OOP (2CS302)
INNOVATIVE ASSIGNMENT

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STADIUM SEAT ALLOTMENT AND CANCELLATION PROGRAM:

Functions
1. Seat booking
2. Seat cancellation
3. Displaying Food menu (Using File I/O)
4. Booking status
5. Availability of seats

FILENAME: Assignment.java

NOTE: Enter path of “Foodmenu.txt” file on line 206 of code before compiling the program. Contents of the file are placed at the end.

CODE:

```
import java.util.Scanner;
import java.io.*;

class User
{
    String user_name;
    char block;
    char section;
    int seat_row[];
    int seat_pos[];

    User(String n, char b, char s, int no_seats)
    {
        user_name = n;
        block = b;
        section = s;
        seat_row = new int[no_seats];
        seat_pos = new int[no_seats];
    }
}

class Block
{
    char division;
    int[][] upper = new int[3][10];
    int[][] lower = new int[3][10];
}

class Stadium
{
    Block blk[] = new Block[5]; //array of blocks
    User cust[] = new User[400];//
    int user_num = 0;

    Stadium()
    {
        for(int i = 0; i < 5; i++)
            blk[i] = new Block();
    }

    void price_display(int nos, int b, char s)
    {
            if((b == 0 || b == 1) && (s == 'U' || s == 'u'))
            {
                System.out.println("Your total price: " + (nos*1500));
            }
            else if((b == 0 || b == 1) && (s == 'L' || s == 'l'))
            {
                System.out.println("Your total price: " + (nos*1000));
            }
            else if((b == 2 || b == 3) && (s == 'U' || s == 'u'))
            {
                System.out.println("Your total price: " + (nos*800));
            }
            else if((b == 2 || b == 3) && (s == 'L' || s == 'l'))
            {
                System.out.println("Your total price: " + (nos*500));
            }
            else if((b == 4) && (s == 'U' || s == 'u'))
            {
                System.out.println("Your total price: " + (nos*3000));
            }
            else if((b == 4) && (s == 'L' || s == 'l'))
            {
                System.out.println("Your total price: " + (nos*2500));
            }
    }

    void seat_allotment()
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter your name: ");
        String name = sc.nextLine();

        display_available();
        System.out.println("\nSeat Pricing:");
        System.out.println("Price for block A and B upper : Rs.1500");
        System.out.println("Price for block A and B lower : Rs.1000");
        System.out.println("Price for block C and D upper: Rs.800");
        System.out.println("Price for block C and D lower: Rs.500");
        System.out.println("Price for block P upper : Rs.3000");
        System.out.println("Price for block P lower : Rs.2500");
        System.out.print("\nEnter number of required seats: ");
        int req_seats = sc.nextInt();

        System.out.print("Enter your Block\n(0 for A, 1 for B, 2 for C, 3 for D, 4 for Private
Block): ");
        int block_num = sc.nextInt();

        char block;
        if(block_num == 4)
            block = 'P';
        else
            block = (char)(block_num + 65);

        System.out.print("Enter block section(U for Upper or L for Lower): ");
        char sect = sc.next().charAt(0);

        cust[user_num] = new User(name, block, sect, req_seats);
        price_display(req_seats,block_num,sect);
        seat_allocation(req_seats, block_num, sect);

        user_num++;
    }

    void seat_allocation(int num_seats, int blnum, char sec)
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the required seats:\n\n");
        for(int i = 0; i < num_seats; i++)
        {
            int row, seat;
            System.out.print("Enter row number(1 - 3) of the block: ");
            row = sc.nextInt();
            System.out.printf("Enter seat number (1 - 10) of row %d: ", row);
            seat = sc.nextInt();

            if(availibility_check(row - 1, seat - 1, blnum, sec))
            {
```

```
            if(sec == 'U' || sec == 'u')
                blk[blnum].upper[row - 1][seat - 1] = 1;

            else if(sec == 'L' || sec == 'l')
                blk[blnum].lower[row - 1][seat - 1] = 1;
            else
            {
                System.out.println("Invalid Section.");
                return;
            }
            System.out.println("Seat is now booked.");
        }
        else
        {
            System.out.println("Seat chosen is occupied.");
            i--;
            continue;
        }
        cust[user_num].seat_row[i] = row;
        cust[user_num].seat_pos[i] = seat;
    }
}

boolean availibility_check(int row, int seat, int blnum, char sec)
{
    if(sec == 'U' || sec == 'u')
    {
        if(blk[blnum].upper[row][seat] == 0)
            return true;
        else
            return false;
    }
    else
    {
        if(blk[blnum].lower[row][seat] == 0)
            return true;
        else
            return false;
    }
}

void display_available()
{
    for(int i = 0; i < 5; i++)
    {
        char blok = (char)(i + 65);
        if(i == 4)
```

```
            {
                blok = 'P';
            }

            System.out.println("Available seats in Block " + blok);
            int upper_num = 0, lower_num = 0;

            System.out.print("In Upper Section: ");
            for(int j = 0; j < 3; j++)
            {
                for(int k = 0; k < 10; k++)
                {
                    if(blk[i].upper[j][k] == 0)
                        upper_num++;
                }
            }
            System.out.println(upper_num);

            System.out.print("In Lower Section: ");
            for(int j = 0; j < 3; j++)
            {
                for(int k = 0; k < 10; k++)
                {
                    if(blk[i].lower[j][k] == 0)
