

G52HCI Coursework 1

Design Rationale

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1. Introduction

This design rationale will be split up into sections analysed based on the app screen, and will look at the various design principles and reasoning used behind the design of the app interface. Citations will be formatted in the Harvard referencing style and listed at the end of the document. The **12 full annotated interface designs will be given in the appendix of this document** - some excerpts from the designs will be included in this report.

2. Rationale of the Login Screen Interface

The login screen for my festival app uses several key principles in ensuring that it remains easy to use and provides the necessary functionality for the user.

Applying the *Gestalt* principles of similarity and proximity to the design of the login screen by grouping like fields and clickable links - the email address and ticket reference entry fields are grouped and stacked vertically as they perform similar actions: text entry. This helps the user to identify input elements on the screen which will give the user a certain expectation of what they should do with those elements.

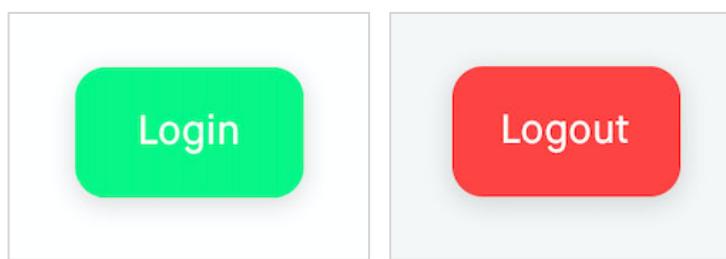


Fig 1a: Login Button on the
Login screen

Fig 1b: Logout Button on
the Profile screen

The shape of my button and control elements throughout the app interface have been given rounded corners and have had a subtle diffused drop shadow applied, giving the user a sense of depth & hierarchy, and giving interactive elements a defined style. According to a report published by Psychological Science researchers, items with curved topology stimulated more activity in the visual cortex of research participants than items with sharper topology. The participants also preferred the curved objects significantly more than their sharper counterparts^[1].

Objects with more rounded topology are commonly seen as being more charismatic and friendly. The *Bouba/Kiki* effect^[2], a psychological mapping between words and visual objects, suggests that humans associate certain words and adjectives to sharp and round objects, with round objects typically having the connotation of being friendly, so I have used several rounded elements on the login screen (*Fig 1a*) & throughout my app to make it more user friendly and more visually stimulating than elements with sharp corners.

Throughout the design of my app interface, I have used consistent alignment and padding to ensure that the layout of UI elements are consistent and that it allows for a consistent safe area, aiding with positioning and spacing of the UI elements^{[3][4]}, as referred to by the iOS & Material Design Guidelines.

On the login screen, I have left-aligned all text fields & titles and right-aligned the login button (*Fig 1a*) as to separate it as a clickable element.

The fonts on the screen & throughout the interface have been specifically chosen to be sans-serif to emphasise the youthful and modern appearance of the app and improves onscreen legibility over serif font faces^[5]. In particular, the font sizes have been used to indicate a hierarchy or structure as to what parts of the screen should be read first. I have given the title a larger, bolder font to indicate it as a title & lighter colours to the external links at the bottom of the login form as they are not intended to be used unless the user is having difficulties with the login, in which case the links are available and underlined to denote them as external links.

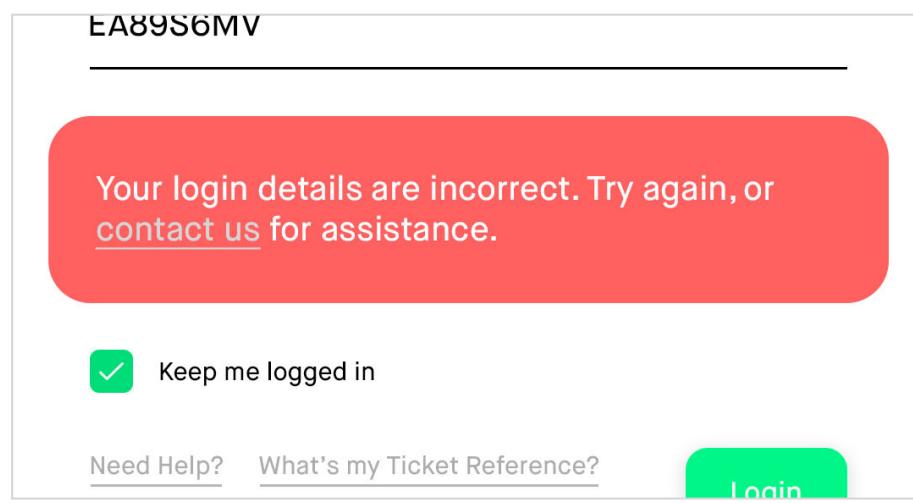


Fig 1c: Error message showing invalid login details on the login screen

I have also ensured that error messages throughout the app interface & on the login screen (*Fig 1c*) are both helpful and informative, so that the user can fix the issue or alternatively, contact help (denoted by use of the external link style). I have also tried to make the error message box appear friendlier with the use of rounded corners on the message and the use of less saturated, softer pastel red which should convey the feeling of calmness as opposed to a more saturated colour^[6], as noted by a colour psychology paper.

