

7COM1025 - Programming for Software Engineering

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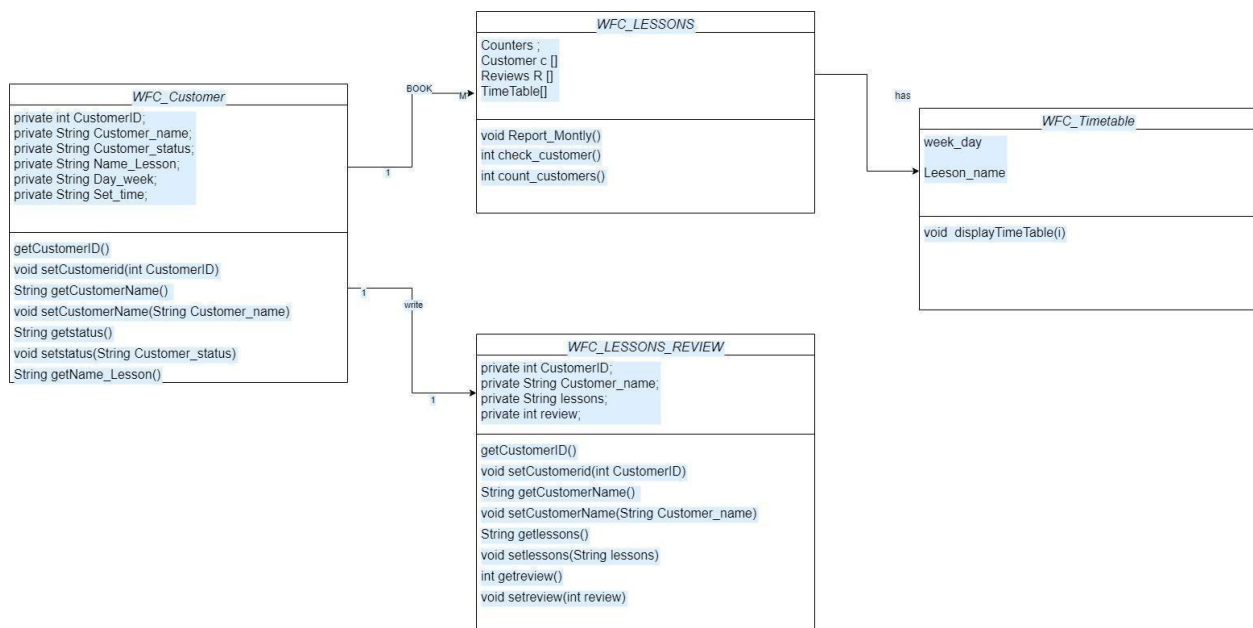
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INTRODUCTION

The application focuses on developing, implementing, and programming for a weekend fitness club where customers can book a lesson for fitness lessons scheduled on Saturdays and Sundays with two shifts per day. According to the timetable arrangement, each lesson has a price which does not depend on which day it is running. Customers can book a class by searching or browsing the timetable using the console application created in Java utilizing NetBeans. The customers have access to a 48-lesson schedule that has been prepared. Reports are additionally produced using this program that displays the reviews per lesson and the number of scheduled lessons per month, and the highest income generated by lesson.

CLASS DIAGRAM



An essential part of object-oriented modelling is the class diagram. It is used for technical modelling, which entails converting ideas into computer code and scaling the software's design. Class diagrams are used to model data. Classes, relationships, and procedures connected to the actual execution of the code are included in the class diagram. The diagram of the class was used to implement the program. The class methods and inherited links are depicted in the image below.

IMPLEMENTATION

Four Java classes have been created for implementation, which is used for the object arrays and has getter and setter methods, with the class such as WFC Reviews, WFC customer, WFC Lessons, and the main class, which has main method and objects have been initialized, which controls how the entire system

functions. Each method's properties have been configured, and the code has used them appropriately. The executing process follows the following steps: - The customer must first run the main class.

Following that, a menu will appear.

There will be 8 options on the menu.

The first option displays the 48 weeks' timetable by day or lesson.

Customers can book the lesson by giving lesson id or customer ID for a specific class which they want to book. The customer cannot book the same class again.

In the third option, customers can give a review of what they have attended.

In the 4th option, customers can update the lesson booking which they have booked.

In the 5th option highest generated lesson has been displayed

In the 6th option report attended by the customers has been generated according to the lesson In

the 7th option, all the customers who attended the lesson have been shown.

