Assignment

on

Remote Method Invocation

Module Code	ITS1140
Module	Network Programming & Client Server Architecture

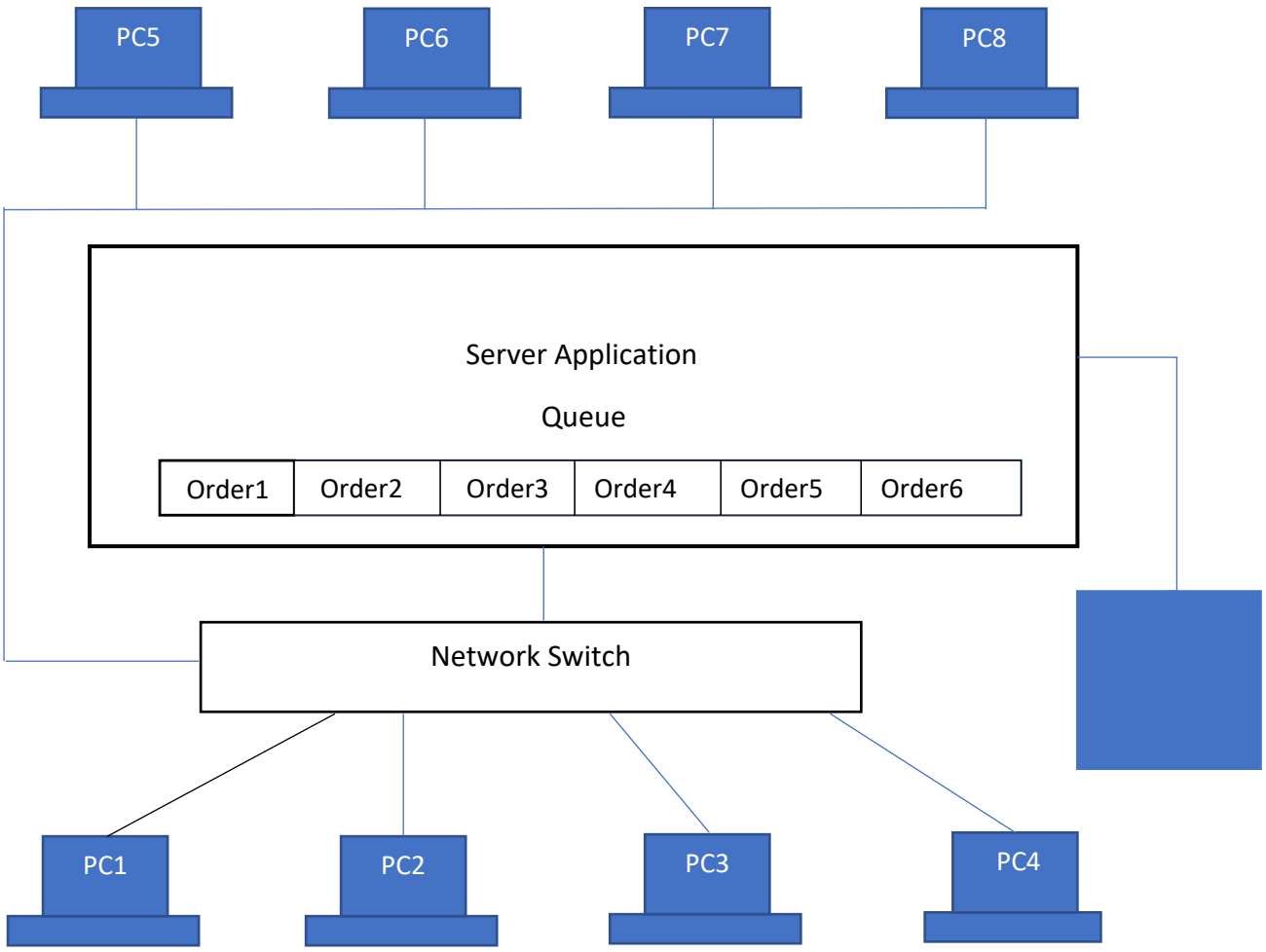
Year	2020	Semester	02	Date	13/07/2020

Nature of the assignment	Individual Assignment
Assignment Submission Date	20/07/2020
Examination Date	20/07/2020

