UNIVERSITY OF MAKATI

J.P. Rizal Extension, West Rembo, Makati City

College of Computing and Information Sciences

LABORATORY ACTIVITY # 4
OOPROGR using C#

Date: September 30, 2022

Class: Object Oriented Programming
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GENERAL INSTRUCTIONS: Read and understand the Machine Problem and give the needed requirements. Follow the example in Page 3 for each programs. Filename: Surname1_Surname2_LABACT4.rar

PROBLEM A

Write a program that calculates and displays a person's body mass index (BMI). The BMI is often used to determine whether a person with a sedentary lifestyle is overweight or underweight for his or her height. A person's BMI is calculated with the following formula:

a) If your weight is 198 lb.
b) And, if your height is 70 inches.
c) Calculate:

$$BMI = 703 \cdot \frac{198}{70^2} = 28.4$$

$$BMI = \frac{Weight(lbs)}{Height(in) \times Height(in)} \times 703$$

where *weight* is measured in pounds and *height* is measured in inches. The program should asks the persons complete name, age, gender, weight in pounds and height in inches then the program should display the name, age, gender the BMI value and Condition.

BMI Computation Table

Condition	Male	Female
Underweight	<20	<19
Healthy	20.7 - 27.8	19.1 – 27.3
Obese	> 27.8	>27.3
Severely Obese	> 31.1	>32.2
Morbidity Obese	>45.4	>44

PROBLEM B

- The Easy Living resort hotel wants you to write a program to calculate the base charge for its guests. The program should prompt the user for the room type ('G' for garden view, 'P' for pool view, or 'L' for lake view) and the number of days the guest is to stay. The program also should prompt for whether the guest is to have a refrigerator in the room and whether there is to be an extra bed in the room.
- The daily room rates are as follows. A garden-view room is $125.00 each day; a pool-view room is $145.00 each day; a lake-view room is $185.00 each day. A refrigerator costs $2.50 extra each day. An extra bed costs $15.00 extra each day for either a garden-view room or a pool-view room, but costs $20.00 extra each day for a lake-view room. Calculate the total bill by multiplying the room rate (adjusted for a refrigerator and extra bed, if necessary) by the number of days the guest is to stay.
- The program should display the room type, the number of days of the stay, the basic daily room rate, the daily charge for the refrigerator and bed (only if the guest requests these), and the total charge for the stay.

Sample Output 1

```
        Welcome to Easy Living Resort Hotel
-------------------------------------------------

      Room Type                   Daily Rate
      ~~~~~~~~~                   ~~~~~~~~~~
   G- Garden Pool View             $ 125.00
   P- Pool View                    $ 145.00
   L- Lake View                    $ 185.00

   Please select your Room Type        :p
-------------------------------------------------

   Number of Days Staying              :10
   Refrigerator in the room ? (Y/N)    :y
   Extra Bed in the room?     (Y/N)    :y
-------------------------------------------------


-------------------------------------------------
  Room type:

     Pool View                        : $ 1,450.00
     Refrigerator                     : $    25.00
     Extra Bed                        : $   150.00
     Number of Days                   :         10

     Your Total Bill is               : $ 1,625.00
```

Sample Output 2

```
        Welcome to Easy Living Resort Hotel
-------------------------------------------------

      Room Type                   Daily Rate
      ~~~~~~~~~~~~                ~~~~~~~~~~~~~~
   G- Garden Pool View             $ 125.00
   P- Pool View                    $ 145.00
   L- Lake View                    $ 185.00

   Please select your Room Type        :1
-------------------------------------------------

   Number of Days Staying              :25
   Refrigerator in the room ? (Y/N)    :y
   Extra Bed in the room?     (Y/N)    :y
-------------------------------------------------


-------------------------------------------------
  Room type:

     Lake View                        : $ 4,500.00
     Refrigerator                     : $    62.50
     Extra Bed                        : $   500.00
     Number of Days                   :         25

     Your Total Bill is               : $ 5,062.50
```

SCORING RUBRIC

(Encircle the score that reflects the actual accomplishment)

Criteria	Rating Scale	Problem A	Problem B
A. Completeness of Requirements	5 – Complete 2- Incomplete		
B. Correctness of the program output	10 – Perfect 4 – Running but has serious problems (on computation and validation) 1 – Not Running		