All the requirements listed in the file have been satisfied by the program. To store the objects of each customer and their booking, object-oriented arrays have been employed. Now, understand how a consolebased application operates and how arrays work thanks to the application. How to use CRUD functions in Java and the principles of compliance. The application's methods have been tested using JUnit. It was created using NetBeans, a great tool for creating console-based Java applications because it ensures proper application structure.

ASSUMPTIONS

Lessons included in the application are yoga, Zumba, spin and Aquacise.

Ten customers have been taken initially.

20 reviews have already been recorded.

No same booking of the same customer is allowed.

The customer cannot make spelling mistakes while entering the lesson.

OUTPUT

```

Welcome to Weekend Fitness Club (WFC)

1: Show timetable
2: Class Lesson - Booking
3: Class Lesson - Review
4: Class Lesson - Update
5: Highest generated Income
6: Report Lessons attended by customer
7: View Report of Booked Lesson by Customer
8: Exit Application

ENTER YOUR CHOICE

```

Club offers a different view of the timetable.

```

Welcome to Weekend Fitness Club (WFC)

1: Show timetable
2: Class Lesson - Booking
3: Class Lesson - Review
4: Class Lesson - Update
5: Highest generated Income
6: Report Lessons attended by customer
7: View Report of Booked Lesson by Customer
8: Exit Application

ENTER YOUR CHOICE

1
Enter your Choice
1. For DAY // 2. For Fitness Class - Yoga , Zumba , Aquacise
|

```

Enter the name of a lesson.

lessonID	Lesson	Price	day	Date	shift
2	ZUMBA	200	Sunday	05-03-2023	Evening
4	Yoga	100	Sunday	12-03-2023	Morning
6	Yoga	100	Sunday	19-03-2023	Afternoon
8	Aquacise	300	Sunday	26-03-2023	Morning
10	ZUMBA	200	Sunday	02-04-2023	Afternoon
12	Yoga	100	Sunday	09-04-2023	Evening
14	Aquacise	300	Sunday	16-04-2023	Morning
16	ZUMBA	200	Sunday	23-04-2023	Afternoon
18	Yoga	100	Sunday	30-04-2023	Morning
20	Aquacise	300	Sunday	07-05-2023	Afternoon
22	ZUMBA	200	Sunday	14-05-2023	Evening
24	Yoga	100	Sunday	21-05-2023	Morning
26	Aquacise	300	Sunday	28-05-2023	Afternoon
28	ZUMBA	200	Sunday	11-06-2023	Morning
30	Yoga	100	Sunday	13-06-2023	Afternoon
32	Aquacise	300	Sunday	09-06-2023	Evening
34	ZUMBA	200	Sunday	11-06-2023	Morning
36	Yoga	100	Sunday	09-06-2023	Afternoon
38	Aquacise	300	Sunday	11-06-2023	Morning
40	ZUMBA	200	Sunday	13-06-2023	Afternoon
42	Yoga	100	Sunday	09-06-2023	Evening
44	Spin,	300	Sunday	11-06-2023	Morning
46	ZUMBA	200	Sunday	09-06-2023	Afternoon
48	Yoga	100	Sunday	11-06-2023	Morning

Do you like to continue...!!

Enter the day of the week.

48 Lessons Time Table					
lessonID	Lesson	Price	day	Date	shift
2	ZUMBA	200	Sunday	05-03-2023	Evening
4	Yoga	100	Sunday	12-03-2023	Morning
6	Yoga	100	Sunday	19-03-2023	Afternoon
8	Aquacise	300	Sunday	26-03-2023	Morning
10	ZUMBA	200	Sunday	02-04-2023	Afternoon
12	Yoga	100	Sunday	09-04-2023	Evening
14	Aquacise	300	Sunday	16-04-2023	Morning
16	ZUMBA	200	Sunday	23-04-2023	Afternoon
18	Yoga	100	Sunday	30-04-2023	Morning
20	Aquacise	300	Sunday	07-05-2023	Afternoon
22	ZUMBA	200	Sunday	14-05-2023	Evening
24	Yoga	100	Sunday	21-05-2023	Morning
26	Aquacise	300	Sunday	28-05-2023	Afternoon
28	ZUMBA	200	Sunday	11-06-2023	Morning
30	Yoga	100	Sunday	13-06-2023	Afternoon
32	Aquacise	300	Sunday	09-06-2023	Evening
34	ZUMBA	200	Sunday	11-06-2023	Morning
36	Yoga	100	Sunday	09-06-2023	Afternoon
38	Aquacise	300	Sunday	11-06-2023	Morning
40	ZUMBA	200	Sunday	13-06-2023	Afternoon
42	Yoga	100	Sunday	09-06-2023	Evening
44	Spin,	300	Sunday	11-06-2023	Morning
46	ZUMBA	200	Sunday	09-06-2023	Afternoon
48	Yoga	100	Sunday	11-06-2023	Morning

Do you like to continue...!!