3. Rationale of the Events Screen Interface

The events screen is the default view the user lands on after logging in. In addition to the design principles mentioned in the previous section, there are several additional design principles and guidelines behind the interface design of the events screen.

Metaphors have been used in several areas in the design of the app interface. These are important in facilitating the user's understanding with the use of a graphical or iconographic representation. On my events screen, the user is presented with, amongst other things, a search bar (*Fig 2a*) to find events of their interest at the festival. This interface metaphor allows users to instantly recognise and associate it with certain actions and expectations that they already have in their knowledge.

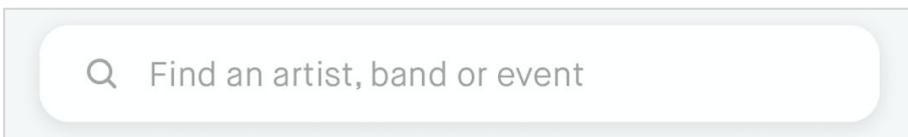


Fig 2a: Search bar indicating the three constraints in the placeholder text on the Events screen

The search bar is a familiar UI element that users will likely know how to operate through other popular services that they may have used which also use similar elements for searching.

Placeholder text inside the search field also facilitates the user's understanding and knowledge of the search bar metaphor, as it indicates three common areas that users want to look for, and in addition, indicates the input constraints.

In addition to that, a magnifying glass icon is placed at the start of the search bar, which users will instantly recognise as a search icon, associating it with their knowledge and expectations of what it should do.

Another instance of a metaphor used on the events screen, is the left pointing arrow icon that is shown after the user finishes searching for something. This symbol is widely used and recognised as a metaphor for "going back" or returning in navigation.

All interactive elements on the events screen (*Fig 2b*) have been given the same subtle diffused drop shadow to indicate them as user-interactive, separating them from other UI elements such as headings and subtext on the screen.

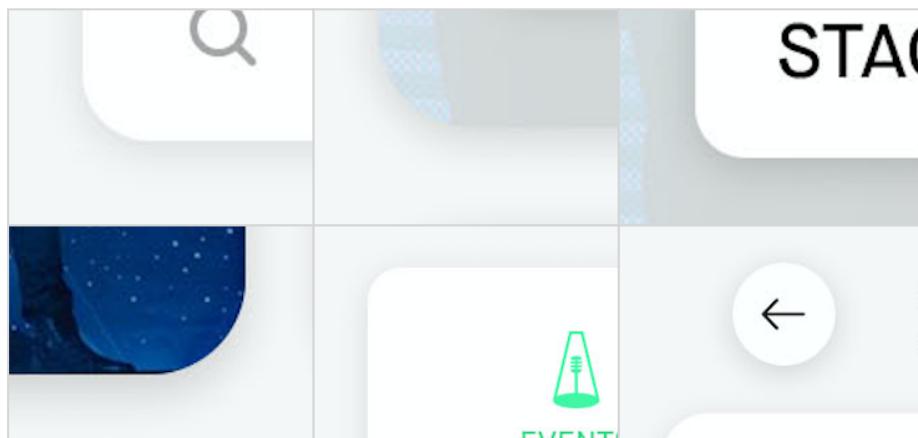


Fig 2b: Various UI elements on the events screen with diffused drop shadows to differentiate user-interactive elements

The diffused drop shadow also changes when a UI element is active, such as when the search bar is currently being used (*Fig 2c*). This gives additional focus to the active element.

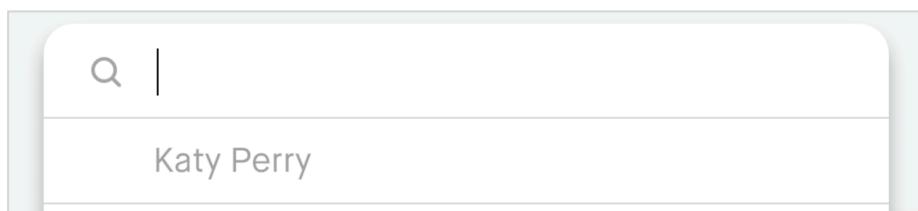


Fig 2c: A "heavier" more opaque drop shadow applied when the search input is active

The search interface has been designed to provide users with a list of previously searched terms so that they can be reminded and see what their

previous interests were. These terms are presented in a lighter font colour than their current search term in order to separate them visually.

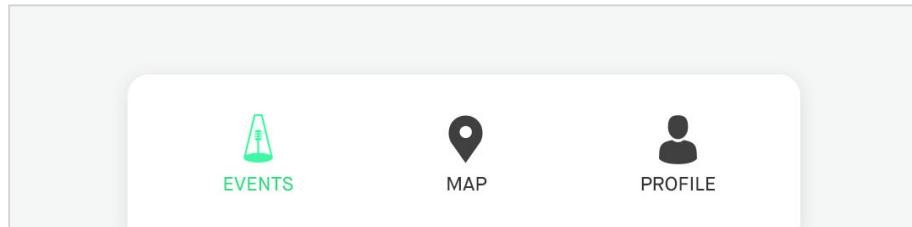


Fig 2d: Bottom navigation bar, present on all screens (except the login screen) and uses icons and text to indicate their purpose

Various other metaphors have been used on other UI elements, such as the navigation bar (*Fig 2d*) which uses both iconographic metaphors and accompanying text to help the user identify the purpose of the buttons.

