Inf2-SEPP 2021-22

Coursework 2

Requirements Document

1 Functional requirements

1.1 From original CW1 system description and interview notes

R1. The system shall allow entertainment providers to register on the app by themselves.

R2. The system shall allow already registered entertainment providers to create events and provide information about them (title; type (e.g. music, theatre, dance, movie, sports); any performer names; date(s), time(s) and venue(s); COVID-19 measures like any social distancing, air filtration, capacity limits, size of venue; whether it's ticketed or not; number of tickets available if ticketed; price of ticket if ticketed), as well as whether they would like to request government sponsorship for them.

R3. The system shall allow individual consumers to register on the app using a full name, email address, phone number and password.

R4. Consumers shall optionally be able to set up profiles that allow them to customise their various COVID-19 related preferences for events: whether they would like the events shown to them to comply to certain restrictions regarding social distancing, air filtration, capacity limits, size of venue, and/or the venue being outside.

R5. Once registered, consumers shall be able to log into the system.

R6. Once logged in, consumers shall be able to ask for a list of available events for a certain date which respect their profile preferences (if any).

R7. Consumers shall be able to decide to book one ticketed event at a time, from between the list of available events provided to them.

R8. The system shall not allow the booking of non-ticketed events.

R9. To book an event, consumers shall be required to provide the number of tickets that they would like to book.

R10. The system shall not allow booking a number of tickets for an event that exceeds the number of tickets left available.

R11. The system shall integrate with an external payment system which handles booking payments from consumers.

R12. Successful payment on the payment system shall lead to our system issuing a unique booking number for the consumer and a record for that booking, including the consumer's name and contact information (email address, phone number).

R13. The government shall be able to request booking records.

R14. Consumers shall be able to cancel bookings made on our system with a given booking number, provided the event in question is at least 24 hours away.

R15. Entertainment providers shall be able to cancel an event on our system at any time, which shall automatically notify the consumers and request the payment system to refund them (if the booking was made on our system).

R16. Government representatives shall be able to review sponsorship requests for events created by entertainment providers.

R17. Government representatives shall be able to enter accept or reject decisions on sponsorship requests made for events created by entertainment providers.

R18. Accept sponsorship decisions shall be joined by the government representative specifying the percentage of the original tickets' total price it can sponsor.

R19. Consumers shall be able to see discounted events (and the discount percentage) in addition to regular events on the system.

R20. The system shall provide a map for getting to each event venue.

R21. The system shall allow consumers to see what public transport is available to the venue.

R22. The system should allow consumers to get directions to event venue locations for cars or bikes.

R23. Consumers shall be able to filter event search results by preferences about whether they feel comfortable about travelling to the event by public transport or not, their maximum wanted walking distance to the event, and what vehicles they currently have access to.

R24. Consumers shall be able to see in the event search results how crowded the venue where the event is held, and the transportation options to it, typically are.

A few other requirements were removed from this list (see Section 1.3).

1.2 From assumptions from the CW1 Sample Solution, Task 2, approved by stakeholders

R16. Venues shall not be set as a separate entity in our app.

R17. Consumers shall set up their profile (i.e. COVID-19 preferences) after registration.

R18. The system shall integrate with the system of each of the different entertainment providers so that it can perform some actions automatically (e.g. asking for ticket availability).

R19. The system shall request remaining ticket quantities from the correct entertainment providers' systems before showing the list of available events, when the consumer requests to view an event, and right after the consumer has chosen the number of tickets while booking the event.

R20. The system shall notify the correct entertainment provider's system automatically each time one of its events is booked or cancelled by a consumer.

R21. The system shall work with two different entities for entertainment providers: 1) the entertainment provider representative (one person amongst their staff) who shall be able to register their company, create / cancel events (including requesting sponsorship or not), and get notifications of government sponsorship decisions; and 2) the entertainment provider system that shall automatically provide dynamic information to our app about remaining ticket quantities, and shall be informed by it of bookings made and cancelled. The integration between our system and the system of the provider shall be done outside the app, and upon registration, the representative shall confirm the integration.

R22. In case of unsuccessful ticket payment on the external payment system, the consumer shall be redirected to our system where they can request to try again, with the system also making another check of whether the wanted tickets are still available.