The lesson can have 5 customers at most.

```

ENTER YOUR CHOICE
=====
2
*****BOOK A LESSON*****
Customer ID:
23
Customer Name:
bhai
Lesson Name - Yoga , spin , Aquacise:
Yoga
Week Day - Sunday or Saturday:
Sunday
Shift: - Morning , Evening
Evening
Lesson is full
Do you like to continue...!!
!

```

48 weeks' timetable

lessonID	Lesson	Price	day	Date	shift
2	ZUMBA	200	Sunday	05-03-2023	Evening
4	Yoga	100	Sunday	12-03-2023	Morning
6	Yoga	100	Sunday	19-03-2023	Afternoon
8	Aquacise	300	Sunday	26-03-2023	Morning
10	ZUMBA	200	Sunday	02-04-2023	Afternoon
12	Yoga	100	Sunday	09-04-2023	Evening
14	Aquacise	300	Sunday	16-04-2023	Morning
16	ZUMBA	200	Sunday	23-04-2023	Afternoon
18	Yoga	100	Sunday	30-04-2023	Morning
20	Aquacise	300	Sunday	07-05-2023	Afternoon
22	ZUMBA	200	Sunday	14-05-2023	Evening
24	Yoga	100	Sunday	21-05-2023	Morning
26	Aquacise	300	Sunday	28-05-2023	Afternoon
28	ZUMBA	200	Sunday	11-06-2023	Morning
30	Yoga	100	Sunday	13-06-2023	Afternoon
32	Aquacise	300	Sunday	09-06-2023	Evening
34	ZUMBA	200	Sunday	11-06-2023	Morning
36	Yoga	100	Sunday	09-06-2023	Afternoon
38	Aquacise	300	Sunday	11-06-2023	Morning
40	ZUMBA	200	Sunday	13-06-2023	Afternoon
42	Yoga	100	Sunday	09-06-2023	Evening
44	Spin,	300	Sunday	11-06-2023	Morning
46	ZUMBA	200	Sunday	09-06-2023	Afternoon
48	Yoga	100	Sunday	11-06-2023	Morning

Do you like to continue...!!


```

*****48 Lessons Time Table*****
*****
lessonID      Lesson      Price      day      Date      shift
*****
1             Yoga          100      Saturday  05-03-2023  Morning
3             Aquacise       300      Saturday  12-03-2023  Afternoon
5             Aquacise       300      Saturday  19-03-2023  Evening
7             ZUMBA          200      Saturday  19-03-2023  Afternoon
9             Yoga          100      Saturday  26-03-2023  Evening
11            Aquacise       300      Saturday  02-04-2023  Morning
13            ZUMBA          200      Saturday  09-04-2023  Afternoon
15            Yoga          100      Saturday  16-04-2023  Evening
17            Aquacise       300      Saturday  23-04-2023  Afternoon
19            ZUMBA          200      Saturday  30-04-2023  Evening
21            Yoga          100      Saturday  07-05-2023  Morning
23            Aquacise       300      Saturday  14-05-2023  Afternoon
25            ZUMBA          200      Saturday  21-05-2023  Evening
27            Yoga          100      Saturday  28-05-2023  Afternoon
29            Aquacise       300      Saturday  12-06-2023  Evening
31            ZUMBA          200      Saturday  07-06-2023  Morning
33            Yoga          100      Saturday  12-06-2023  Afternoon
35            Aquacise       300      Saturday  07-06-2023  Evening
37            ZUMBA          200      Saturday  12-06-2023  Afternoon
39            Yoga          100      Saturday  12-06-2023  Evening
41            Spin          300      Saturday  07-06-2023  Morning
43            ZUMBA          200      Saturday  12-06-2023  Afternoon
45            Yoga          100      Saturday  07-06-2023  Evening
47            Aquacise       300      Saturday  12-06-2023  Afternoon
Do you like to continue...!!
|

```

Customer can change the booking.

```

*****
ENTER YOUR CHOICE
*****
4
*****UPDATE*****
ENTER - Customer ID: OR Booking ID
1
Shift Status: - > Cancel , Morning , Evening
Cancel
Status Shifted toCancel
Do you like to continue...!!

```

It can only change if a lesson is booked.

```

*****
ENTER YOUR CHOICE
*****
4
*****UPDATE*****
ENTER - Customer ID: OR Booking ID
1
Shift Status: - > Cancel , Morning , Evening
Morning
Status Shifted toMorning
Do you like to continue...!!

