);
update.setNumberPhone(newNumberPhone);
System.out.println("the new number phone is : " + update.numberPhone);

```

class to wrapper Method parseInt After making sure that it is 10 numbers, we used the convert it from string to integer, Then it will be print by a numberPhone attribute

```

run:
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: yes
hi Raghad today you have following workout .....BootCamp
Do you want to update your information ? yes
Enter number "1" to change your number phone
Enter number "2" to change your Email
Your choice:1
Now you can change your number phone .
please enter your new number:
050
it is not ten numbers
the number is entered incorrect , do you want try again ?
please answer yes or no
|

```

We used if else. When she entered the missing number, a message appeared to her, which is "is not ten number" We are also allowed to give attempts until you enter a valid number phone contain ten int

```

System.out.println(" please enter your new number: ");
newNumberPhone = input.next();
if (newNumberPhone.length() == 10) {
    /*We set a condition in the beginning that this String be made up of 10 numbers,
    actly, the else message will appear to the trainer
    */
    int number = Integer.parseInt(newNumberPhone);
    update.setNumberPhone(newNumberPhone);
    System.out.println("the new number phone is : " + update.numberPhone);
    ask = false;
    //we use parseInt from wrapper class to convert the number phone from String to int
} else {
    System.out.println("it is not ten numbers ");
    System.out.println(" the number is entered incorrect , do you want try again ? ");
    System.out.println("please answer yes or no ");
    a = input.next();
    ask = "yes".equalsIgnoreCase(a) || "Yes".equalsIgnoreCase(a);
}

```

```

***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 3
hello trianer
please , Enter your ID to check: 103
Do you want display that you have today? please answer with yes or no: yes
hi Raghad today you have following workout .....BootCamp
Do you want to update your information ? yes
Enter number "1" to change your number phone
Enter number "2" to change your Email
Your choice:1
Now you can change your number phone .
please enter your new number:
050228590t
wrong number phone
the number is entered incorrect , do you want try again ?
please answer yes or no

```

Here, when the trainer entered 10 entries, but not all of them are numbers, the catch message appeared

```
} catch (NumberFormatException ex) {  
    //If the trainer enters trainer containing 10 inputs, but enters one or more alphabetic characters catch message  
    // will appear  
    System.out.println("wrong number phone");  
    System.out.println(" the number is entered incorrect , do you want try again ? ");  
    System.out.println("please answer yes or no ");  
    a = input.next();  
    ask = "yes".equalsIgnoreCase(a) || "Yes".equals(a);  
}
```

We notice in both cases the Catch and else. When the trainer entered a number that did not meet the requirements, we gave her a try after asking her about her desire to re-enter again.

```
***** Hello, Welcome to the gym *****  
Please enter your choice of these numbers:  
1-You are an old member  
2-You are a new member  
3-You are a trainer  
4-Exit  
Your choice : 3  
hello trianer  
please , Enter your ID to check: 103  
Do you want display that you have today? please answer with yes or no: yes  
hi Raghad today you have following workout .....BootCamp  
Do you want to update your information ? yes  
Enter number "1" to change your number phone  
Enter number "2" to change your Email  
Your choice:1  
Now you can change your number phone .  
please enter your new number:  
0502285804  
the new number phone is : 0502285804  
.....
```

Here the trainer entered a valid number that meets the requirements

```
***** Hello, Welcome to the gym *****  
Please enter your choice of these numbers:  
1-You are an old member  
2-You are a new member  
3-You are a trainer  
4-Exit  
Your choice : 3  
hello trianer  
please , Enter your ID to check: 103  
Do you want display that you have today? please answer with yes or no: yes  
hi Raghad today you have following workout .....BootCamp  
Do you want to update your information ? yes  
Enter number "1" to change your number phone  
Enter number "2" to change your Email  
Your choice:2  
now you can update your email:  
Enter new Email: raghdffg  
the Email is entered incorrect , do you want try again ?  
please answer yes or no  
yes  
Enter new Email: ragh@kk  
the Email is entered incorrect , do you want try again ?  
please answer yes or no  
yes  
Enter new Email: raghad@gmail.com  
the new Email is ; raghad@gmail.com
```

The second option is to change the email, and we stipulated that it be @gmail.com. When the trainer enters incorrect formats for emails or numbers, we give her attempts repeatedly until she answers no.