R23. The government shall explicitly request booking records related to specific events, and not be sent such information every time a booking is made or cancelled by a consumer.

R24. Consumers shall be able to get refunds when they cancel a booking as long as the cancellation is at least 24 hours in advance of the event's time.

R25. An event shall show up to consumers immediately upon creation with full price, and if a sponsorship request for that event is later accepted, already-booked customers will not get a refund.

R26. The map provider shall be an external system.

R27. The map provider system shall provide directions to the venue on request.

1.3 From new government requests (new for CW2)

R28. When registering an entertainment provider in the system, its representative shall supply their name, organisation name, organisation main address, email and password (to be used for logging in, see below), phone number, other representatives' name(s) and their email addresses, a username or email address for a company account on the payment system (where bookings shall be paid, booking refunds shall be processed from- see R31 and R32). They shall also be given instructions on integrating their system with ours, and be asked to confirm it when ready.

R29. Entertainment providers (i.e. their representatives) shall log into the system by providing their account's email and password.

R30. The system shall not allow more than one representative to register the same entertainment provider, i.e. with the same organisation name and main address.

R31. Bank account information and the processing of payments shall not be handled on our system, but on the external payment system.

R32. Requests for event booking payments or refunds to the payment system shall include the sum to be paid or refunded and the username/email address of the correct entertainment provider.

R33. The system shall include a built-in default consumer profile (i.e. set of COVID-19 preferences) supplied by the government, which shall apply to any consumers who do not provide profile preferences.

R34. The system shall not deal with the issuing or delivery of event tickets.

R35. The entertainment providers (i.e. their representatives) shall not attach anything to the sponsorship request on our system, and criteria for the government's decisions to sponsor an event shall be handled outside the system.

R36. The price of event tickets shall be reduced automatically immediately after the government has decided to sponsor that event.

R37. Booking records viewed by the government on request shall include information about each current booking for the event: booking number, name and contact details of the consumers who made it, number of tickets booked, and status (active/cancelled).

Furthermore, the government has decided that booking a taxi, requesting the weather forecast and reviewing an event are not to be considered as requirements, due to the small number of interview participants suggesting them.
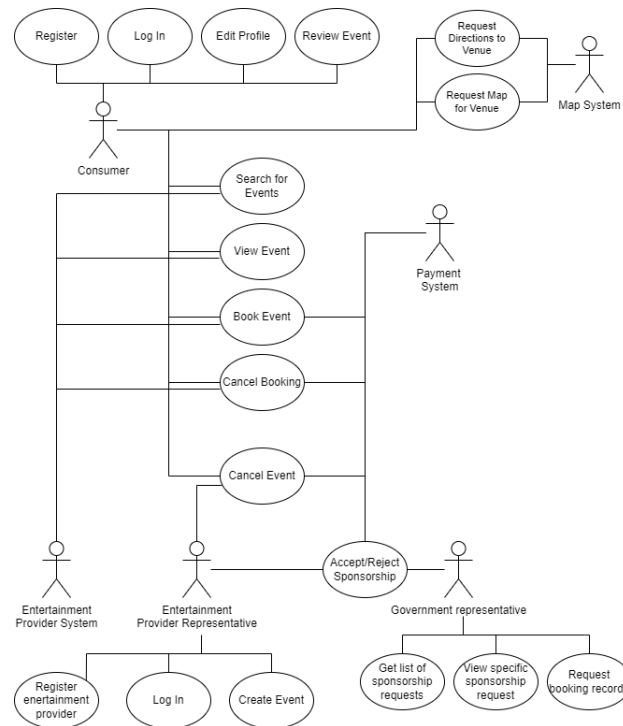
Figure 1: UML Use Case Diagram.

2 Use case diagram (Copied and Simplified from the CW1 Sample Solution, Task 3)

A use-case diagram is shown in Fig. 1.

3 Use case descriptions (Copied from the CW1 Sample Solution, Task 4)

The "Book Taxi" use case was not included since it is not needed.

3.1 Register (Consumer)

Primary actor: Consumer
Supporting actor: N/A
Summary: The consumer requires to register, the system prompts the consumer to fill in necessary information (full name, email address, phone number and password), consumer provides it, and system confirms. If some of the information is missing, invalid, or account with given email address already exists, system informs consumer and returns to first step.