Case Study 01

There is a business called Dinmore, the main service of the business is to deliver submarine (Submarine is a bun) to their clients/customers. Customers give a call to the telephone operator of the Dinmore and telephone operator will make the order through their computer application. There are four telephone operators to perform the client's orders and they will send the customer order to the kitchen through a client application in this business. There are four chefs to handle customer orders. All chefs receive the orders to their client application which are located in the kitchen.

Following diagram shows the architectural design of the system



Client Application

PC1, PC2, PC3 and PC4 are allocated to the telephone operators

PC5, PC6, PC7 and PC8 are allocated to the kitchen

Telephone Operator Application

In the customer order application that is related to the telephone operator has four values to be entered by the telephone operator. When press the button “send to kitchen”, data will be stored in the queue as an object.

Chef Application

The chef is the person who prepares customer orders. The chef has a specific computer application (client application) to handle customer order. In the client application, there are two buttons called “take order” and “finished Order”. The chef can take orders by clicking on the “take order” button and “finished order “ button need to be pressed after finishing the order. When press the “finished Order” button, a ticket should print as follows.

Kitchen Order Ticket: Customer
Name: Saman Perera
Contract No: 0774548120
Processing Time: 20 Minutes
Telephone Operator No: 2
Chef Id: 3445
Quantity: 2

Thank You! Come again

Server-Side Application

Each order has orderID, Customer Name, Telephone No and order quantity

Order1

Order ID: 3456
Customer Name: Saman Perera
Telephone No: 0774548120
Quantity: 2

On the server, there is a data structure called Queue to store customer orders. The size of the queue is dynamic which means that the size will be adjusted to the telephone operators’ request. The telephone operators send order objects to the server and server stores order object in the queue. In the kitchen, four computers are allocated for handling customer orders. The orders to be prepared are displayed in the kitchen computers (The orders can be taken by clicking on the “take order” button).

Data Storage

A file can be used to store secondary day of the program. File read and write operations need to be managed by the developer using java language. Third party software is not allowed to use for managing data in the system. (For example, MySQL database cannot be used)

Security Implementations

Writing data in the file is not a secure method as people can read data in the file. But encryption algorithm can be used to encrypt data in the file. There are standard encryption algorithms to be used. As a software engineer, you may have a chance to implement your own algorithm to encrypt data in the file.

Question 1

Draw the class diagram of the above system.

Question 2

Implement a telephone operators' client application and chefs' client application to the above requirements

Question 3

Implement the server functionalities in the server. Remember, all the business logic should be centralized on the server.

Question 4

Implement your own encryption algorithm to encrypt data in the file or you can use standard algorithms.

Question 5

The owner of the business required the following daily report to calculate the performance of the chefs. System should generate Report 01. And owner should have admin console to check the reports.

27/06/2019 10.00pm
Report 01: Chef's Summery

Chef Name:	Nihal Perera
No of Orders:	21
Quantity:	46
Total time spend on the orders:	3.5 hrs

Report of telephone Operators

27/06/2019 10.00pm
Telephone Operator ID: L0039
Customer Contact: 0775454555
Customer Name: Danapala
Order Quantity: 3

Telephone Operator ID: L0040
Customer Contact: 0775454214
Customer Name: Rathnapala
Order Quantity: 11

This an system generated report

Report of Chefs

27/06/2019 10.00pm
Chef ID: 3848
Customer Name: Danapala
Time Spent: 23 minutes
Prepared Quantity: 2

Chef ID: 3849
Customer Name: Amaris
Time Spent: 44 minutes
Prepared Quantity: 4

This a system generated report