C++ Project Submission

Restaurant Management System

01286131 Object-oriented Programming

Software Engineering Program

Faculty of Engineering, KMITL

By

65011269	**Budthbundit**	**Thaya-urai**
65011304	**Inthat**	**Sappipat**
65011508	**Ravinan**	**Woraratyanon**

Project Documentation

Title: Restaurant Management System

Team Members: Budthbundit Thaya-urai   65011269

                              Inthat Sappipat   65011304

                              Ravinan Woraratyanon   65011508

Instructor: Mr. Ekaphol Anantapornkit

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Introduction

Restaurant Management System is a program that enables you to run your restaurant business daily on a regular basis. The systems can be customized to meet the specific needs of a particular restaurant and also stores information about each order that can be looked back.

Features

1. **Menu Management:** To add, edit or remove dishes or beverages to your restaurant menu.
2. **Tax and Service Charge:** Adjust the rate of tax and service charge.
3. **Calculate Bill:** Sum up the number of dishes, as well as the expenses of each bill.
4. **Membership:** Able to set up membership privileges for the customers, which is optional to the owner.
5. **Employee Management:** Set the work hours and wages to calculate the payroll.
6. **Analysis:** An analytical tool for the owner to have a brief overview of how their business is going.

Purposes

1. To create a Restaurant Management System.
2. To make accounting easy.
3. To eliminate human error.

Scopes

1. **Compilers:** Visual Studio Code, CMake, and C++ Online Compiler – Programiz.
2. **Data sources:** Slides, Books, and Web browsers.
3. **Workplace:** HM 605 and house of each member.

Plans

1. Brainstorming ideas for a project.
2. Writing a project proposal.
3. Allocating the duties for each member.
4. Each member split up to do their assigned tasks.
5. Making some test cases to test the program.
6. Finding an error.
7. Modifying an error.
8. Testing the program again.
9. Drawing a class diagram.
10. Making a project documentation.
11. Collecting all the task files, including the code, class diagram, project plan, and documentation to one folder.
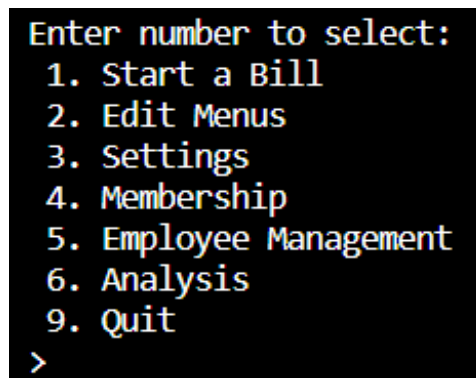12. Presenting to the professor.

Schedule

Week / Plan	Week 1	Week 2	Week 3	Week 4	Week 5
Brainstorm	←——→				
Writing a project proposal	↔				
Allocating the duties		↔			
Each member split up to do their assigned tasks		←————————→			
Making test cases to test the program					↔
Finding an error					↔
Modifying an error					↔
Testing the program again					↔
Drawing a class diagram					↔
Making a project documentation					↔
Collecting all the task files to one folder					↔
Presenting to the professor					↔

Error and Obstacle

At the beginning of the project, we faced the obstacle of being not able to think of a project topic. This is because each of us has our own idea. But we were able to overcome it by choosing the project that everyone agreed it's useful, can be further applied to use in daily life, and was not too difficult to create. For the error, we had found it when we did the coding. In other words, we found some bugs and the output did not come as expected. However, we could fix them so that the program gave the desired output.

Result

Our program contains 7 features to choose (picture 1)

Picture 1

-The first feature: Calculate Bill

Calculate the bill by

- Enter type 1 or 2 to choose between dine-in or takeaway (picture 2). Both of them will have the same 5 types to choose (picture 3).
- Enter type 1 to add or edit the bill which the user has to enter the menu's name and quantity of it (picture 4).
- Enter type 2 to apply for a membership id to get the discount if the user has it (picture 5).
- Enter type 3 to preview the bill. The bill will show all of the menu's name, quantity, amount, and total amount (picture 6).