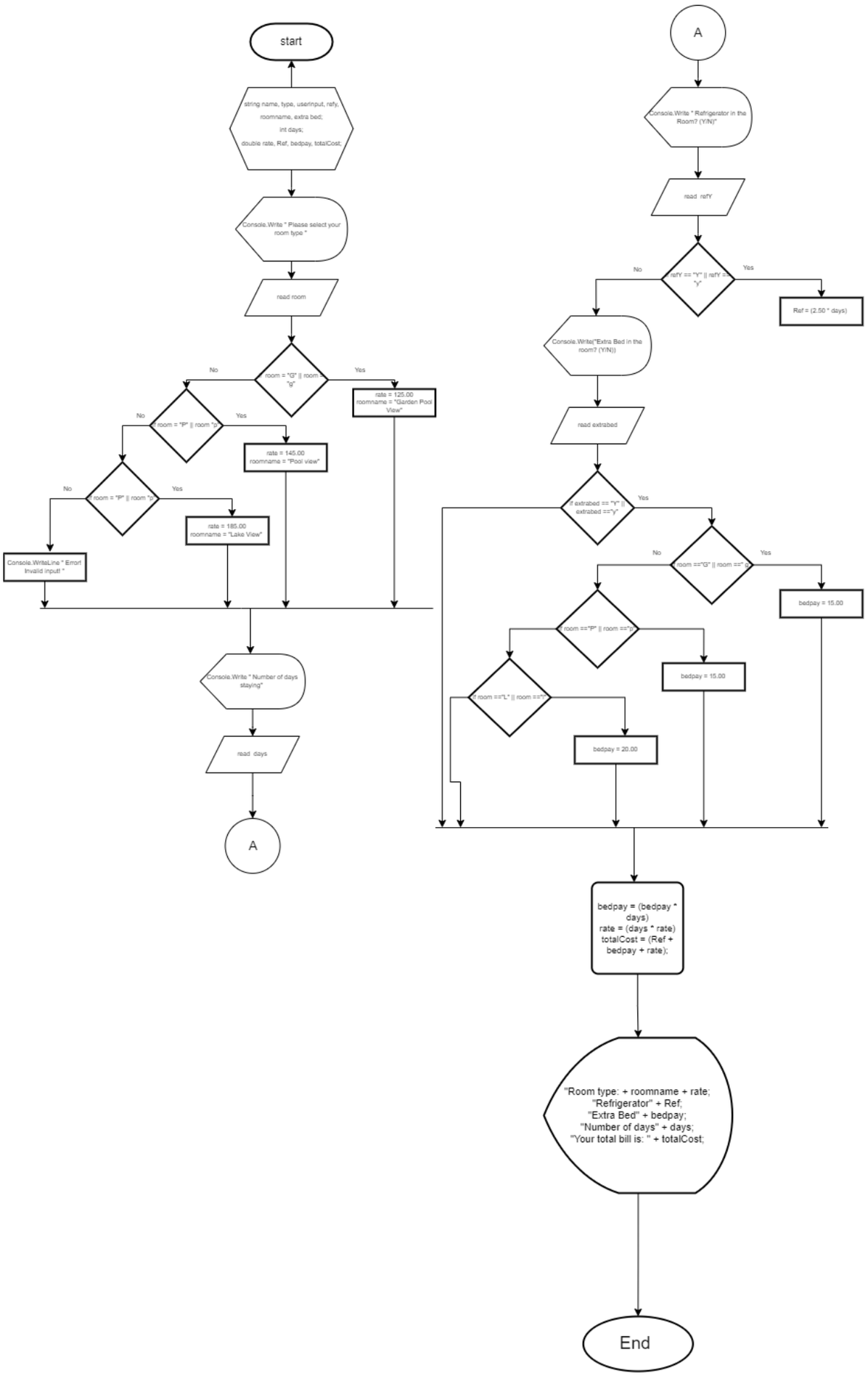
IPO CHART

Input	Process	Output
1. Select room type **2.** Enter number of days staying **3.** Refrigerator in the room (Y/N) **4.** Extra bed in the room (Y/N)	**1.** Ask the user what room type they want **2.** Then enter how many days they will stay **3.** Ask the user if they want a refrigerator in the room **4.** Ask the user if they want an extra bed in the room **5.** Compute for the rate, extra bed and refrigerator and multiply it on how many days they will stay.	**1.** Room type: **2.** Refrigerator = **3.** Extra bed = **4.** Number of days = **5.** Your total bill is :

LIST OF VARIABLES

Variable name	Data type	Description
string	room	To get room type
string	userinput	to convert string to int
string	refY	To check if they want refrigerator
string	roomname	To get the name of the room
string	extrabed	To ask if they want extra bed
int	days	To get number of days
double	rate	To get the rate
double	Ref	To compute for the ref
double	bedpay	To compute for the cost of bed
double	totalCost	Total cost of everything

FLOWCHART


start
string name, type, userinput, refy,
roomname, extra bed;
int days;
double rate, Ref, bedpay, totalCost;
Console.Write " Please select your room type "
read room
room = "G" || room = "g"
No
Yes
rate = 125.00
roomname = "Garden Pool View"
room = "P" || room "p
rate = 145.00
roomname = "Pool view"
room = "P" || room "p
rate = 185.00
roomname = "Lake View"
Console.WriteLine " Error! Invalid input! "
Console.Write " Number of days staying"
read days
A
A
Console.Write " Refrigerator in the Room? (Y/N)"
read refY
refY == "Y" || refY == "y"
Ref = (2.50 * days)
Console.Write("Extra Bed in the room? (Y/N))
read extrabed
if extrabed == "Y" || extrabed =="y"
room =="G" || room == "g"
bedpay = 15.00
room =="P" || room =="p"
bedpay = 15.00
if room =="L" || room =="l"
bedpay = 20.00
bedpay = (bedpay * days)
rate = (days * rate)
totalCost = (Ref + bedpay + rate);
"Room type: + roomname + rate;
"Refrigerator" + Ref;
"Extra Bed" + bedpay;
"Number of days" + days;
"Your total bill is: " + totalCost;
End