

# EC 2010 : Computer Programming

## Lab 08

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2022/E/126

EC2010

2023/12/12

## Code :-

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// EC2010

//Group: C

// Lab: 08

// Program Description: Train Ticket Service

// Certificate of Authenticity:

// I certify that the code in the method function main of this project

// is entirely my own work.

#include <iostream>

#include <iomanip>

class Reservation {

private:

int totalSeats[3];

int availableSeats[3];

int pricePerTicket[3];

int mealPrice;

int reservationNumber;

public:

Reservation(int firstClassTotal, int firstClassAvailable, int firstClassPrice,  
int secondClassTotal, int secondClassAvailable, int secondClassPrice,  
int thirdClassTotal, int thirdClassAvailable, int thirdClassPrice,  
int meal)

: mealPrice(meal), reservationNumber(1) {  
totalSeats[0] = firstClassTotal;  
availableSeats[0] = firstClassAvailable;  
pricePerTicket[0] = firstClassPrice;

totalSeats[1] = secondClassTotal;  
availableSeats[1] = secondClassAvailable;  
pricePerTicket[1] = secondClassPrice;

totalSeats[2] = thirdClassTotal;  
availableSeats[2] = thirdClassAvailable;

```

    pricePerTicket[2] = thirdClassPrice;
}

void displayDetails() {
    std::cout << "Welcome to Advanced Train Ticket Reservation System!\n\n";
    std::cout << "1st class:\nTotal – " << totalSeats[0] << "\nAvailable – " << availableSeats[0] << "\nPrice  
per ticket – " << pricePerTicket[0] << "\n\n";
    std::cout << "2nd class:\nTotal – " << totalSeats[1] << "\nAvailable – " << availableSeats[1] << "\nPrice  
per ticket – " << pricePerTicket[1] << "\n\n";
    std::cout << "3rd class:\nTotal – " << totalSeats[2] << "\nAvailable – " << availableSeats[2] << "\nPrice  
per ticket – " << pricePerTicket[2] << "\nMeal will be provided for " << mealPrice << ".\n\n";
}

void makeReservation() {
    std::cout << "Reservation number _" << std::setw(2) << std::setfill('0') << reservationNumber << "\n";
    int classChoice;
    std::cout << "Which class ticket you need? (1/2/3) ";
    std::cin >> classChoice;

    if (classChoice < 1 || classChoice > 3) {
        std::cout << "Invalid choice.\n";
        return;
    }

    classChoice--; // adjusting for array indexing

    int seatsNeeded;
    std::cout << "Do you want a meal? (Y/N) ";
    char mealChoice;
    std::cin >> mealChoice;

    std::cout << "Enter the number of seats you want to reserve: ";
    std::cin >> seatsNeeded;

    if (seatsNeeded > availableSeats[classChoice]) {
        std::cout << "Not enough seats available.\n";
        return;
    }

    int totalCost = seatsNeeded * pricePerTicket[classChoice];
    if (mealChoice == 'Y' || mealChoice == 'y') {
        totalCost += mealPrice;
    }

    std::cout << "Seat is reserved.\n";
    std::cout << "Pay: " << totalCost << "\n\n";

    availableSeats[classChoice] -= seatsNeeded;
}

```

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        reservationNumber++;
    }
};

int main() {
    Reservation reservation(30, 20, 2250, 50, 35, 1750, 100, 70, 750, 300);
    reservation.displayDetails();

    char anotherReservation;
    do {
        reservation.makeReservation();
        std::cout << "Do you want another reservation? (Y/N) ";
        std::cin >> anotherReservation;
    } while (anotherReservation == 'Y' || anotherReservation == 'y');

    return 0;
}

```

The screenshot shows a C++ IDE with the following components:

- Code Editor:** Displays the C++ code for the `Reservation` class and its `main` function. The code includes headers for `iostream` and `iomanip`, defines the `Reservation` class with private attributes for seats, prices, and meal availability, and implements its methods.
- Output Window:** Shows the program's execution. It displays the welcome message, the reservation details for three classes (1st, 2nd, and 3rd), and the user's interaction with the reservation system. The user selects the 1st class, reserves 2 seats, and chooses not to have a meal. The total cost is calculated as 4800.
- Taskbar:** Shows the Windows taskbar with the Start button, search bar, and several open applications including the IDE, a file explorer, and a terminal.

## Output :-

Welcome to Advanced Train Ticket Reservation System!

1st class:

Total - 30

Available - 20

Price per ticket - 2250

2nd class:

Total - 50

Available - 35

Price per ticket - 1750

3rd class:

Total - 100

Available - 70

Price per ticket - 750

Meal will be provided for 300.

Reservation number \_01

Which class ticket you need? (1/2/3) 1

Do you want a meal? (Y/N) y

Enter the number of seats you want to reserve: 2

Seat is reserved.

Pay: 4800

Do you want another reservation? (Y/N) y

Reservation number \_02

Which class ticket you need? (1/2/3) 2

Do you want a meal? (Y/N) n

Enter the number of seats you want to reserve: 1

Seat is reserved.

Pay: 1750

Do you want another reservation? (Y/N) n

Process returned 0 (0x0) execution time : 17.543 s

Press any key to continue.