3.2   Log in (Consumer)

Primary actor: Consumer
Supporting actor: N/A
Summary: Consumer requires to log in, system requires email and password, consumer provides them and if they are correct the system gives them access to their account so that they can browse events. If not, system informs about this and requires information again.

3.3   Edit Profile

Primary actor: Consumer
Supporting actor: N/A
Summary: The consumer (provided they are logged in) requests to update their preferences, then changes preferences as desired (these include COVID-19-related ones like social distancing, air filtration, capacity limits, size of venue, whether the venue is outside, and preferences about transportation to the event like what vehicle is available, maximum walking distance). System confirms change.

3.4   Register Entertainment Provider

Primary actor: Entertainment Provider Representative
Supporting actor: N/A
Summary: Entertainment provider representative requires to register; system prompts for their name, organisation name, organisation main address, email and password, phone number, other representative name(s) and their email addresses, a username or email address for a company account on the payment system (where bookings shall be paid, booking refunds shall be processed from). The rep is also required to confirm integration between their system and ours when ready. If some of the information is missing, invalid, or account with given email address already exists, system informs representative and returns to first step. If an account already exists for the same entertainment provider (organisation name and address), system gives error message.

3.5   Log in (Entertainment Provider Representative): similar to "Log in (Consumer)"

3.6   Create Event

Primary actor: Entertainment Provider Representative
Supporting actor: N/A
Summary: Entertainment provider representative (provided they are logged in) requests

to create a new event. After a prompt by the system, they need to specify: title; type (e.g. music, theatre, dance, movie, sports); any performer names; date(s), time(s) and venue(s); COVID-19 measures like any social distancing, air filtration, capacity limits, size of venue; whether it's ticketed or not; number of tickets available if ticketed; price of ticket if ticketed. The provider representative also needs to specify if they are requesting government sponsorship. If all the fields were correctly provided and an event with the same name did not already exist for some or all of the same dates and times, the system confirms, the event is then in the system and will show up to users who perform a search. Else, the system gives an error message.

3.7 Search for Events

Primary actor: Consumer
Supporting actor: Entertainment Provider System
Summary: The consumer (provided they are logged in) requests to see events for a certain date. The system requests information on the availability for those events of their entertainment providers' system, then offers the (potentially sorted) list of available events and non-ticketed events that meet the consumer's profile.

3.8 View Event

Primary actor: Consumer
Supporting actor: Entertainment Provider System
Summary: After having obtained a list of events from the Search for Events use case, the consumer chooses an event with an event number to look into for more detail. The system provides all available details about the event, including ticket availability (for which we would need to query the provider's system).

3.9 Book Event

Primary actor: Consumer
Supporting actor: Entertainment Provider System, Payment System
Summary: Consumer books a specific ticketed event, specifying requested number of tickets. Consumer then pays for the event and is given confirmation.
Precondition: Consumer is logged onto the system.
Trigger: Consumer requests to book a specific event with an event number.
Success Guarantee: Consumer is given confirmation of the booking with a unique booking number.
Main Success Scenario:

1. Consumer specifies number of tickets requested.

2. System checks with entertainment provider system that enough tickets available to meet the consumer's request.
2. System redirects consumer to payment system for payment.
3. System confirms the booking to the consumer and gives them a unique booking number.
4. System notifies the entertainment provider system of the booking (so that they can update their numbers of tickets left, and issue the consumer with the tickets).

Extensions:

1a If the event number is incorrect .1 System notifies the consumer and requires another action. Use case terminates.
1b If the event was non-ticketed
.1 System notifies consumer that there is no need to book a non-ticketed event as it is free.
2a Not enough tickets available (e.g. if they were literally just sold out).
.1 System shows error message to user.
3a The payment is unsuccessful, and the payment system sends an error message to our system.
.1 System relays the error message to consumer.
.2 Resume at step 2.

3.10   Cancel Booking

Primary actor: Consumer
Supporting actor: Entertainment Provider System, Payment system
Summary: (Provided they are logged in)The consumer requests to cancel their booking, providing a booking number. The booking is more than 24 hours away, so the system requests the payment system to refund the consumer, notifies the entertainment provider's system of the cancelled booking so that they could update their stocks (which may impact ticket availability) and provides a confirmation of ticket cancellation to the consumer. If the booking number was incorrect, the system requires it again. If the booking is less than 24 hours away, the system notifies the consumer that cancelling the booking is not possible.