The navigation bar is placed at the bottom of the screen as it is easily in reach for one handed use. This makes the important parts of the UI, such as the navigation, easily accessible^[7].

The *Gestalt* principle of proximity and similarity has been applied here as the icons are spaced evenly apart, denoting that they are separate buttons but are also grouped together in the containing box, denoting that they perform navigation changes. The current active screen is denoted by the pastel green navigation icon & text - this helps the user to easily identify the current screen they are on.

The large card elements (*Fig 2e*) allow the user to easily click on them as there is a large amount of touch target area - important for mobile UX due to the type of input^[8], and also allows for a picture of the artist to be displayed, helping the user to identify the artist with or without reading their name.

These cards have also been separated into groups of two differently sized cards; "Highly Anticipated" events and "Performing Today" events (*Fig 2e*). This allows the user to see the most relevant events at the top of the page. The overflowing elements (elements which do not fit entirely on screen) denote a scrolling mechanism that they should interact with in order to see more. This occurs both horizontally and vertically on this screen in order to further separate "Highly Anticipated" events from the events "Performing Today".

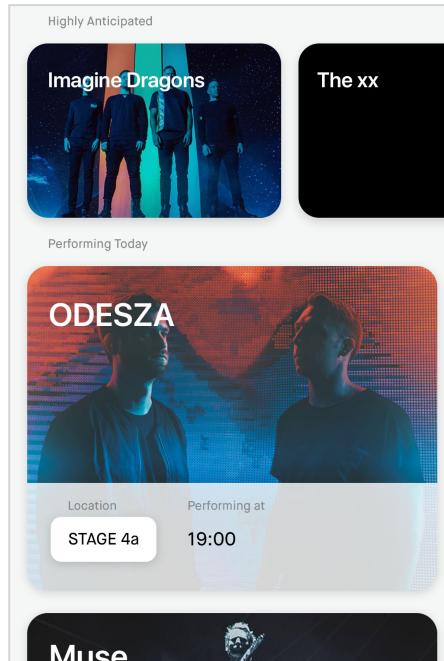


Fig 2e: Event cards shown overflowing vertically & horizontally to show that there is more to see if the user scrolls them

Elements in these cards, such as the name of the artist and performance locations & times, are left-aligned and are examples of the *Gestalt* principle of continuation - this allows the user to easily identify where they should start reading when scanning vertically.

The location information is also presented as a button (as seen by the uniform button style used throughout the interface), which can take the user to the map screen showing where the event takes place on the map if they choose to tap on it.

This principle of continuation is also applied throughout the interface of my app, as everything is aligned to the left, centre or right of the screen.

Tapping on any one of these card elements will bring up a description about the artist and event, in addition to relevant information about their performance (*Fig 2f*). The description allows the user to see more into the background of the artist(s) performing.

The text within this view (*Fig 2f*) is also left - aligned, following the *Gestalt* principle of continuity. Overflowing text wraps around on a new line and continues until the end of the description. The user can choose to scroll down and continue reading or click the left pointing arrow metaphor to return back to the events screen.



Fig 2f: Full-size design of the events screen showing the event the user selected with more information about the performers.

4. Rationale of the Map Screen Interface

The map screen can be reached by tapping the map button on the navigation bar, or by tapping the location name on an event, or by tapping "Show on map" on the profile screen. This screen shows a map along with all the stage, facilities & food and drink locations overlaid on top. In addition to the design principles mentioned in the previous section, there are several additional design principles and guidelines behind the interface design of the map screen.

As previously mentioned, user-interactive elements feature the same diffused drop shadow to differentiate them from non-interactive elements such as text. This is applied here, on the map screen, and allows the interactive elements to appear above the map as opposed to the elements

appearing with the map - this helps the user to quickly and easily identify the interactive elements on display.

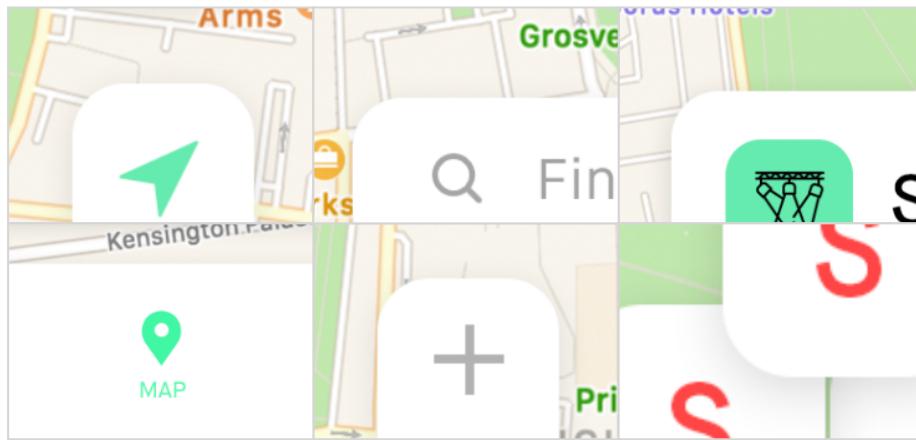


Fig 3a: Various UI elements on the map screen with diffused drop shadows to differentiate user-interactive elements

Metaphors are also used on this screen - one example of which is the "location" icon (*Fig 3b*). This is a commonly used icon to identify the user's current location when pressed - the map should bring the users location into view and follow the users location as they move.