```


Write a review.

```
*****
ENTER YOUR CHOICE
*****
3
*****Write a review*****
Customer ID:
3
Write Review
good class
Give rating 1-5
3
Lesson Name
Yoga
Review Booked Successfully...!!
Do you like to continue...!!
|
```

Report on the number of customers per lesson.

```
6
Monthly Lesson Report
Enter the month:-
3
Report of count of WFC_cust per lesson
Lesson          Customer count      Review
YOGA - SUNDAY      4                5
Zumba - SUNDAY      1                3
YOGA -SATURDAY      0                2
ZUMBA-SATURDAY      1                3
Do you like to continue...!!
```

Highest generated income lesson.

```
*****
ENTER YOUR CHOICE
*****
5
*****HIGHEST INCOME*****
Income of Yoga - $400 , Zumba - $300
Income of Aquacise - $600 , Spin - $700
Highest income Genreated by YOGA : - 2400
Do you like to continue...!!
|
```

Lesson booked by customer.

```
SEE ALL Report of Booked lessons:-
```

```
*****
Customer ID      Name      Lesson      Shift
*****
1                leon       Yoga        Evening
2                tim        ZUMBA       Evening
3                cook       Yoga        Evening
4                tena       ZUMBA       Evening
5                limm       ZUMBA       Morning
6                porry     Yoga        Morning
7                kina       Yoga        Evening
8                tinu       Aquacise    Morning
9                lomma     Yoga        Evening
10               chaeery   Yoga        Evening
```

```
Do you like to continue...!!
```

```
|
```

JUNIT TEST

The case has been written for:

Testing the number of customers.

Checking the customers in the class.

Testing the timetable.

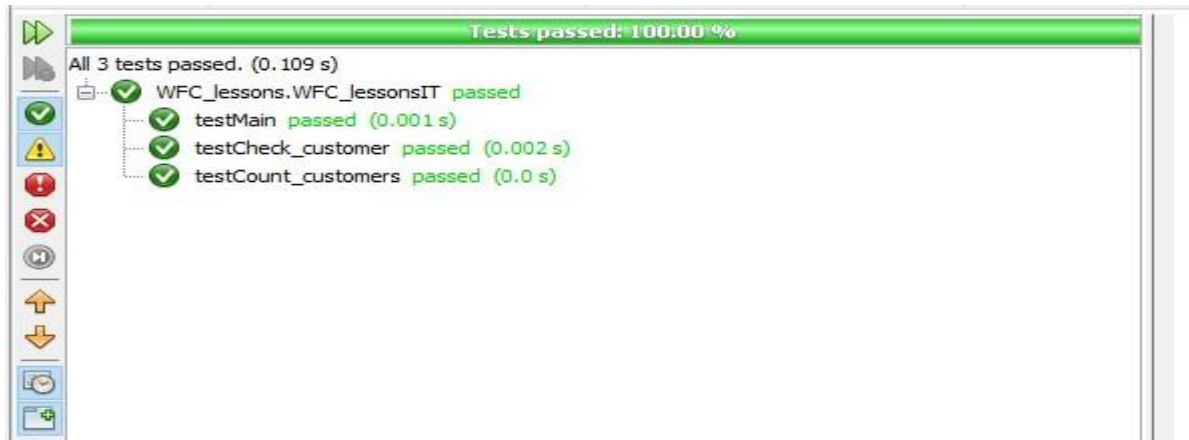
Tests passed: 100.00 %

The test passed. (0.069 s)

- WFC_lessons.WFC_timetableIT passed
- testDisplayTimeTable passed (0.011 s)

