National University of Technology

Computer Science Department

Assignment # 4

Food Ordering Kiosk

OOP Project Report

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Course: **Object-Oriented Programming Language(OOP)**

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Chapter # 1 Introduction

People like to dine in at restaurant for their meals nowadays. There are a lot reasons why people prefer eating out. One of the reasons is they lazy to cook after work. People will feel tired after more than 7 hours of work. Therefore, they do not have any energy to prepare their meals. In addition, university students have a lot of works to do, such as assignments, tutorials and take part in curriculum activities. It will be more convenient if they eat in restaurant compare to they cook themselves. As more and more people eat in the restaurant, the restaurant manager should make some changes to increase the speed of ordering.

Traditionally, the customers need to interact with the waiters to place order. The waiters write down the foods that the customer order. The paper will then pass to the kitchen and the chef will start to cook. The customers have faced a lot inconveniences with this traditional method. For example, waiting to get the food served, received incorrect bill and many more. All this inconvenience will cause the customers unsatisfied on the service of the restaurant.

The customers are demanding simplification tasks such as book movie tickets nowadays. Therefore, restaurant also should make changes. With the new changes, the customers can make their order through restaurant ordering system. The customers do not need to wait to be served usually at the peak hours. After they order themselves using the ordering system, they just need to wait for the food.

The concepts of Inheritance, Polymorphism, Association, Abstraction, Encapsulation, File handling, and Exception handling would be used in the project. In the project we are going to use both Is-A Relationship (is achieved as tea Is A hot drink or Juice is a Beverage etc.) and Has-A Relationship (is achieved as it is going to use in linking GUI with the classes like tea, coffee, burger, pizza, etc.

Objectives

- To develop a system that will allow customers to place their order easily.
- To serve best service to our customers.
- Minimize human efforts and time of ordering.
- To design a user-friendly system that provides the latest information to customers.
- To develop a system that will minimize the number of employees at the back of counter.
- This system will be less probable to make mistake, since t’s a machine.

Problem Statement

Nowadays, many restaurant using traditional restaurant ordering system to serve customers. In the traditional restaurant ordering system, the staff write down the foods that the customer order. The paper will then pass to the kitchen and the chef will start to cook. This has caused few inconveniences. The staff might make some errors while writing down the order. Sometimes, when the staff write in hurry will make the handwriting difficult to understand. The staff might lose the order paper and customers might also receive incorrect bill.

One of the problem that faced by restaurants that using traditional ordering system is the customers do not know the time for preparation for the food. Some of the customers might have next schedule after their lunch or dinner. They need to know the time preparation so that they can plan their schedule wisely. Especially when there is a lot of customers, the customers might think their order has been forgotten if their food still not yet be served in a long time. It will be good if there is an estimated time to prepare the food shown to the customers.

Moreover, it is difficult to update the latest information to the customers. The availability of the dishes is according to the ingredients that bought every day. When there is lack of ingredients, the chef is unable to prepare some of the dishes. Therefore, it is difficult to inform every customer when they want to order. The staff might forget to inform the customers. As they have many things to do. If the customers already order and feel excited to taste the dishes, but the staff inform them the dishes is unable to order due to lack of ingredients. This will cause the customer dissatisfaction towards the restaurant. The brand image of the restaurant will be affected.

Assumptions & constraints

The project is in core java language so it is a basic management system and not require much high end specifications.

As we require a kiosk in which this software would work having specifications:

- Voltage: 110-220 V.
- Weight (kg): 75 kg.
- Brightness: 300 cd/m2.
- Max. Resolution: 1920 x 1080 pixel.
- Frequency (Hz): 50/60 Hz.
- Screen Size: 16"-18.9"

Constraints:

1. Hardware Limitations: The minimum hardware requirement for the system is 4 GB of Ram and a 100GB hard-disc drive.

2. Others: The application should be built using Java it should, initially, be accessible through the Blue J IDE and later published on a server.

Scope

This project allows us to have an insight on Management systems. As in this management project development the task of creating a Management system taken up by only handful of people. Management system development is a field that requires a person to have expertise in different programming language to constantly be innovative with ideas so that they provide end to solutions regarding management systems to the customers as an organization.