3.11   Cancel Event

Primary actor: Entertainment Provider Representative
Supporting actor: Consumer, Payment System
Summary: Entertainment provider representative cancels an event, which notifies all the consumers with tickets and refunds them.
Precondition: Entertainment provider representative is logged in.

Trigger: Entertainment provider representative requires to fully cancel and entire event, providing the event number and a message for the consumers.
Success Guarantee: The consumers are all notified of the cancelled event and refunds are being processed.
Failure Guarantee: The event remains unchanged in the system (i.e. is still planned to go on, still accepts bookings if ticketed
Main Success Scenario::

1. System requires payment system to process all refunds.
2. System confirms refunds are being processed and cancellation to the entertainment provider representative.
3. System notifies all consumers, including message from entertainment provider.

Extensions:

1a If the event number is incorrect
.1 System notifies the entertainment provider representative and requires another action. Use case terminates.
1a Entertainment provider representative gives an empty message
.1 System requires it again
6a Payment system notified of unsuccessful processing of refunds
.1 Entertainment provider representative is notified, event is not cancelled (entertainment provider representative will need to do this outside of the system).

3.12 Accept/Reject Sponsorship

Primary actor: Government representative
Supporting actor: Entertainment Provider Representative, Payment System
Summary: The government representative makes a decision (accept or reject) for an event for which sponsorship had been requested, providing an event number. If the decision was accept, the government representative is required to specify the percentage of the ticket price to be covered and then requests to process payment (this is handled outside of the system, by the payment system). The government representative gets a notification of the successful payment; the provider representative is given notification of sponsorship acceptance and percentage of ticket price covered; and the price of future tickets is appropriately adjusted. If the payment was unsuccessful, the government representative is asked to provide new account information and is forwarded to the payment system for this purpose. If the decision was reject, the entertainment provider representative is notified of rejection and the government representative is returned to the list of sponsorship requests. If the event number was incorrect, the system gives out an error asking the government representative to try again.

3.13 Request Booking Records

Primary actor: Government representative
Supporting actor: N/A
Summary: The government representative requires all the bookings for a specific event (past or future), providing the event number. The system provides a list of these including booking numbers, names and contact details of consumers booking them, numbers of tickets booked, status (active/cancelled). If the event number was incorrect, the system requires it again.

3.14 Request Map for Venue

Primary actor: Consumer
Supporting actor: Map system
Summary: (Provided they are logged in) The consumer requests a map to be provided with location of venue for an event, also providing the event number. The system requires the Map system to provide this information. If the event number was incorrect, the consumer is asked to provide it again.

4 Non-functional requirements (Copied from the CW1 Sample Solution, Task 5)

- **Security:**

  ◇ The system shall protect the personal information of its users.

- **Privacy:**

  ◇ A consumer's personal information shall not be leaked to third parties.

- **Performance:**

  ◇ The system shall provide a response for bookings, cancellations of bookings, etc. within a reasonable time frame, e.g. within 15 seconds.

- **Data retention:**

  ◇ Information on orders shall only be retained for e.g., 6 months, and should be compliant with relevant legislation.

- **Scalability:**

  ◇ The system shall scale to handle e.g., 500 entertainment companies.

  ◇ The system shall be able to handle e.g., 10000 consumers viewing events and/or booking tickets at the same time.

- **Platform Compatibility:**
  - ◇ The system shall work similarly on computers and mobile devices.
  - ◇ The system shall work similarly on all major operating systems.

- **Interoperability:**
  - ◇ The system shall be compatible with existing computer systems that are used by the government, entertainment providers, payment system, weather forecast system, map system, and taxi system.

- **Accessibility:**
  - ◇ The system shall be accessible to people with physical disabilities.

- **Availability:**
  - ◇ The system shall be available 24/7, with at most short (e.g. 2-hour long) periodic maintenance during low periods.

- **Usability:**
  - ◇ Consumers shall easily be able to register, update their preferences, find events, make bookings, cancel bookings, and use additional features like weather forecasts.
  - ◇ It shall be clear to consumers which events are sponsored, and how much the discount is.