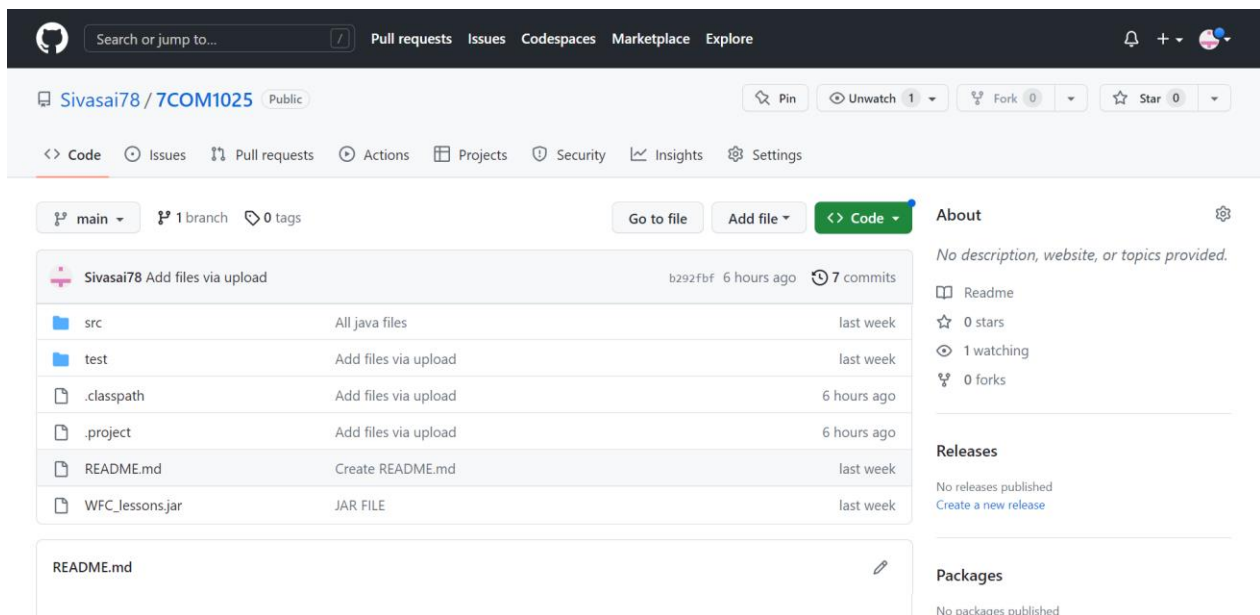
displayTimeTable

lessonID	Lesson	Price	day
1	Yoga	100	Saturday
4	Yoga	100	Sunday
6	Yoga	100	Sunday
9	Yoga	100	Saturday
12	Yoga	100	Sunday
15	Yoga	100	Saturday
18	Yoga	100	Sunday
21	Yoga	100	Saturday
24	Yoga	100	Sunday
27	Yoga	100	Saturday
30	Yoga	100	Sunday
33	Yoga	100	Saturday
36	Yoga	100	Sunday
39	Yoga	100	Saturday
42	Yoga	100	Sunday
45	Yoga	100	Saturday
48	Yoga	100	Sunday



VERSION CONTROL

URL: <https://github.com/Sivasai78/7COM1025>



Test files

```
3      @Test
1      public void testCheck_customer() {
2          System.out.println("check_customer");
3          WFC_customer[] s = new WFC_customer[10];
4          s[0] = new WFC_customer(1, "leon", "Attended", "Yoga", "Sunday", "Evening");
5          s[1] = new WFC_customer(2, "tim", "Attended", "ZUMBA", "Sunday", "Evening");
6          s[2] = new WFC_customer(3, "cook", "Attended", "Yoga", "Sunday", "Evening");
7          s[3] = new WFC_customer(4, "tena", "Attended", "ZUMBA", "Saturday", "Evening");
8          s[4] = new WFC_customer(5, "limm", "Booked", "ZUMBA", "Sunday", "Morning");
9          s[5] = new WFC_customer(6, "porry", "Booked", "Yoga", "Sunday", "Morning");
10         s[6] = new WFC_customer(7, "kina", "Attended", "Yoga", "Sunday", "Evening");
11         s[7] = new WFC_customer(8, "tinu", "Booked", "Aquacise", "Saturday", "Morning");
12         s[8] = new WFC_customer(9, "lomma", "Attended", "Yoga", "Sunday", "Evening");
13         s[9] = new WFC_customer(10, "chaeery", "Booked", "Yoga", "Sunday", "Evening");
14
15         String Name_Lesson1 = "Yoga";
16         int ID = 1;
17         WFC_lessons instance = new WFC_lessons();
18         int expResult = 0;
19         int result = instance.check_customer(s, Name_Lesson1, ID);
20         assertEquals(expResult, result);
21         // TODO review the generated test code and remove the default call to fail.
22     }
23 }
```

CONCLUSION

As a result, the WFC application is a tool that enables users to schedule exercise classes on the weekend, see schedules, modify, or cancel reservations, rate classes, and view statistics. The software is written in Java and runs on NetBeans IDE 15 software. It uses object arrays as data structures to store data, and this analysis includes a schema of UML classes for the application's code as well as implementation, concepts, and JUnit testing to guarantee the program's proper operation.

REFERENCES

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- Unhelkar, B. (2017) "Class model-2: Basic class Diagram," *Software Engineering with UML*, pp. 145–158. Available at: <https://doi.org/10.1201/9781351235181-9>.
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