```

do {
    System.out.print("Enter new Email: ");
    String newEmail = input.next();

    if (newEmail.indexOf(x) + x.length() == newEmail.length()) {
        update.setEmail(newEmail);
        System.out.println("the new Email is ; " + update.email);
        continuel = false;
    } else {
        System.out.println(" the Email is entered incorrect , do you want try again ? ");
        System.out.println("please answer yes or no ");
        a = input.next();
        continuel = "yes".equalsIgnoreCase(a) || "Yes".equals(a);
    }
} while (continuel);
break;

```

Finally, the fourth choice from the menu "Exit"

Our program will keep running that show the menu to make the user able to select the service that he wants but when the user selects this choice the program will stop
As shown bellow

```

Please enter your choice of these packages what you want to give
You got this package : Golden Package, duration: 12 month, price: 3000.0 SR
Your information :health Status: good, weight: 54.0, length: 158.0, age: 19,number Phone: 0581119796,name: esra, email: esro.155@gmail.com, id: 1
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 4
BUILD SUCCESSFUL (total time: 10 minutes 20 seconds)

```

Some cases that the user should be aware of and avoid:

The user must enter a correct data as it is required first of all she must select one of numbers that it shown otherwise the program will keep asking the user to enter correct choice.

case1

```
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 7
Error :you only need to enter a number represent one of these services
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : |
```

Case2

If the user does not have yet pre-registered members, then she selects first choice "you are old member" which for pre-registered members then the program will show as that bellow, so the user must go to create its membership

```
***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 1
Choose the service
1-Enquiry
2-change email
3-change phone number
4-subscription renew
5-cancel membership
Your choice: 1
Enter your ID: 1
you did not have a membership in our gym yet !!! ,First join to our gym by choosing the second choice from the menu to create your membership in our Gym
```

Case3

If the user select second choice to create its membership in our gym and it does not entered correct data then then the program will keep to ask user again to entered correct data, as show that bellow

```

***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 2
Enter your name:esra
invalid name , you have to insert only alphapet letters
Enter your name:esra
Enter your age:19
Enter your phone number :04000
invalid number , please enter numberPhone with 10 digits without any characters and only consist digits from 0 to 9 , Try again please!
Enter your phone number :0581119796
Enter your email address in the right format (xxxx@xxxx.com) ee22
invalid email , you have to insert correct format of email
Enter your email address in the right format (xxxx@xxxx.com) esro.155@gmail.com
Enter your weight :2
Please enter the weight correctly
Enter your weight :54
Enter your height :-1
Please enter the length correctly
Enter your height :158
Enter your health status: 11
Please enter the healthStatus correctly , like good - bad
Enter your health status: good

```

Case4:

If the age of the user less than 18 then it will not allow to enter to our gym as show that bellow