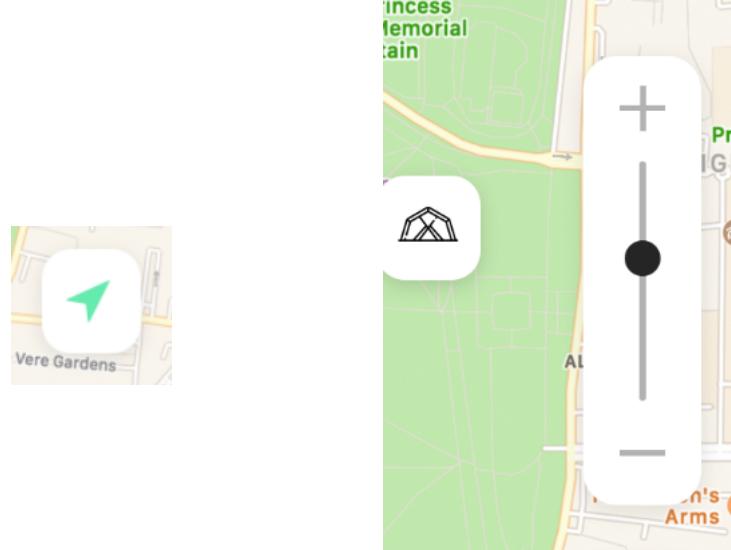


Fig 3b: Location button

Fig 3c: Zoom controls & slider

Another Metaphor present on this screen is the zoom slider element (*Fig 3c*). This element comprises of a circle on top of a line - representing a track where the circle can move vertically on. This Metaphor helps to facilitate the user's knowledge and previous experiences with like elements and gives them an expectation of what it should do.

Like the navigation bar, the placement of the location button and zoom controls are fixed to the bottom of the display, and are right-aligned. This is so that they are easily reachable in one-handed operation which is important as mobile display sizes have been steadily increasing year on year.

The search bar on this screen acts in a similar way to the search bar on the events screen, with placeholder text indicating the commonly searched categories and search constraints, and previously searched items displayed in a lighter font colour once the search field is entered.

The user can select an interactive element on the map that represents a facility, stage or dining area. Upon selecting an element or searching for a facility, the selected/result element will be highlighted in green and an information card will appear at the bottom of the display which provides a little more information about the what the selected facility is and how far away it is from the user's current location.

The card is placed at the bottom as it forms a group of elements with the navigation and zoom controls, helping the interface to stay uncluttered.

5. Rationale of the Profile Screen Interface

The profile screen can be reached by tapping the profile button on the navigation bar, and shows details about the user and their tickets. In addition to the design principles mentioned in the previous section, there are several additional design principles and guidelines behind the interface design of this screen.

The use of font colour has been key to forming hierarchy and structure on this screen. Lighter coloured fonts indicate a lesser importance whilst darker ones indicate the opposite. Font weight has also been used carefully here - important bits of information have been given larger and bolder font faces to point this out to the user - they will likely read this first, before anything else.

QR Codes have also been set aside for each ticket along with the length of their validity displayed above, separating the key information from the QR codes as they serve different purposes - scanning and reading.

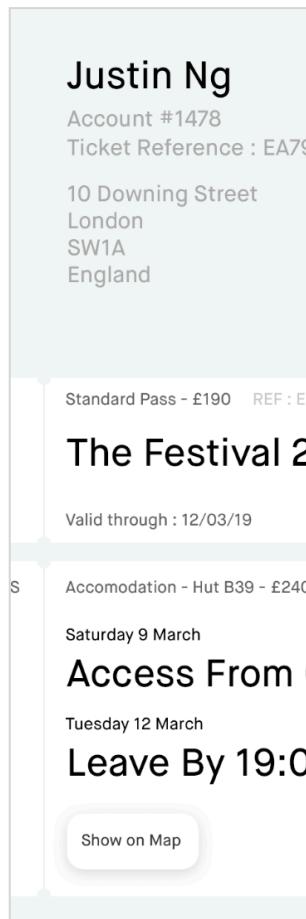


Fig 3d: Left-aligned text on the profile screen

The *Gestalt* principle of continuity has been followed by aligning the text along the same vertical axis, allowing information to be read from the same horizontal position on each line.

We can see that there is a button present on this screen (as seen by the uniform button style used throughout the interface) that allows the user to see where their accommodation is on the map without needing to go to the map to search for the accommodation name manually, saving the user time.

An external link is also present on this screen (as seen by the uniform external link style used throughout the interface) that allows the user to get help if they have any issues with their ticket. This is set to a lighter font colour as it is not expected to be used often.