Chapter #2 Requirements Analysis

Requirements Specification/Documentation:

The outcome of this final phase will be the production of the final report, including the full Software Requirements Specification and an appendix concerning process reflection. Details of the specification will be finalized and all requirements and diagrams will be collated and organized into a single coherent Software Requirements Specification document.

Literature Review of Food Ordering System:

In an automated food ordering system is proposed which will keep track of user orders smartly. Basically, they implemented a food ordering system for different type of restaurants in which user will make order or make custom food by one click only. Both the front end and back end was developed using JAVA. Customer using an Ordering Kiosk is considered as a basic assumption for the system. When the customer approach to the kiosk he/she order any food item after preparation of his order his/her name is called to get the order any pay the bill.

Requirements Elicitation:

Because there is not an actual client for this assignment, the elicitation phase will consist of the team brainstorming possible functionality from the "client's" point of view. The elicited requirements will be based primarily on the research previously conducted into existing computerized restaurant systems.

Functional Requirements:

- Registration If customer wants to order the food then he/she must enter his/her name. Without entering name user can't go for ordering.
- Display the menu in the system all the items are displayed with their rates
- Modify menu System can make changings in menu like adding or removing food items which are not available.
- Select food item/s Items are selected customer feel free to order.
- 6 Changes to order Changes to order means the customer can make changings in order like he/she can delete or add food item in order.
- 7. Review the order before submitting Before submitting the complete order is reviewed to the customer. The items are displayed along with the price then customer place its order by clicking ok "Order" button.
- 8. The name of the customer is called and order is given to the customer after paying the total bill.

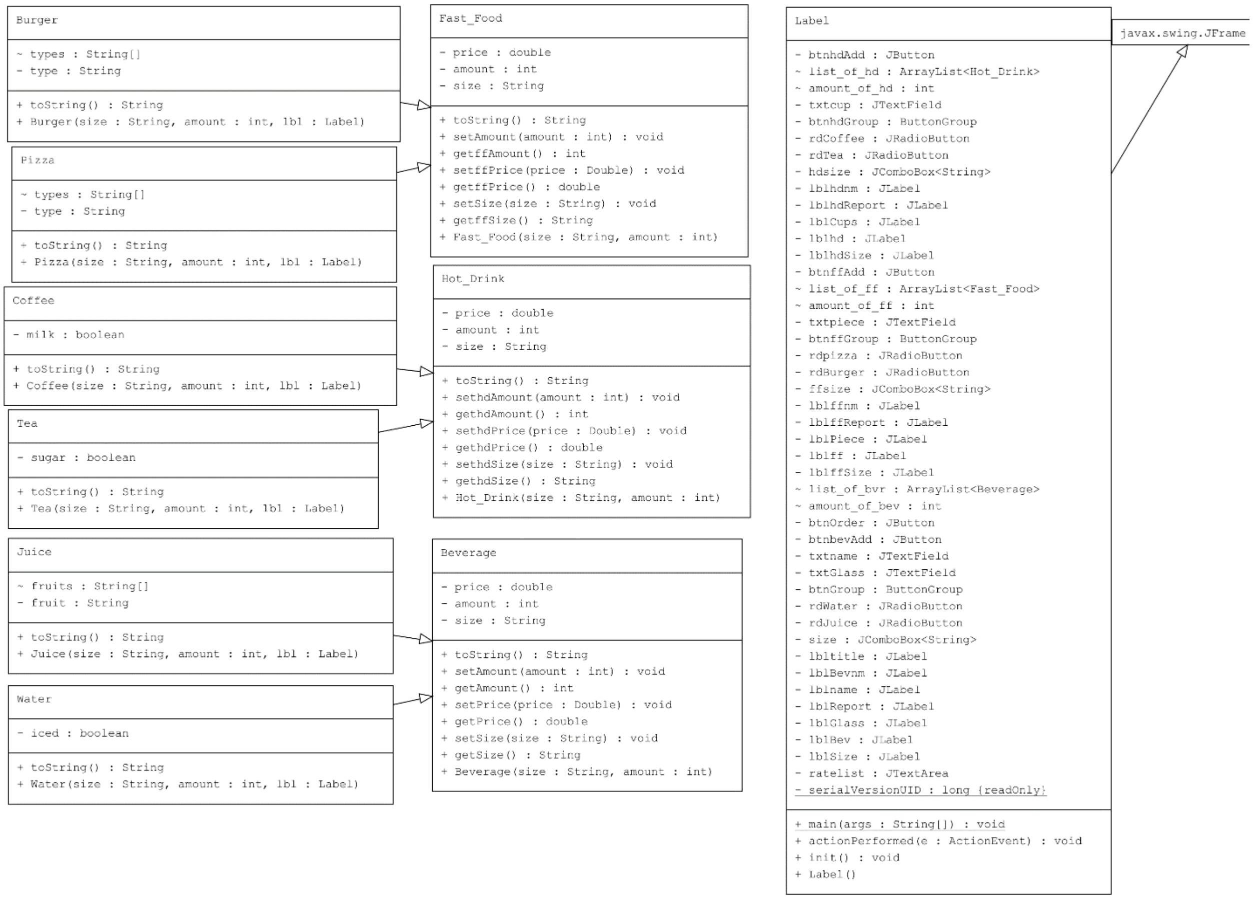
Non-Functional Requirements:

- *Portability:* System running on one platform can easily be converted to run on another platform.
- *Reliability:* The ability of the system to behave consistently in a user-acceptable manner when operating within the environment for which the system was intended.

- *Availability:* The system should be available at all times, meaning the user can access at any time with in the restaurants through kiosks.
- The server hardware can be any computer capable of running handling the expected traffic.
- 6.For a small scale restaurant an average kiosk may be appropriate.

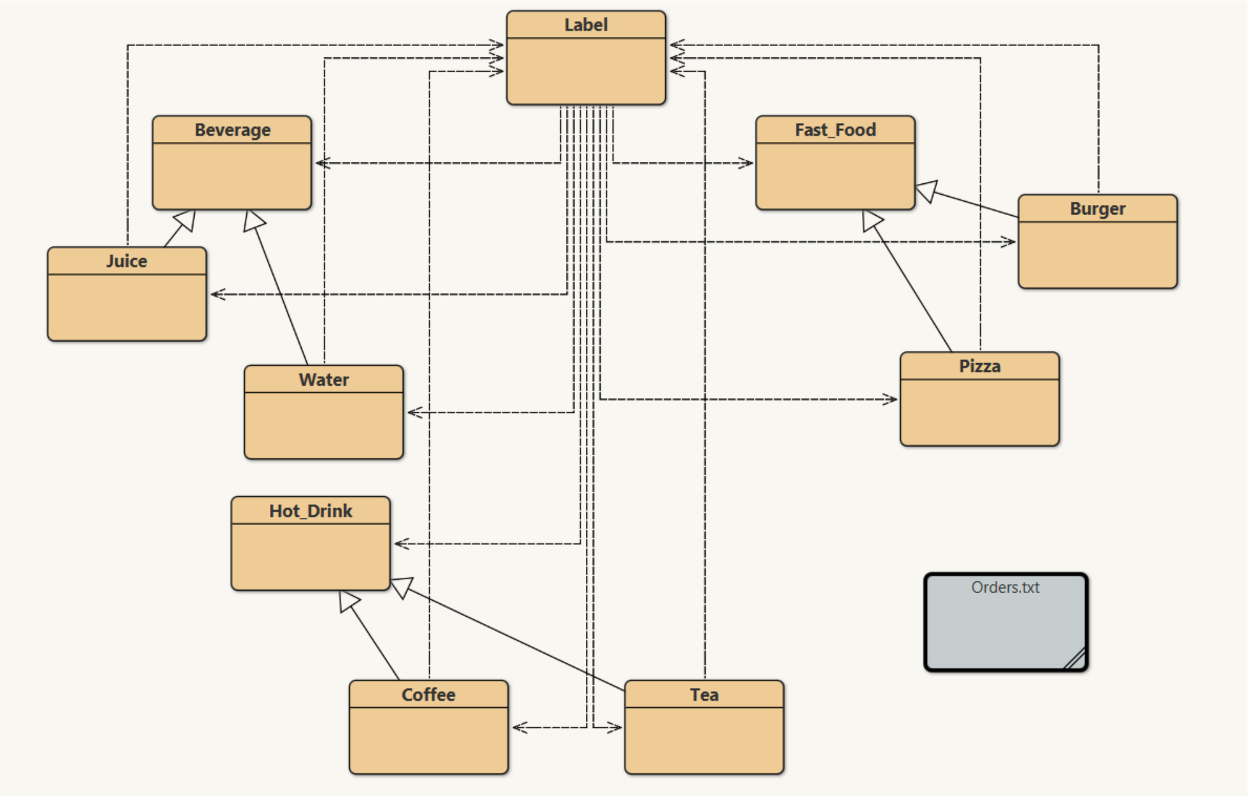
Chapter #3 System Design

Class Diagram



Class relationship diagram

The dotted show association and the solid line arrows represent the inheritance.



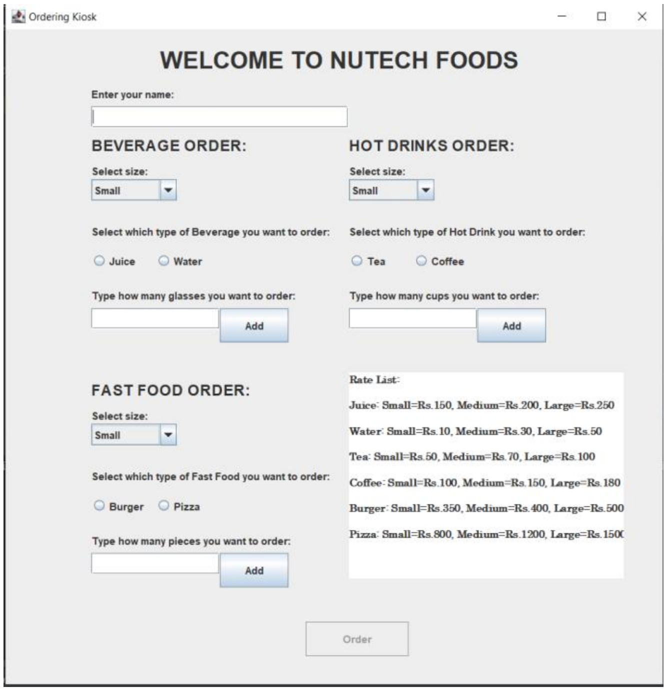
Chapter # 4 Conclusion

Problems faced and lessons learned

The problem faced during the making of project was importing the libraries as the project is developed using built in libraries so we have to study why and how any library is used in the project and the other problem was how to use Exception Handling and by searching on the internet and looking in to the related book we came on the point that the best is to used them while takin the input from the user. After dealing with all these problems we are much confident to use properties of OOP (Inheritance or Association, Polymorphism, Abstraction, Encapsulation) in any real life scenario and converting in to a program.

Project Summary

In this project there are three main classes of Beverage, Fast_Foods, Hot_Drink. Which extends to Juice and Water, Burger and Pizza, Tea and Coffee. The user enters its name and order anything customer wants. The customer can order single item or he/she can order multiple items and add it in the bill and order them. The total bill is calculated and a message is shown to the user how much he has to pay. The data which customer ordered saved in a file along with total amount.



Ordering Kiosk

WELCOME TO NUTECH FOODS

Enter your name:

BEVERAGE ORDER:

Select size: Small

Select which type of Beverage you want to order:

○ Juice ○ Water

Type how many glasses you want to order:

HOT DRINKS ORDER:

Select size: Small

Select which type of Hot Drink you want to order:

○ Tea ○ Coffee

Type how many cups you want to order:

FAST FOOD ORDER:

Select size: Small

Select which type of Fast Food you want to order:

○ Burger ○ Pizza

Type how many pieces you want to order:

Rate List:

Juice: Small=Rs.150, Medium=Rs.200, Large=Rs.250

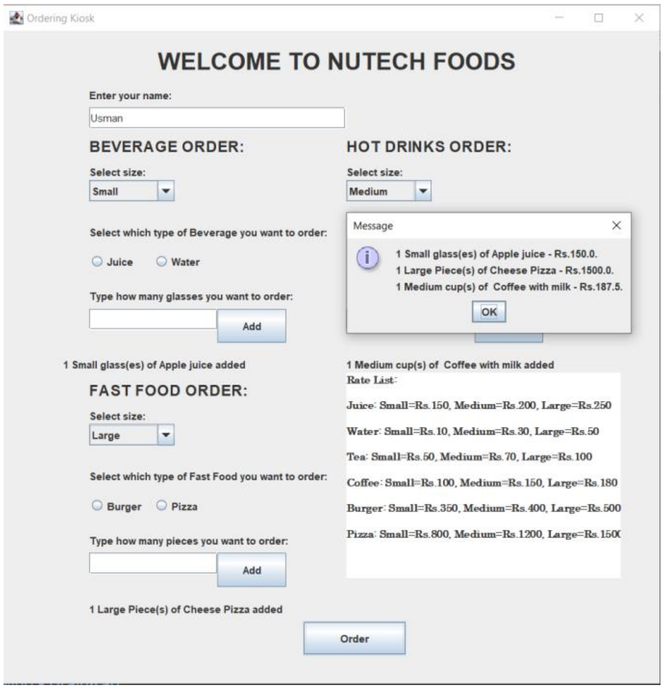
Water: Small=Rs.10, Medium=Rs.30, Large=Rs.50

Tea: Small=Rs.50, Medium=Rs.70, Large=Rs.100

Coffee: Small=Rs.100, Medium=Rs.150, Large=Rs.180

Burger: Small=Rs.350, Medium=Rs.400, Large=Rs.500

Pizza: Small=Rs.800, Medium=Rs.1200, Large=Rs.150



Ordering Kiosk

WELCOME TO NUTECH FOODS

Enter your name: Usman

BEVERAGE ORDER:

Select size: Small

Select which type of Beverage you want to order:

○ Juice ○ Water

Type how many glasses you want to order:

1 Small glass(es) of Apple juice added

HOT DRINKS ORDER:

Select size: Medium

Message

1 Small glass(es) of Apple juice - Rs.150.0.
1 Large Piece(s) of Cheese Pizza - Rs.1500.0.
1 Medium cup(s) of Coffee with milk - Rs.187.5.

1 Medium cup(s) of Coffee with milk added

FAST FOOD ORDER:

Select size: Large

Select which type of Fast Food you want to order:

○ Burger ○ Pizza

Type how many pieces you want to order:

1 Large Piece(s) of Cheese Pizza added

Rate List:

Juice: Small=Rs.150, Medium=Rs.200, Large=Rs.250

Water: Small=Rs.10, Medium=Rs.30, Large=Rs.50

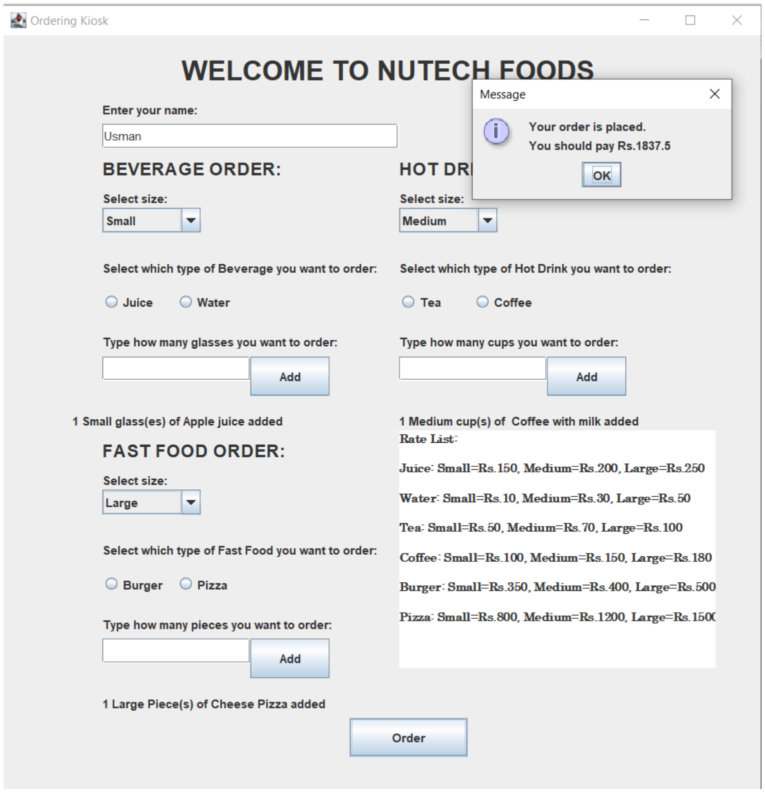
Tea: Small=Rs.50, Medium=Rs.70, Large=Rs.100

