**Introduction**

The Colmar Tropicale Hotel is a French themed village that is designed and inspired from ancient surrounding villages of Riquewihr, Turckheim and Kaysersberg. The hotel was launched in year 2000 and it comprised of 235 rooms and suites, offers 8 food and beverage outlets or lounges with food variety ranging from local and international cuisine to an authentic French fine dining restaurant. It also offers meeting rooms and banqueting facilities.

**Identify and explain the program units, data and file structures that required to implement the given scenario.**

1. **Program units**

The Colmar Tropicale Hotel Reservation is a system used to book hotel for customers. The system will prompt user to enter check in date and check out date, quantity of rooms, select breakfast or not, enter discount code if user have the discount code and enter customer’s detail. Then, the developed system will calculate total nights based on the entered check in and check out date. It also will calculate total price of the reservation after user has choose date, number of rooms, rooms type and breakfast. Then, from the discount code entered by user, the discount price and total after discount (grandtotal) will be calculated in the Colmar Tropicale Hotel Reservation System.

1. **Data**

There are many data used in the Colmar Tropicale Hotel Reservation System. The data used in the system that using integer data type quantity of night and quantity of room. While for double are total price, discount price and grand total. Data that using string data type are room type, title of customers, name, IC number, phone number and discount code. While check in date and check out date use DateTime data type. All the data will be entered by the user and will be kept in text file.

1. **File structures**

File structure that will be used for the reservation system is text file. Text file is file structures that keep data from the system into a Notepad and save it as text file format. Text file will save all the current information of the customer who reserve for the hotel such as customer’s name, customer’s I/C number, customer’s phone number, room type, room quantity, quantity of nights and grand total of the booked hotel.

**Pseudo code**

Start

Enter to the Book Hotel Form

Read Check In Date

Read Check Out Date

If Check Out Date > Check In Date

Calculate Total night

Else

Message Box “The check out date must be at least a day after check in date”

Read Room Quantity

If Room Type == “yes”

Calculate Total price

Else if Room Type == “no”

Message Box “Please select room type”

If select breakfast == “yes”

Calculate Total Price

If have special code == “yes”

Enter discount code

Read discount code

Calculate discount price

Enter customer detail

Display total price

Display discount price

Calculate grand total

Display grand total

If Confirm reservation == “yes”

Enter view receipt

Display customer’s receipt

If add new reservation == “yes”

Return to Book Hotel Form

Else if add new reservation == “no”

Enter view reservation report

End

**Identify functions applied to the system and justify the reasons for applying the functions.**

The function applied to the system is as below.

public double discountPrice(double totalPrice, double discount)

{

Program.Code = (txtGroupCode.Text);

if (rbGroupCode.Checked == true)

{

if (Program.Code == "GROUP40")

{

discount = 0.4 \* totalPrice;

}

else

{

MessageBox.Show("Please enter the correct code!");

}

}

else if (rbPromotionCode.Checked == true)

{

if (Program.Code == "PROMO50")

{

discount = 0.5 \* totalPrice;

}

else

{

MessageBox.Show("Please enter the correct code!");

}

}

else if (rbTravelIndustryID.Checked == true)

{

if (Program.Code == "TRAVELID55")

{

discount = 0.55 \* totalPrice;

}

else

{

MessageBox.Show("Please enter the correct code!");

}

}

return discount;//RETURNS VALUES

}

Based on the coding above, the data type used for the function in the Colmar Tropicale Hotel Reservation System is double. While the passing parameter for the function is totalPrice and discount. The return value for the function is discount. The variables used in the function is global variable which is totalPrice and discount. totalPrice and discount is global variable where the values of the variable will be carried from a form to other form.

**Reasons for applying the functions.**

There are few reasons for applying the functions. One of the reason is the function allow the developer to shorten a piece of code where it can make the system execute rapidly. Function has 2 passing parameters which is totalPrice and discount. All this passing parameter will be passed to the function for the calculation and the values of it will be returned to be displayed. This make the code more simpler and easy to execute instead of the code is made straight forward which is longer and take time to execute because it will go through one by one of the code.

The other reason is flexibility. Function make the code more flexible where it can call the code from the other parts of the code. For examples, in the Colmar Tropicale Resort Reservation system, there is choice for discount, whether the customers have the discount code or not. If the customers have the discount code, the passing parameter which is totalPrice and discount will call the function to make the discount calculation and return the value. If the customers do not have the discount code, the system will not call the function. Function make the coding flexible and can run faster because if the code is not in needed, the system will not go through the code but the system will run to the other lines of the code.