The logout button is placed below all other content as it is not expected to be used often during regular operation of the app. It is also right-aligned, like the login button, as it signifies a similar operation.

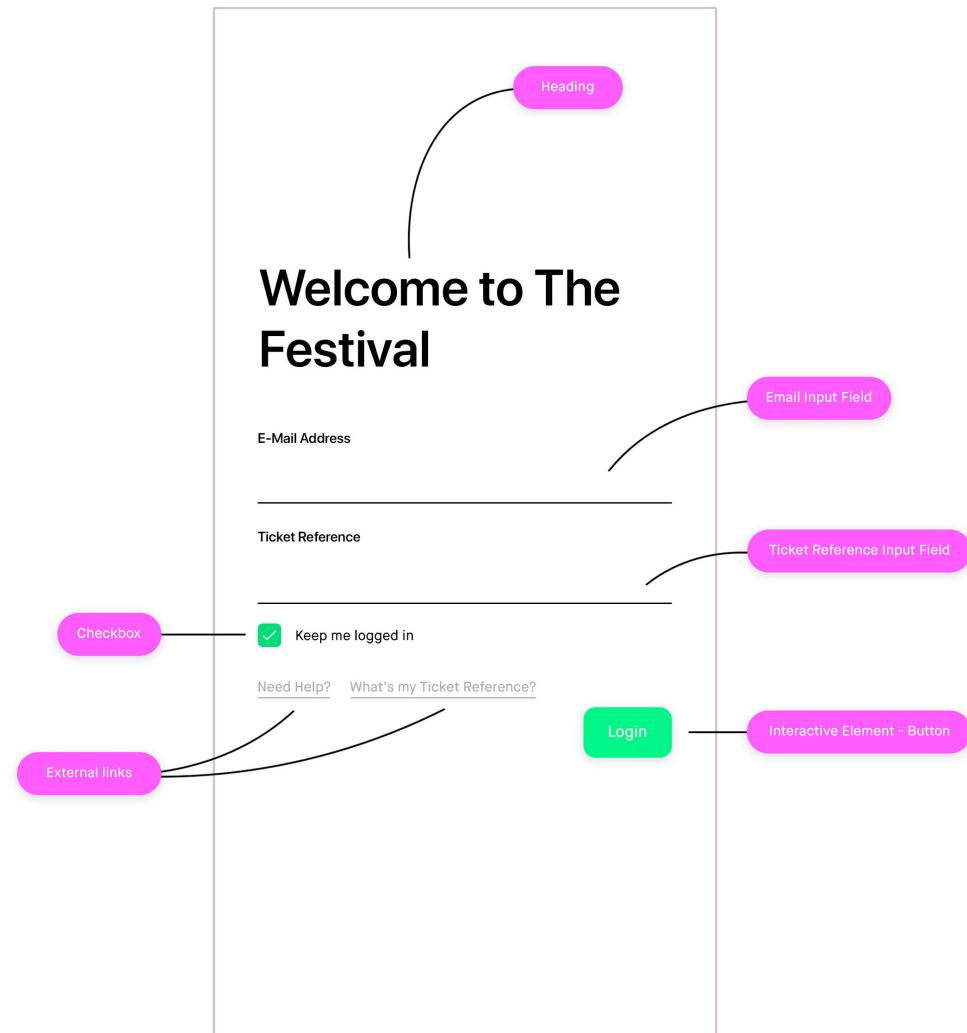
6. Conclusion

To conclude, the interface of my app has used several Gestalt principles and has taken into account human cognitive factors regarding colour & element shape, as well as incorporated several features from Material Design & Apple design guidelines to make my interface more user friendly, and aesthetically pleasing to use.

7. Appendix

Login Screen

Initial screen seen by the user when they open the app. Login details are supplied beforehand in my app, so no registration is required or needed. Users can choose to stay logged in if they like



Login Screen (Error)

Similar to the normal login screen, this is shown when the user enters invalid login credentials.