Coffee: Small=Rs.100, Medium=Rs.150, Large=Rs.180

Burger: Small=Rs.350, Medium=Rs.400, Large=Rs.500

Pizza: Small=Rs.800, Medium=Rs.1200, Large=Rs.150

As in the screen shots:



WELCOME TO NUTECH FOODS

Message

Your order is placed.
You should pay Rs.1837.5

Enter your name: Usman

BEVERAGE ORDER:

Select size: Small

Select which type of Beverage you want to order:

○ Juice ○ Water

Type how many glasses you want to order:

1 Small glass(es) of Apple juice added

HOT DRI

Select size: Medium

Select which type of Hot Drink you want to order:

○ Tea ○ Coffee

Type how many cups you want to order:

1 Medium cup(s) of Coffee with milk added

FAST FOOD ORDER:

Select size: Large

Select which type of Fast Food you want to order:

○ Burger ○ Pizza

Type how many pieces you want to order:

1 Large Piece(s) of Cheese Pizza added

Rate List:

Juice: Small=Rs.150, Medium=Rs.200, Large=Rs.250

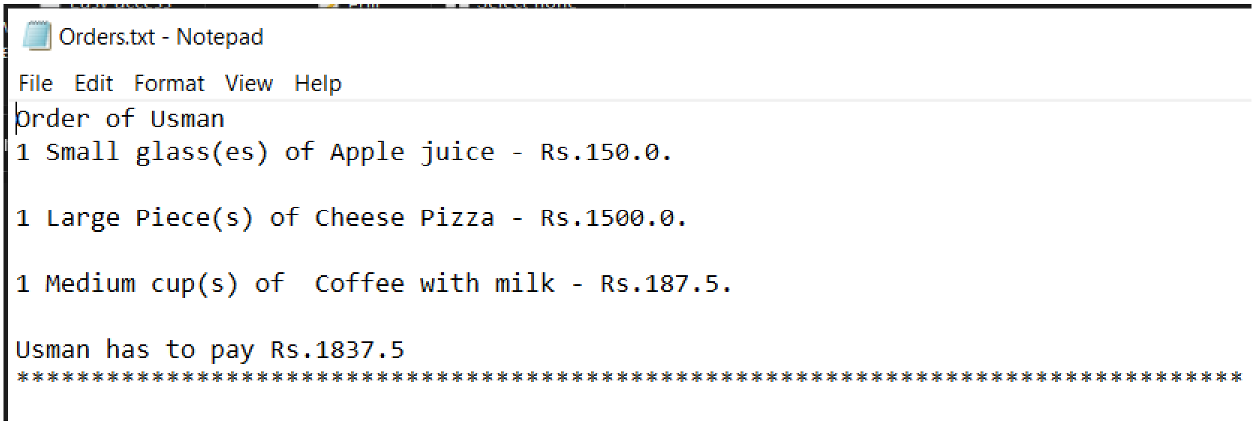
Water: Small=Rs.10, Medium=Rs.30, Large=Rs.50

Tea: Small=Rs.50, Medium=Rs.70, Large=Rs.100

Coffee: Small=Rs.100, Medium=Rs.150, Large=Rs.180

Burger: Small=Rs.350, Medium=Rs.400, Large=Rs.500

Pizza: Small=Rs.800, Medium=Rs.1200, Large=Rs.150(



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Order of Usman
1 Small glass(es) of Apple juice - Rs.150.0.

1 Large Piece(s) of Cheese Pizza - Rs.1500.0.

1 Medium cup(s) of  Coffee with milk - Rs.187.5.

Usman has to pay Rs.1837.5
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Future work

As this is a basic ordering kiosk but for further this can also make efficient using other languages like HTML and CSS, JavaScript, and we can also link data base with it, for large improvements if we use AI in it and convert this project to python language it helps to train the data set as making deals for the customers and after that it gives predictive deals to the user and it improve customer problem to place any order he/she can simply take a predicted deal shown to him.