- Enter type 4 to create the complete bill. The program will create and store the bill in the database and will let the user back to the previous window (picture 3).
- Enter type 9 to go back to the main window (picture 1).


```
Billing: #1
  1. Dine-in
  2. Take-Away
  9. Back
> ▮
```

Picture 2


```
1. Add to/Edit Bill
2. Apply Membership
3. Preview Bill
4. Done
9. Back
> ▮
```
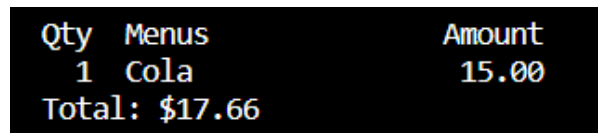
Picture 3


```
Cola
Crape
Fries
Ice Cream
Pizza
Sprite
Water

 Enter 0 to quit, Enter the menu's name, then quantity to add to the bill:
> ▮
```

Picture 4


```
> 2
Enter the membership ID: ▮
```
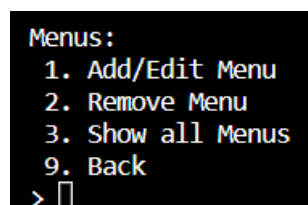
Picture 5

Picture 6

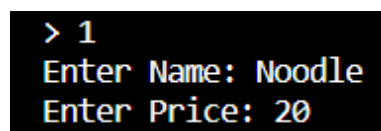**-The second feature: Menu Management**

Manage the menu by

- Enter type 1 to add or edit the menu. Enter the menu's name and price (picture 8).
- Enter type 2 to remove the menu. Enter the menu's name that the user wants to delete (picture 9).
- Enter type 3 to show all menus that are added. This contains the menu's name and price per 1 unit (picture 10).
- Enter type 9 to go back to the main window (picture 1).

Picture 7

Picture 8

```
> 2

Enter the menu's name to remove: Noodle
```

Picture 9

```
> 3
Cola: 15.00
Crape: 32.50
Fries: 80.00
Ice Cream: 50.00
Pizza: 260.00
Sprite: 10.00
Water: 7.00
```

Picture 10

-The third feature: Tax and Service Charge

Edit the rate of tax, service charge, and membership by

- Enter type 1 to change the tax rate (picture 12).

- Enter type 2 to change the service charge rate (picture 13).

- Enter type 3 to change the discount for tier-1 membership (picture 14).

- Enter type 4 to change the discount for tier-1 membership (picture 15).

- Enter type 5 to change the discount for tier-1 membership (picture 16).

- Enter type 9 to go back to the main window (picture 1).

```
Settings:
 1. Tax rate
 2. Service Charge
 3. Tier-1 Membership
 4. Tier-2 Membership
 5. Tier-3 Membership
 9. Back
> []
```

Picture 11

```
> 1

 Current Tax rate: 7.00%
 New value: 8

 set to 1.08
```

Picture 12

```
> 2

 Current Service Charge: 10.00%
 New value: 12

 set to 1.12
```

Picture 13

```
> 3

 Current Tier-1 Membership Discount: 20.00%
 New value: 15

 set to 0.85
```

Picture 14

```
> 4

 Current Tier-2 Membership Discount: 15.00%
 New value: 10

 set to 0.90
```

Picture 15

```
> 5

 Current Tier-3 Membership Discount: 10.00%
 New value: 5

 set to 0.95
```

Picture 16

-The fourth feature: Membership

Manage the membership by

- Enter type 1 to create tier-1 membership. Enter the name and surname of the user who wants to enroll (picture 18).
- Enter type 2 to create tier-2 membership. Enter the name and surname of the user who wants to enroll (picture 19).
- Enter type 3 to create tier-3 membership. Enter the name and surname of the user who wants to enroll (picture 20).
- Enter type 4 to remove membership. Enter the ID of the user (picture 21).
- Enter type 5 to show all memberships. The program will show all of the membership list, including name and ID (picture 22).
- Enter type 9 to go back to the main window (picture 1).

