

### Project #3

Write a program to assign passengers seats in an airplane. Assume that this airplane has 7 rows and 4 seats per row. The program should display the seat pattern, with an 'X' marking the seats already taken. After displaying the seats in the airplane, your program should do the following:

1. Display the seats in the airplane
2. Asks the user to enter the information for the desired seat. If the selected seat is not already taken, then assign the seat, mark the seat as taken.
3. If the user's input is not valid, display a message and continue to the next iteration. You need to use continue statement.
4. If there is no seat left then you need to use break statement to break out of the loop

You need to create two java files

SeatingAssignmnet.java

Here is the list of all the methods and the description

1. Declare a method that accepts a two dimensional array of char with the size 7x5. This method should initialize the array in the following format.  

```
1  AB  CD
2  AB  CD
3  AB  CD
4  AB  CD
5  AB  CD
```
2. Declare a method to assign the selected seat to the user. This method has three parameters. This method accepts a two dimensional array of char representing the airplane seats, and a string representing the selected seat by the user, and an int representing the number of the seats left. This method should return a Boolean.
  - a. Call the methods in step 4 and 5 to find out if the row number and the seat number are valid. Remember that the selected seat entered by the user is In the form of 1A for example. Therefore you need to extract the row number and the seat using the method charAt(0) and charAt(1). If either of these methods returns false then display "invalid choice" then use System.exit(1);
  - b. Returns false if the selected seat is already taken.
  - c. Returns true if the selected seat is assigned. Make sure to replace the letter for the seat to 'X'.
3. Write a method called display that has a two dimension array of char. This method displays the airplane seats. Refer to the output. A nested for loop is needed here.
4. Write a method to check the row number. This method gets a char as its parameter. Returns true if the parameter is '1' or '2' or '3' or '4' or '5' or '6' or '7', otherwise it will return false
5. Write a method to check the selected seat. This method gets a char as its parameter. If the input parameter is 'A' or 'B' or 'C' or 'D' returns true otherwise it will return false.

SeatingDriver.java

1. Declare and instantiate a two dimensional array of char representing the seats in the airplane.
2. Declare a variable for the number of the available seats and set it to column -1 \* row of the array you just declared
3. Create a while loop  
While (true)  
{
  - a. If the number of the seats left is zero then break out of the program using break statement.
  - b. Display the seats in the airplane by calling a method from the SeatingAssignment class
  - c. Prompt the user to enter a selected seat
  - d. If the user enters 'q' or 'Q' then use break statements to break out of the program.
  - e. Call the proper method from the SeatingAssignment class to assign the seat. Make sure to pass the proper arguments when calling this method. This call should return a Boolean.
    - i. If the return value is false then the selected seat is already taken. Display a message "Selected seat has been taken" Then use the continue statement to go to the next iteration.
    - ii. If the return is true, it means that the seat was assigned, therefore you need to decrement the number of the available seats by one.}