                        lower_num++;
                }
            }
            System.out.println(lower_num);

            System.out.println();
        }
    }

    void display_menu()
    {
        int i;
        FileInputStream fin;

        try
        {
            fin = new
FileInputStream("C:\\Users\\Mitul\\Desktop\\Assignments2020\\OOP");
            do{
                i = fin.read();
                if(i != -1) System.out.print((char) i);
            }while(i != -1);
            fin.close();
        }
        catch(FileNotFoundException e)
        {
            System.out.println("File not Found.");
            return;
        }
        catch(IOException e)
        {
            System.out.println("IOException error.");
            return;
        }
        catch(ArrayIndexOutOfBoundsException e)
        {
            System.out.println("ArrayIndexOutOfBoundsException error.");
            return;
        }
    }

    void seat_cancellation()
    {
        Scanner sc1 = new Scanner(System.in);
        System.out.print("Enter your name: ");
        String del_name = sc1.nextLine();
        int flag = 0;

        for(int k = 0; k <= user_num; k++)
        {
            if((cust[k].user_name).compareTo(del_name) == 0)
            {
                flag++;
                cust[k].user_name = "";

                int del_block = (int)cust[k].block;
                if(cust[k].block == 'P')
                {
                    del_block = del_block - 76;//del_block - 80 + 4
                }
                else
                {
                    del_block = del_block - 65;
                }

                for(int j = 0; j < (cust[k].seat_row).length; j++)
                {
                    if(cust[k].section == 'U' || cust[k].section == 'u')
                    {
                        blk[del_block].upper[cust[k].seat_row[j] - 1][cust[k].seat_pos[j] - 1] = 0;
                        cust[k].seat_row[j] = 0;
                        cust[k].seat_pos[j] = 0;
                    }
                    else if (cust[k].section == 'L' || cust[k].section == 'l')
                    {
                        blk[del_block].lower[cust[k].seat_row[j] - 1][cust[k].seat_pos[j] - 1] = 0;
                        cust[k].seat_row[j] = 0;
                        cust[k].seat_pos[j] = 0;
                    }
                }

                cust[k].block = ' ';
                cust[k].section = ' ';
                System.out.println("Your seats are now cancelled.");
                break;
            }
        }
        if(flag == 0)
            System.out.println("No seats booked under this Name.");
    }

    void booking_status()
    {
        Scanner sc2 = new Scanner(System.in);
        System.out.print("Enter your name: ");
        String book_name= sc2.nextLine();
        int flag = 0;
        for(int k = 0; k < user_num; k++)
        {
            if((cust[k].user_name).compareTo(book_name) == 0)
            {
                flag++;
                System.out.println("\nYour Booking has been confirmed.");
                System.out.println("Booking name: " + cust[k].user_name);
                System.out.println("Seat Block: " + cust[k].block);
                System.out.println("Seat Section: " + cust[k].section);
                System.out.println("U = Upper and L = Lower");
                System.out.println("Your Booked seats are Displayed below: row(seat no.)");
                for(int j = 0; j < cust[k].seat_row.length; j++)
                {
                    System.out.print(cust[k].seat_row[j] + "(" + cust[k].seat_pos[j] + ")  ");
                }
                System.out.println();
                int temp = (int)cust[k].block;
                if(cust[k].block == 'P')
                {
                    temp = temp - 76;//del_block - 80 + 4
                }
                else
                {
                    temp = temp - 65;
                }
                price_display(cust[k].seat_pos.length, temp, cust[k].section);
                break;
            }
        }
        if(flag == 0)
            System.out.println("No seats booked under this Name.");
    }
}

class Assignment
{
    public static void main(String[] args)
    {
        Stadium s = new Stadium();
        Scanner scc = new Scanner(System.in);
        System.out.println("****Stadium Seat Booking System****\n\n");
        int choice = 0;
        do{
            System.out.println("\n1.Book Seats");
            System.out.println("2.Cancel Booked Seats");
            System.out.println("3.Check Available Seats");
            System.out.println("4.Display Cafeteria Menu");
            System.out.println("5.Check your Booking");
            System.out.println("6.Exit");
            System.out.print("Enter -> ");
            choice = scc.nextInt();
            switch(choice)
            {
                case 1:
                    s.seat_allotment();
                    break;
                case 2:
                    s.seat_cancellation();
                    break;
                case 3:
                    s.display_available();
                    break;
                case 4:
                    s.display_menu();
                    break;
                case 5:
                    s.booking_status();
                break;
            }
        }while(choice != 6);
    }
}
```

CONTENTS OF “Foodmenu.txt” FILE:

```
MENU OF STADIUM CAFETERIA
1. French Fries           Rs.100
2. Cheese Nachos               Rs.150
3. Veggie Cheese Burger        Rs.200
4. Vadapav                Rs.50
5. Dabeli                 Rs.50
6. Fried Chicken Burger        Rs.200
7. Popcorn                Rs.100
8. Aloo Sandwich               Rs.100
9. Veggie Sandwich             Rs.120
10 . Beverages                 Rs.80
```