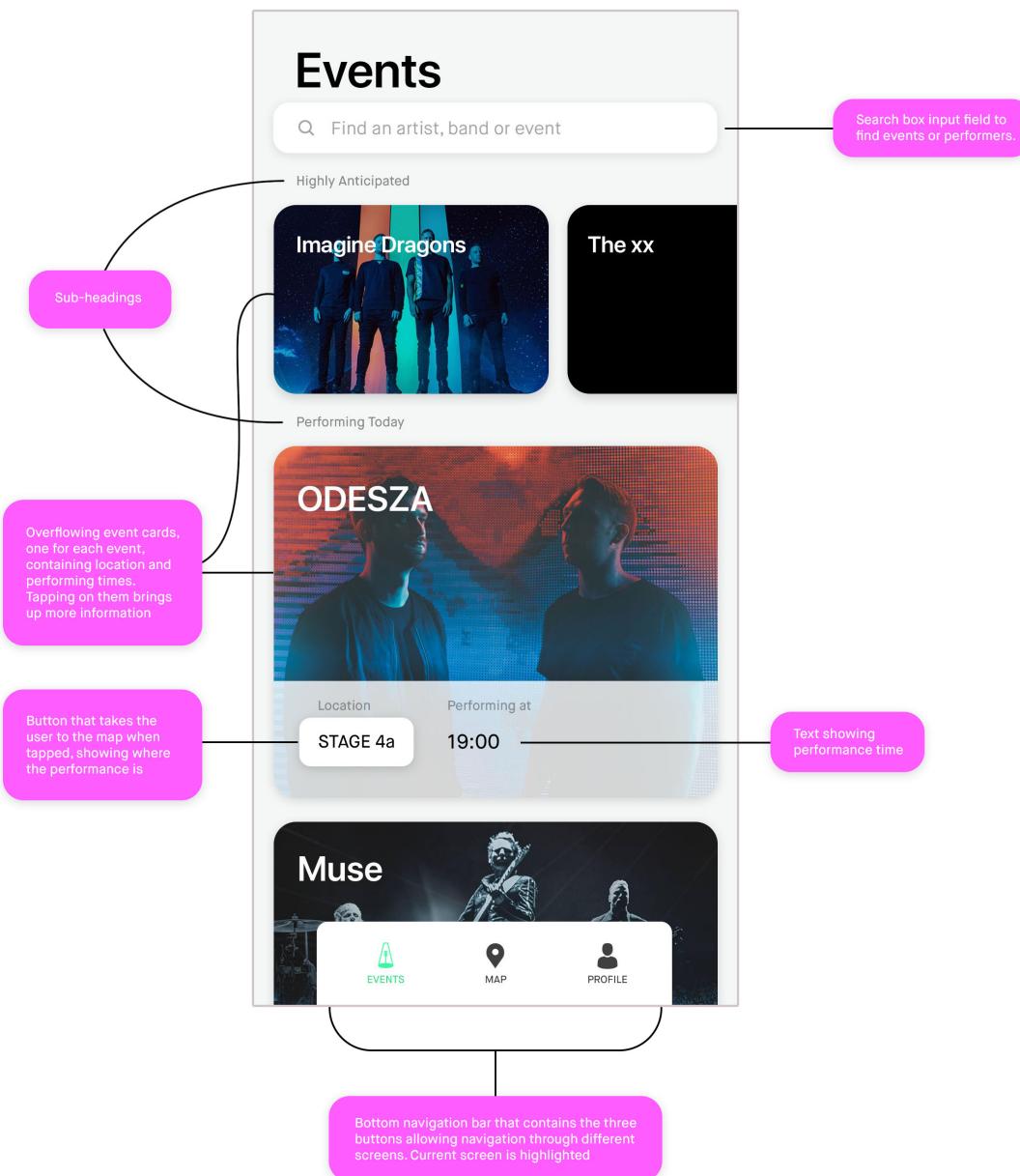
The diagram illustrates the 'Login Screen (Error)' with the following components and annotations:

- Heading:** Welcome to The Festival
- Email Input Field:** psyjjn@nottingham.ac.uk
- Ticket Reference Input Field:** EA89S6MV
- Error Box:** Your login details are incorrect. Try again, or [contact us](#) for assistance.
- Checkbox:** Keep me logged in (checked)
- External links:** Need Help? | What's my Ticket Reference?
- Login Button:** Interactive Element - Button

A callout box labeled "Error Box which is visible when login details are invalid" points to the error message box. Another callout box labeled "External links" points to the "Need Help?" and "What's my Ticket Reference?" links.