Picture 17

Picture 18

Picture 19

Picture 20

Picture 21

Picture 22

-The fifth feature: Employee Management

Manage the employee by

- Enter type 1 to add a new employee. Enter the name, surname, wages/hr, and working hours. The employee can either choose to work part-time or full-time (picture 24).
- Enter type 2 to edit the employee. The program will show all of the employees. The user can only edit the part-time employee (The name that has no *). The user set a new wage by entering 1 and set new working hours by entering 2 (picture 25).
- Enter type 3 to remove the employee. The program will show all of the names and IDs of every employee. Enter the Id of the employee that the user wants to delete (picture 26).

- Enter type 4 to show all employees. The program will show all of the employees' names, surnames, IDs, wages/hr, working hours, and salary (picture 27).
- Enter type 9 to go back to the main window (picture 1).

```
Employee Management:
 1. Add Employee
 2. Edit Employee
 3. Remove Employee
 4. Show all Employees
 9. Back
> []
```

Picture 23

```
> 1

Enter Name: Pepper
Enter Surname: Kim
Enter Wages/Hr: 400
Enter Working hours(Enter '8' means full-time): 8
```

Picture 24

```
> 2
#  Name - Surname
0  *Benjamin Franklin
1  *Harry Kane
2  *Kim MinJae
3  Phil Jones
4  Josh King
5  *Pepper Kim
You cannot change the full-time employees(*) working hours.
Enter # to Select: 4
Enter 1 to set wage, Enter 2 to set working hours of Josh King
> 1
Enter new wage: 200
```

Picture 25

```
> 3
ID    Name - Surname
1     Benjamin Franklin
3     Harry Kane
5     Kim MinJae
6     Phil Jones
7     Josh King
8     Pepper Kim
Enter ID to Select: 1
```

Picture 26

```
> 4
ID    Name - Surname        Hours  Wages            Salary
3     Harry Kane            8 hrs  $32.50/per hr   $7800.00
5     Kim MinJae           8 hrs  $20.00/per hr   $4800.00
6     Phil Jones           3 hrs  $15.00/per hr   $1350.00
7     Josh King            1 hrs  $200.00/per hr  $6000.00
8     Pepper Kim           8 hrs  $400.00/per hr  $96000.00
```

Picture 27

-The sixth feature: Analysis

The user can watch his/her business overview by

- Enter type 1 to watch today's overview. The program will summarize how
  the business is going today. The program will show the total order, amount
  of dine-in orders, amount of take-away orders, percentage of customer that
  chooses dine-in, percentage of customer that chooses take-away, total
  amount, total amount after tax, and order tallies (picture 29).
- Enter type 2 to watch the overview of other days. Enter the day, month, and
  year that the user wants to watch. The program will show the order tallies of
  that day (picture 30).
- Enter type 9 to go back to the main window (picture 1).

```
Analysis:
 1. Today's Summary
 2. Others' day Summary
 9. Back
> []
```

Picture 28

```
Total Order: 1
Amount of Take Away Order: 1

~0  % of the customers DINE-IN
~100% of the customers TAKE-AWAY

Average Ticket Size: 17.66
Average Profit per Ticket Size: 16.50

Billing Summary
Order           Amount
0001:             17.66

          Total: 17.66
      After Tax: 16.50

Order Tallies:
          Cola   1|[]
          Crape  0|
          Fries  0|
      Ice Cream  0|
          Pizza  0|
         Sprite  0|
          Water  0|
```

Picture 29

```
> 2
Enter date: 26
Enter month: 5
Enter year: 2023

Statistical Analysis View:

         Sprite  1|[]
          Water  8|[][][][][][][][]
```
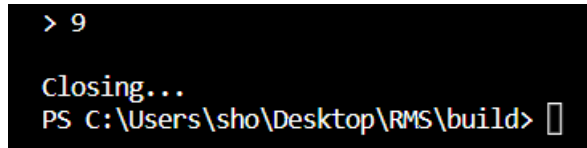
Picture 30

-The seventh feature: Quit

Quit the program by

- Type 9 to quit the program. The program will stop (picture 31).

```
> 9

Closing...
PS C:\Users\sho\Desktop\RMS\build> []
```

Picture 31

Conclusion

From studying and doing the Restaurant Management System project, main purpose of this project is to create a Restaurant Management System, to improve critical thinking and problem-solving skills, and practice teamwork. During the project, we faced some errors and obstacles, for example, error code and unexpected output. But in the end, we can fix them and the project was successfully accomplished.