School of Electrical Engineering and Computer Science
The University of Newcastle
SENG2050/SENG6050 Introduction to Web Engineering
Assignment 1 (12%) – Semester 1, 2018
Due: Electronic submission (Blackboard) by 11:59pm on Sunday 25 March 18

ONLINE SEATS BOOKING SYSTEM

1. Introduction

The main objective of this assignment is to design an online seat booking system for a theatre. Your web site allows users to book a seat or seats electronically for a theatre (you think a good name for the theatre). We simplify the application by assuming that the booking system is used for a single event.

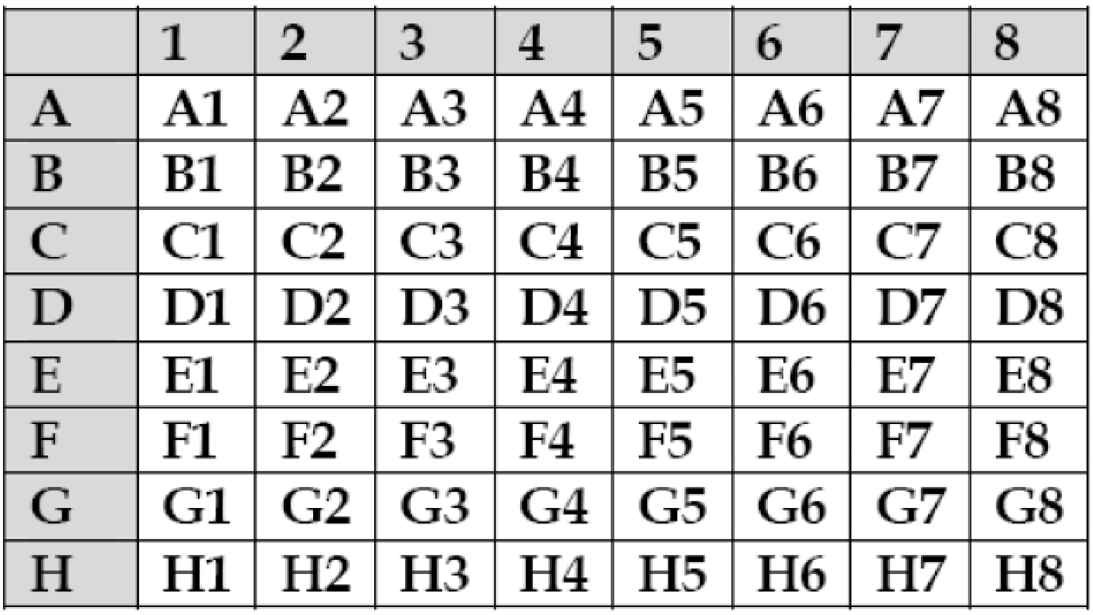
On the web site you will display all the seats together with graphical indications of which seats are available. When a user clicks on a seat, if the seat is available, a form will be presented to the user asking for information. This information will be passed on to the server for processing. If the seat is not available, then the user who has booked the seat can cancel the booking.

This assignment exercises your knowledge of HTML for the creation of well structured Web pages, CSS for the visual formatting, JavaScript for client side validating, event triggered JavaScript functions, Java Servlets to handle the users' input to the server, and generation of dynamic content using Servlets.

In this implementation, it is not necessary to use advanced techniques such as Java Beans, session control, cookies, etc. Don't waste time looking for nice background images or fiddling with the font, colours and visualization. You will be marked on your site's functionality not how fancy it looks.

2. Chart of Seats

The theatre's 64 available seats are organized as a chess board (8x8). Each seat is identified by a label, which is a combination of its row and its column. See chart below:



	1	2	3	4	5	6	7	8
A	A1	A2	A3	A4	A5	A6	A7	A8
B	B1	B2	B3	B4	B5	B6	B7	B8
C	C1	C2	C3	C4	C5	C6	C7	C8
D	D1	D2	D3	D4	D5	D6	D7	D8
E	E1	E2	E3	E4	E5	E6	E7	E8
F	F1	F2	F3	F4	F5	F6	F7	F8
G	G1	G2	G3	G4	G5	G6	G7	G8
H	H1	H2	H3	H4	H5	H6	H7	H8

3. Detail of HTML Pages

Assumptions:

- The booking system is used for a single event.
- If the seat is booked by someone else, then the seat is not available anymore.
- Each user can book a maximum of 3 seats in the system.
- User is identified by a UserID.
- You do not need to implement a username/password type of security system, i.e. one can use any UserID he/she wants, even the UserID used by other users.
- The system allows the user to cancel his/her bookings.