```

***** Hello, Welcome to the gym *****
Please enter your choice of these numbers:
1-You are an old member
2-You are a new member
3-You are a trainer
4-Exit
Your choice : 2
Enter your name:esra
Enter your age:17
Sorry your age not allowed to enter our gym , Age allwerd to enter should be between 18 to 60

```

Description of methods in driver class:

Method NewMember: it is instance method that adding the new members to the gym by creating object from class member then receive the require information from the user and validate it in setter methods and by using try-catches then after the user entered correct information , our program will display menu of all available packages that the member can choice it by calling static method menu and , at the end our program will save the id of the member in the array list of id that for the members and will add the new member object to the array of type members that we constructed in the driver class.

Method Exit: It is static method terminate the loop in the main method, this method receives from the main true or false when we want to terminate the loop in the main then the program will terminate.

Method Menu:

It is static method displays the information of all the packages in our gym to the user to make it chose one from it to subscribe to it

Methos

Method isTrainer:

This method updates the trainer's data after making sure that he is already a trainer in gym by entering his ID number, If the ID number already exists, several options will appear for her including displaying the workouts she has today and updating his number phone or email, but if the ID is outside the specified range the program will print a message to the trainer that we could not find the number entered, We ask the trainer about her desire to display the workouts she has today, If her answer is yes the workout she is doing today will appear to her according to the ID number she entered previously, But if the answer is no, another message will appear, and if her answer is not yes or no, then it will have many attempts until a yes or no answer is entered We used the while loop, Then we ask the trainer if she wants to update her information , If her answer is yes the options will appear If she chooses the number 1 or number 2 and here used switch – case it will enable her to update her phone number We used in this option parseInt method from wrapper class and NumberFormatException and object from Trainer class to update the number phone in setNumberPhone, If she chooses the number 2, the second option appears for her, which is to update her email and used if - else and object from Trainer class, check from entered string if has "@gmail.com" update new Email in setEmail else another message will appear, If the trainer enters the wrong phone number or the wrong email we give her attempts to enter the correct number by using two different loops.

Method EditingData:

instance method that Editing stored member data by using the saved ID number in the ArrayList The user must enter the ID if he is a member of the gym and can edit the data, otherwise he cannot

It shows the following services:

- 1-Enquiry
- 2-change email
- 3-change phone number
- 4-subscription renew
- 5-cancel membership

The user must choose the service number Otherwise, a sentence will shows the phrase "Incorrect choice! Please enter one of these services. try again!"

if he chooses the number' 1':

It shows the subscription start date and subscription end date.

if he chooses the number' 2':

It allows the user to change the old email and he must enter the email in the form (xxxx@xxxx.com) otherwise the new email will not be saved and the phrase will appear:

"invalid email , you have to insert correct format of email like ,xxxx@xxxx.com "

if he chooses the number'3':

It allows the user to change the old phone number and he must enter the phone number All digits of the mobile number consist of 10 and do not contain any letter, otherwise the new phone number will not be saved and the phrase will appear:

" invalid number , please enter number Phone with 10 digits without any characters and only consist digits from 0 to 9 , Try again please! "

if he chooses the number'4':

calling method menu() to display all available packages

if he chooses the number'5':

Deleting the user's ID from the Arraylist by using method delete() .

Description of methods in the classes of a program:

Class Trainer

The Trainer class, inherited from the Person class, saves the Trainers ID of each Trainer in our gym as a Trainer When creating an object from a Trainer class, the

Trainer ID number begins to be given to the counter, and it increases by one each time we create an object from the Trainer class.

Class Trainer Methods:

equals(Object:o): override method return whether two objects have the same id true.

toString(): override method return represents information about objects of class Trainer.

Class Diets

This class made to create dietary plan, and it has the diet name (dietName) and diet description (dietDescription) as an attribute, both are of type String.

Class diets also has two constructors, the first one is not a parametrized constructor and the second one has the name and the description as parameters.

Class diets Methods:

toString()

returns an informative sentence that has the diet name and description

Setters/

setDietName(String:name)

void method that takes the name as a parameter

setDietDescription(String:description)

void method that takes the description as a parameter

getters/

getDietName()

method that returns the diet name

getDietDescription()

method that returns the diet description

Class Workouts

