# Analysis

[Analysis 1](#_Toc1841007585)

[Problem Identification: 1](#_Toc1357201942)

[Actors: 3](#_Toc926338256)

[Client Interview: 4](#_Toc164154442)

[Client Requirements: 6](#_Toc1158134183)

[Solution Requirements: 6](#_Toc1903982092)

[Success Criteria: 8](#_Toc529376467)

[Limitations of the System: 10](#_Toc1399119974)

[Software and Hardware Requirements: 10](#_Toc1590880152)

## Problem Identification:

The day-to-day work in at a music hall venue consists of many repetitive and manual processes. Venue staff completing these actions manually is extremely time consuming, in addition the resources used harm the sustainability of the venue.

Our clients, Joe Lancaster and Robert Lancaster, of the Lancaster Music Hall have now been successfully running the music hall for over 10 years and believe that better utilizing technology will help their team in the day-to-day work of the venue and would like to make use of online resources (specifically APIs).

Our clients have requested the creation of a system that will help to reduce the venue’ staffs' workload and improve how they handle information. The clients' requests fall broadly into 3 areas:

* Booking of shows, managing the venue calendar and usage of the venues’ spaces.
* Booking of films and meetings, as well as groups for shows
* Booking of tickets for shows and films, managing the seating plan and validating tickets

The venue consists of several spaces:

* The Main Hall (~370 seats for shows, ~285 seats for films)
* The Small Hall (~100 seats)
* A Rehearsal space
* Five meeting rooms (varying sizes)

The creation of the system has been split across 3 teams: Operations, Box Office and Marketing.

* Our team will be responsible for developing the Box Office subsystem.
* Our main cooperation with the other teams is in the form of passing records of ticket sales to the operations team for accounting and passing records of overall insights to the marketing team
* The calendar is managed by the Operations team, and needs to be accessed to sell tickets
* The seating configuration is managed by the Operations team and needs to be reviewed by the Box Office manager/deputy.

The Box Office team are responsible for handling ordinary patrons/guests coming to the venue.

The staff hierarchy consists of the manager, deputy and ordinary staff.

The Box Office responsibilities include:

* the sale of all tickets (including maintaining records of sales)
  + online and in-person
* updating the seating
  + removing/discounting restricted views
  + removing sold seats
* offering refunds (only possible by the *manager* and *deputy*)
* the sale of groups of 12 or smaller
* applying discounts (NHS, military, disabled, etc)
* validating tickets

Our solution is to create a subsystem that allows the Box Office staff members to authenticate their permissions by logging into an account. The staff will be able to manage the sales of seats (selling, removing and discounting). During a sale, the staff will be able to enter and store customer details. The subsystem will automatically interact with a payment gateway. The staff will be able to print the ticket following a sale. Outside of a sale, the subsystem will be able to log customer complaints.

## Actors:

The manager:

* is responsible for keeping the record of all ticket sales and passing it onto the Operations team as part of their accounting
* offers refunds
* add shows to the online booking website and selects what seats can be booked online
* reviews the seating configuration for each show and removes any seats with a restricted view

The deputy manager:

* offering refunds
* add shows to the online booking website and selects what seats can be booked online
* reviews the seating configuration for each show and removes any seats with a restricted view

Venue staff (including manager and deputy manager):

* sell tickets to shows and films
* handle group bookings of up to 12 people
* offer discounts
* handle wheelchair allocation
* check guests’ tickets for performances
* direct guests to their seats

Customers:

* buy tickets in person
* buy tickets through the online website

## Client Interview:

The following interview was conducted on Wednesday, 5th February 2025, with one of the clients.