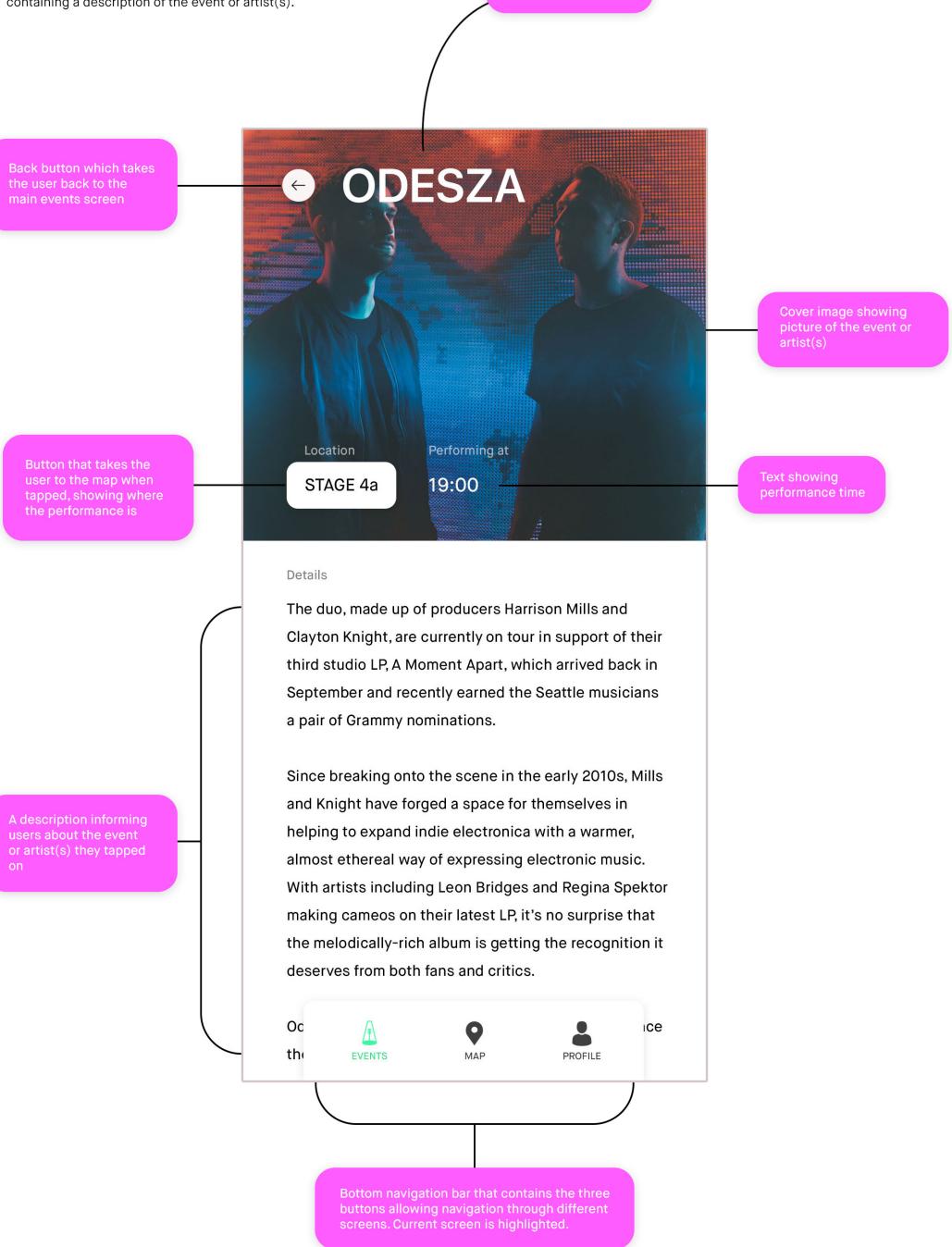
Events Screen

Initial screen shown after logging in successfully. This is where users can browse through the programme of events and see some highly anticipated events at the top of the screen. Users can also search for a specific event, artist(s) or band if they prefer