This class is responsible for the workouts that the trainer will train, the workouts the class implements from the interface Editor, and it has a relationship aggregation with the class trainer

attributes:

trainerObj is an object from the Trainer class

classDuration is an int attribute storing the duration for each workout

className is a String attribute storing the name of the workout

All of these attributes are private in order to achieve the encapsulation

Methods we have 3 constructors the first constructor is the

default constructor: means is It does not have any attributes

second constructor: it had two attributes class_duration and class_name, and the

third constructor: had three attributes object from the class trainer and class_duration and class_name

then we have a getter and setter for each attribute because all attributes are private :

getClassDuration : for access to classDuration

getCalssName :for access to className

getTrainerObj : for access to TrainerObj

setClassDuration : to update the classDuration

setClassNmae : to update the className

setTrainerObj : to update TrainerObj

we have method **equals** is returned Boolean to compare between instance attribute classNmae and obj.className(It is the same parameter that the Method receives)

Class Packages

The Packages class to create packages that contain information, the list Workouts (listWorkout), the Package name (namePackage), the Package duration (durationPackage), and the Package price (pricePackage), and the Diet Available (Diet_Available) as an attributes, of each package in our gym as a Package When creating an object from a Packages class. Class Packages also have two constructors, the first one is not a parameterized constructor and the second one has the name Package and the duration Package, and the price Package as parameters.

Class Packages Methods:

Setters :

setName(String: name_package): setters the Package name attribute

setDuration (int: duration_package): setters the Package duration attribute, but the must Package duration positive integer.

setPrice (double: price_package): setters the Package price attribute

setDiet (Diets: type_diet): setters the Array List Diet_Available attribute

setWorkout (Workouts: workout): setters the Array List list Workout attribute

getters:

getName():method that return the name of package

getDuration():method that return the duration of package

getDiet(): method it returns the list of the Diet Available in the package

getWorkout (): method it returns the list of the Workout of package

priceOfSubscription():method that return the price of package

toString():represent information about objects from class Packages

print_dietsWorkouts():method represents print information about Available Diets and Available workouts

clone(): method copies the package information including Package duration and Package name and Package price and list Workout and Diet Available return Object p

interface Editor

it is an interface have collection of abstract method using it by abstract class Person and class Workout, it provides methods working on the ArrayList which we have in Person and Workout to manipulate on its the data

methods:

add(Long :objName): it is abstract instance method receive the id to add members or workout in class Workout according to their id

delete(Long :obj): it method receive the id of person(mean member object or trainer object or workouts) to remove it from the list of members or trainers or workouts

getList(): instance method it return the list of person or workouts that we have in our gym.

search(Long :obj): it is instance method receive object of type Long which represent the id of person or workouts to search about its position in the list

class Person

it is abstract class implements interface Editor, this class have the common and standard information to use for objects from class member or for objects from class trainer

like name, id, number phone, email, listPepole.

All information is protected and have methods which provide the functionality and it deal with the data

this information used to handle with the process of make a subscribe of any member in our gym and to save the information of our trainers and to be able to edit the list of people we will make it from them

Methods class Person:

getNumberPhone(): instance method that return the numberPhone

setNumberPhone(String numberPhone): it instance method that set the entered NumberPhone from the user . this method receives numberPhone of person which may be member object or trainer object and it use method mathes from String class to see if the entered number matches the regular format of number which i create it `\\d {10}` this character mean it allowed string represent number consist only digits from 0 to 9 and it must be with 10 digits not more or less than it. if the number consists other than digits from 0 to 9 it will cause an exception of type `NumberFormatException` so there is message that will appear when the exception occur, in this method there is exceptions declared by using `throw` keyword and put the name of possible exceptions that may be occur by using `throws` keyword that handling with this possible exception will be in the main by using try-catch blocks

getName(): instance method that return the name of person

setName(String name): instance method that set the enterd name from the user this method receive name of person which may be member object or trainer object , it will using loop to throw over the indices of name by using method `charAt(0)` to check if any of indices have other than letters then will cause an exciption of type `NumberFormatException` else than this will mean there is no character in each index of the string have other than letters and then the enterd name will saved in the attribute (name).