1. How does the current box office system work?
   1. Currently, it updates the list of how many tickets are available and sold. Checks if there are any specific people coming to the show, such as wheelchair users or guests with accessibility requirements.
2. Is this system only going to be used by staff?
   1. Yes, only staff members will use the system. It will need an account management system to be able to differentiate between the managers and staff
3. What should the system look like?
   1. The system should have a simple UI. It should abstract all unnecessary details. It should show additional details such as next weeks shows and a visual representation of seating arrangement map.
4. What customer details should be stored?
   1. Basic details to do with the sale including basic contact information (name, email, number) and payment gateway. Along with information for gathering insights on customer groups (age, gender, accessibility needs)
5. Who should the customer details be shared with?
   1. Both the Marketing and Operations teams
6. How should refunds be dealt with?
   1. Tickets are only refundable up until a certain deadline. The system should track refunded tickets.
7. Can seats be exchanged for another show or position?
   1. No, they cannot.
8. How are group bookings handled?
   1. Group bookings work the same way as a single booking. The Box Office hands groups of 12 people or less. Discounts may be offered to entire groups.
9. Should the system validate tickets?
   1. No, however it could optionally through generating a QR code or barcode.
10. How are ticket prices handled?
    1. Ticket prices are static, they do not change with the supply of seats.
11. How are discounts handled?
    1. Specific discount rates will be provided in the document. You would book in advance and show your discount documentation in person, so students would show their student IDs. Notably, schools get a 10% discount and restricted view seats get 25% discounts.
12. How would you like the system to integrate with the online website?
    1. It should integrate heavily as most of the tickets are booked online. To buy tickets online, customers can choose whether to create an account or to purchase as a guest, which won't need an account.
13. How would payment work?
    1. All payment methods are accepted and you should assume you have a payment gateway works for all cards.
14. How would a cancelled show work?
    1. All customers would need to be notified, this can be done via email, text or a phone call, hence some can be automated. Then, tickets must be refunded to the guests.
15. How does picking a seat work?
    1. Seats are picked by the guest when they book the ticket. It cannot be changed afterwards, but tickets can be exchanged between people. Different seats will have different prices depending on the position. Accessibility seats take up two positions and are available on the end columns.
16. Will the system need to generate any reports?
    1. Yes, it needs to collect guest data and allow a user to filter through the data by various metrics such as age or gender.
17. Should the system track customer complaints?
    1. Yes, but it should be kept simple. There should be 1 platform to review the venue and provide feedback, this could be Google reviews

## Client Requirements:

From the research and analysis conducted our client requires our system to:

* Allow staff to sell tickets to customers
  + Otherwise, the purpose of the box office is defeated
* Allow staff to log a ticket sale including customer details
  + Otherwise, ticket sales and customer insights can’t be tracked
* Allow staff to log into an account
  + Otherwise, the system can’t give appropriate privileges
* Allow staff to review and modify the seating configuration
  + Otherwise, seats with restrictive views cannot be removed
* Allow staff to setup the websites bookings
  + Otherwise, seats can’t be sold through the website
* Have a simple design
  + Otherwise, it won’t be easy to use by all staff members

## Solution Requirements:

The program will start with a login system to differentiate and authorize different permissions based on whether the user is a manager or ordinary staff member. **Otherwise, the program will not be able to give the user their appropriate privileges.** The user should be able to enter their information into several input boxes (username/staff id/password/etc). **Otherwise, the user can’t enter their login details**. Following a successful login there should be a main menu with several options to implement the system’s various functions**.**

(selling a ticket)

A user will be able to start conducting the sale of a ticket, this will make a representation of the calendar appear (image/list/etc). **Otherwise, the user cannot see what events there are.** Next, the user can click on an event, which will show a visual representation of all available seats in the venue. **Otherwise, the user cannot see what free seats there are.** Alongside this will be several input boxes/lists allowing customer details to be entered. **Otherwise, there is no way to take the guest’s information.** Following, a successful ticket sale the system should show an overview of the information relating to the ticket and should have an option to produce the ticket (a button that generates a QR code/barcode/prints a ticket/email or text code/etc).

(reviewing the calendar and event seating configuration)

A user should be able to view the calendar. **Otherwise, the user cannot see what events there are to help guide guests or to modify events.** Next, the user can click on an event, which will show a visual representation of all the seats in the venue. **Otherwise, the user cannot see what seats there are.**

If the user has logged in with a manager account, they should be able to select a seat (clicking image/selecting in a list/etc) and should have several options (checkboxes/lists/buttons) to modify the seat including: marking as restricted, changing the price, removing the seat from sale, marking the seat as held (either by a group or Friends of Lancaster). **Otherwise, the user cannot make changes to the seating configuration.**

(managing online booking system - mangers)

If the user has logged in with a manager account, they should be able to manage the booking website, through the system.The user should be able to add shows to the site and select which seats can be booked online. **Otherwise, customers could not purchase tickets online.** Similarly, to previous functions this will make a representation of the calendar appear (image/list/etc). **Otherwise, the user cannot see what events there are.** Next, the user can click on an event, which will show a visual representation of all available seats in the venue. **Otherwise, the user cannot see what free seats there are.** Then, the user should be able to select which seats can be booked online (clicking image/selecting in a list/checkboxes/etc). **Otherwise, the user cannot select which seats can be booked online.**

(ticket sales data)

A user should be able to view a list of ticket sales information. **Otherwise, the user cannot get information about ticket sales.** The user should be able to search through the data shown (inputboxes/checkboxes/lists/etc). **Otherwise, the user cannot filter through the data.**

If the user has logged in with a manager account, they should be able to modify the information shown (inputboxes/checkboxes/lists/etc). **Otherwise, the user cannot change or update the data.**

(customer data)

A user should be able to view a list of customer information. **Otherwise, the user cannot get information about ticket sales.** The user should be able to filter and modify the information shown (input boxes/checkboxes/lists/etc). **Otherwise, the user cannot update or search the data.**

Note – the user shouldn’t be able to modify any Friends of Lancaster as that data is managed by the Marketing team, presumably the Friends of Lancaster data would be aggregated with the customer data here.