Your assignment will consist of three HTML pages, the Main Page, the Booking Page and the Cancellation Page.

The Main Page should contain the following elements:

- An appropriate heading,
- A grid presenting all the seats in the system with an indication if a seat is available. For example, you can use a different coloured background for availability. Note that colour information must be added to the output using your CSS style sheet and class or id attributes on the relevant HTML tags. Using individual style attributes on the tags will attract fewer marks. Using <font> and similar tags will attract no marks at all.
- Current time (DD-MM-YY SS-MM-HH)

On the Booking Page, you should include the following:

- An appropriate heading,
- The label of the seat the user selected,
- System random generated security code (6 characters exactly, numbers mixed with letters),
- A form with the following inputs. All information should be validated before submission.
  - UserID of the customer (required, no numbers in it),
  - Phone (optional),
  - Address (optional),
  - Email (required, must have @ in it),
  - Security code (must match the system randomly generate security code)
  - Two buttons: Submit and Clear.
    - The Clear button will clear the form and will allow the user to re-enter the information,
    - The Submit button will submit information to the server.

On the Cancellation Page, you should include the following:

- An appropriate heading,
- The label of the seat the user selected,
- System random generated security code (6 characters exactly, numbers mixed with letters),
- A form with the following inputs. All information should be validated before submission.
  - UserID of the customer (required, no numbers in it),
  - A system randomly selected field among the Phone, Address or Email,
  - Security code (must match the system randomly generate security code)
  - Two buttons: Cancel the Booking and Clear.

- The Clear button will clear the form and will allow the user to re-enter the information,
- The Cancel the Booking button will submit information to the server.

Basic operations

User clicks on a seat displayed on the Main page, if the seat is not available for booking, then user will be presented with the Cancellation Page. If the UserID and the other field (which is system randomly selected among the three fields) matches the system records, then the system will cancel the booking.

If the seat is available, then the user will be directed to the Booking Page. From there the user will need to fill in the information and submit it, the information will need to be validated on the client side before it is submitted to the server. The server will check if the current user has made more than 3 bookings. If yes, the system will display an error message, otherwise, the system will record the information and direct the user back to the main page which will display the updated information.

You should use Java Servlets to implement this assignment. Note that you don’t need a database for this assignment, the information should be kept on the server in a file, you can decide the format of the file.

4. Submission

Create a folder in your tomcat/webapps/ directory called cXXXXXXX_assignment1 (where XXXXXXX is your student number) with the following files zip it and submit it through blackboard:

1. Assignment Cover Sheet.
2. A brief explanation of your program (readme.txt).

- What is the purpose of each of your objects?
- How do you store each booking?
- The application structure, i.e. relationships among objects etc.
- Identify if you are an MIT student or an undergraduate student.

3. Your entire assignment, including all the files which contribute to your web pages, including HTML, java source code, and images, etc.

5. Marking Guidelines

The following is a general guide on how the marks are allocated to each part of the assignment and some common mistakes where you might lose marks.
Total Marks: 100

Handling Bookings: 20

- Is the Main Page dynamically updated and are new bookings displayed?
- Does your Web server lose any messages?
- Does your output match the input data?
- Does your program control correct bookings?

Form Inputs: 15

- Do your form inputs match the assignment specification?
- Are your form inputs validated?

Formatted Output: 10

- Are the seats displayed properly?
- Does your formatted output match the specified formats?
- Does your output match the input data?

Servlet: 25

- Can your Servlet dynamically generate information?
- Can your Servlet manage all the information correctly?
- Is your Servlet nicely formatted and commented?
- Can your Servlet handle errors properly?

HTML and CSS: 15

- Is your HTML syntax valid (use a validating tool)?
- Do your tags make semantic sense?
- Are you using tags just for their visual effect?
- Are you using CSS to advise the browser about visual formatting?

There will be 15% allocated to the usability of your web application.