In this method there is exceptions declared by using `throw` keyowrd and put the name of possible exceptions that may be occur by using `throws` keyword that handling with this possible exception will be in the main by using try-catch blocks

getEmail(): instance method that return the email address of person

setEmail(String email):

it instance method that set the entered email from the user , by using class Pattern we made object from it and receive the format of the correct email address which we want from user to insert like it, across method compile the symbols in the string that we make it will understood by compile method, then by using matcher method from Patten object and pass to it the string that the user entered will match it with the format which we make it and the value will set in the object of type Matcher class that we create it , by using method matches inside if statement we will know if the entered email match the correct format of email witch we created or not if it correct then the entered email will put in attribute email which belong to a member object or trainer object otherwise it will cause an exception .

In this method there is exceptions declared by using throw keyowrd and put the name of possible exceptions that may be occur by using throws keyword that handling with this possible exception will be in the main by using try-catch blocks

getId():instance method that return the number id of the person

setId(Long id): it instance method that insert the id of each object we created from member class or trainer class, the value of id we (programmers of the code) will created in the main class and we will send it across this method to set the id of each new member or trainer

equals(o:Object): it is abstract method will test the value of id between two objects
toString(): abstract method represent information about objects of members or trainers

add(Long :objName): it override instance method receive the id of person to add it in the list, inside the method we used method add from ArrayList attribute (listPepole) that we created to add the id of the member object or trainer object to the list

delete(Long :obj): it override method receive the id of person(mean member object or trainer object) to remove it from the list of id, inside the method we used method remove from ArrayList attribute (listPepole) that we created, to receive the id object and remove it.

getList(): it override instance method return the list of members or trainers that we have in our gym.

search(Long :obj): it override instance method receive object of type Long which represent the id of person to search about its position in the list, inside the method we used indexOf(object) method from ArrayList class to take the position of the id in the list.

Class member

The member class, inherited from the Person class, saves the members ID of each member in an Array List to be recognized in our gym as a common member

When creating an object from a member class, the member ID number begins to be given to the counter, and it increases by one each time we create an object from the member class. It also saves other information [the weight, length, Start date, date end and age.](#)

Methods:

setWeight(): Save the member's weight, but the member must enter a valid weight greater than 30. Otherwise, the weight will not be saved and is considered invalid. It shows the phrase: ("Please enter the weight correctly").

setAge(): Save the age of the member, but the member must be between 18-60 years. Otherwise, he will not be accepted into our gym. It shows the phrase: (Sorry your age not allowed to enter our gym, Age allwerd to enter should be between 18 to 60).

setStartsub(): Save the start date of the member's subscription.

setEndsub(): Save the End date of the member's subscription.

subscriptionEnddate(): int parameter x

We take an object from the date class. We need to import the date class

We take an object from the SimpleDateFormat class to display the start date of the subscription, we need to import the DateFormat class.

If the x values are the '1':

Save the start date of the member's subscription.

We take an object from the GregorianCalendar class and need to import the GregorianCalendar class.

From Object Class GregorianCalendar we use the add method and add to the starting date 12 months.

Save the End date of the member's subscription.

If the x values are the '2':

Save the start date of the member's subscription.

We take an object from the GregorianCalendar class and need to import the GregorianCalendar class.

From Object Class GregorianCalendar we use the add method and add to the starting date

6 months.

Save the End date of the member's subscription.

If the x values are the '3':

Save the start date of the member's subscription.

We take an object from the GregorianCalendar class and need to import the GregorianCalendar class.

From Object Class GregorianCalendar we use the add method and add to the starting date 3 months.

Save the End date of the member's subscription.

method getWeight(), getLength(), getAge(), getEndsub() and getStartsub(); Just return the values of the saved attribute.

information that was self-taught:

- Show today's date from Class **SimpleDateFormat**.
Calculate the date when adding months to today's date from class **GregorianCalendar**.

- Constructing a regular expression means specific format of string and deal with it by using set of methods from class Pattern and class Matcher

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