(exiting the system)

A user should be able to exit the system through a button (logout/exit/etc). **Otherwise, the system does not provide a uniform way to exit.**

## Success Criteria:

|  |  |  |  |
| --- | --- | --- | --- |
| Number | Requirement | Evidence of success | Justification |
| 1 | Each subsystem is windowed | Screenshot of each subsystem open in a separate window | To allow multiple parts of the program to be used  at once. **Otherwise, the program will be hard to**  **use as you would only be able to use one part of**  **the program at a time.** |
| 2 | Easy to use | Screenshot of clear titles and labels for all windows, input boxes and more | To ensure that staff with all kinds of technical experience can use the system. **Otherwise, the system would not be usable by some staff** |
| 3 | User input | Screenshots of various methods of user input present (input boxes, buttons, lists, etc) | To allow staff to interact with the system. Otherwise, the system would not be usable |
| 4 | Main Menu | Screenshot of the main menu | To allow staff to select a single function of the system. **Otherwise, the system’s functions will not be easily accessible.** |
| 5 | Login system | Screenshot of the login menu | To allow access to the system and to grant appropriate permissions. **Otherwise, the user would not be able to access the system** |
| 6 | Logging into system | Screenshot of login system with all messages (success and failures) | To allow provide input/output into the login system. **Otherwise, the user would not be able to log in.** |
| 7 | Ticket sale system | Screenshot of the ticket sale menu | To allow ticket sales to be processed. **Otherwise, staff cannot use the system to sell tickets** |
| 8 | Adding sale data | Screenshot of successfully added sales data, along with any error messages | To allow ticket sales to be tracked. **Otherwise, staff cannot use the system to sell tickets** |
| 9 | Calendar system | Screenshot of the calendar viewer system | To provide a visual representation of the calendar. **Otherwise, staff cannot view the events planned.** |
| 10 | Seating configuration system | Screenshot of the seating configuration viewer system | To provide a visual representation of the seating map. **Otherwise, staff cannot review and modify events’ seating plan** |
| 11 | Changing seats | Screenshots of successfully changing seats and any error message | To allow staff to change available seats in an event. **Otherwise, staff cannot remove or discount seats with restricted views.** |
| 12 | Online booking system | Screenshot of the online booking manager system. | To allow staff to use the online booking system. **Otherwise, staff can’t add shows and seats to the website** |
| 13 | Adding event to website | Screenshots of successfully adding a show and any error messages | To allow staff to add events to the online booking website. **Otherwise, guests won’t be able to see events on the website.** |
| 14 | Adding seats to event | Screenshots of successfully adding seats and any error messages | To allow staff to add seats to events on the online booking website. **Otherwise, guests won’t be able to see available seats on the website.** |
| 15 | Ticket sale data system | Screenshot of the ticket sale data viewer system | To allow staff to view and modify any ticket sale information. **Otherwise, staff can’t retrieve sales information** |
| 16 | Searching ticket sale data | Screenshots of successfully searching through and applying filters to data and any error messages | To allow staff to search the ticket sale information. **Otherwise, staff can’t retrieve sales information.** |
| 17 | Modifying ticket sale data | Screenshots of successfully changing an entry and any error messages | To allow staff to change the ticket sale information. **Otherwise, staff can’t correct and update sales information.** |
| 18 | Customer data system | Screenshot of the customer data viewer system | To allow staff to view and modify any customer information. **Otherwise, staff can’t retrieve customer information** |
| 19 | Searching customer data | Screenshots of successfully searching through and applying filters to data and any error messages | To allow staff to search the customer details data. **Otherwise, staff can’t retrieve customer details.** |
| 20 | Modifying customer data | Screenshots of successfully changing an entry and any error messages | To allow staff to change the customer details data. **Otherwise, staff can’t correct and update customer details data.** |

Note – examples of “error messages” include login fail, input box must not be empty, etc.

## Limitations of the System:

*any potential limitations of the system will be specified and justified here*

## Software and Hardware Requirements:

*info such as: Operating System, browser, storage space will be labelled here and fully justified*