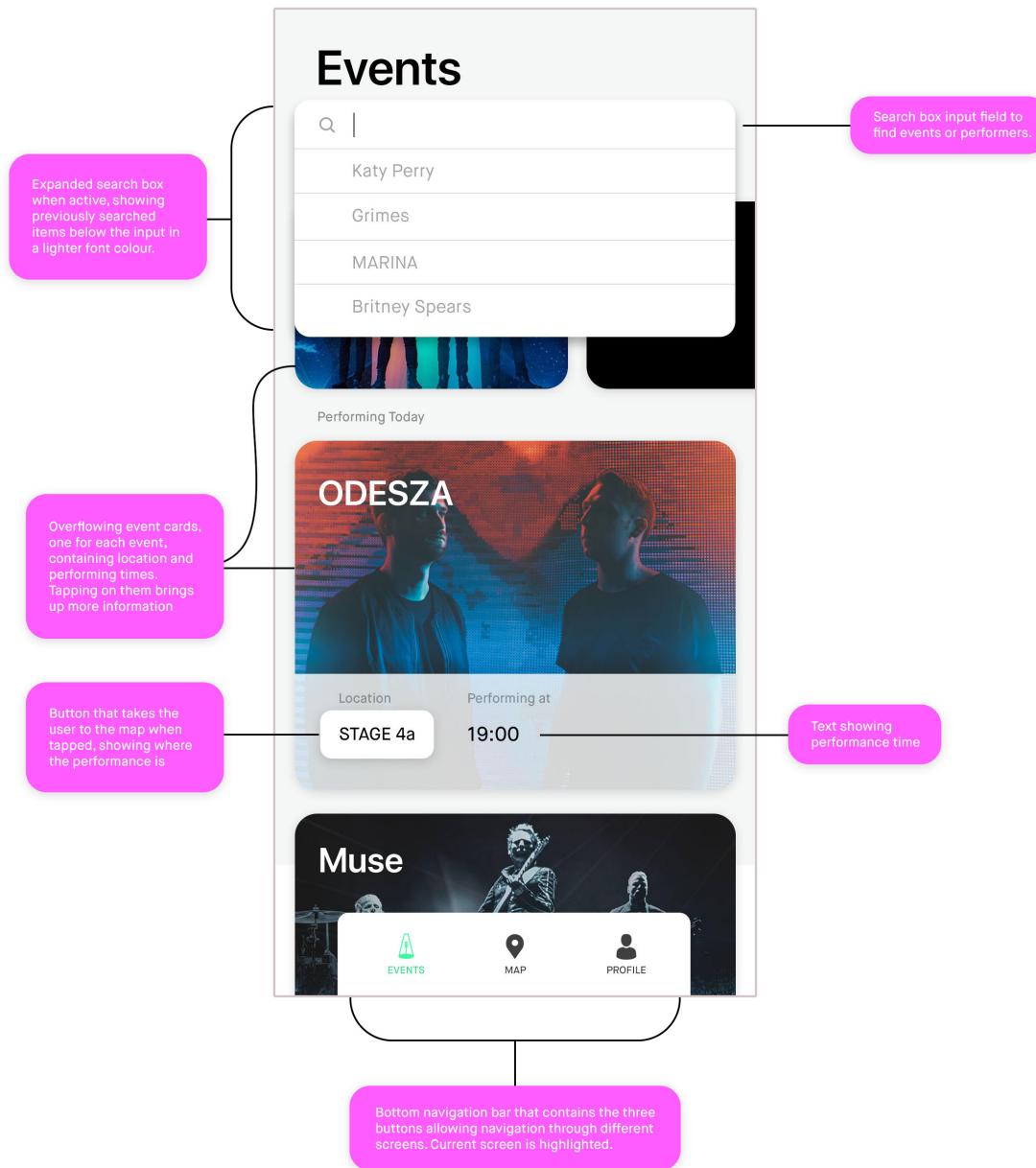
Events Screen — Expanded Event

This screen is shown when the user taps on an event on the events screen and provides the user with an expanded view containing a description of the event or artist(s).



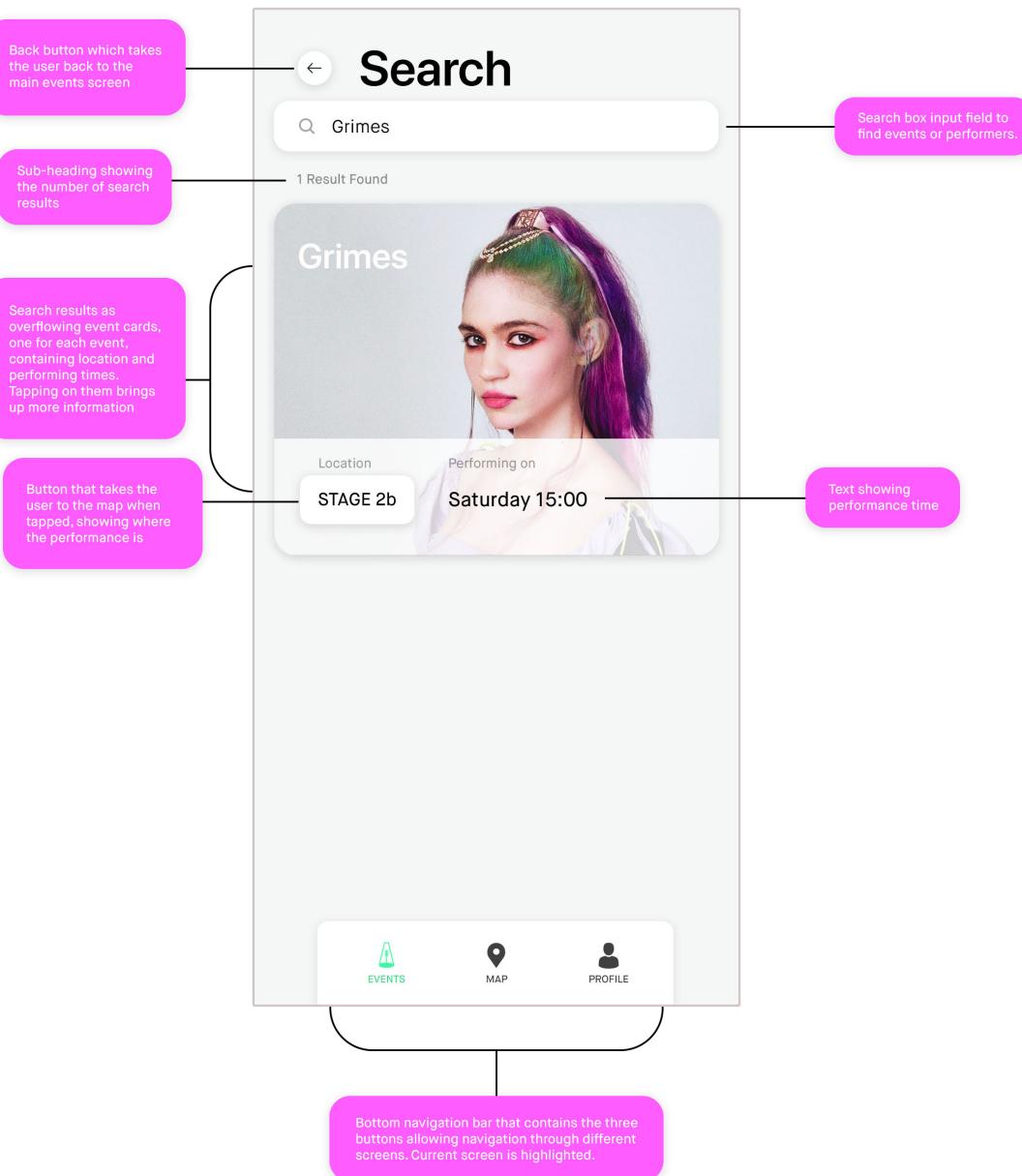
Events Screen — Active Search

This screen is similar to the main events screen, but additionally shows the search bar in an expanded state when the user is searching for something.



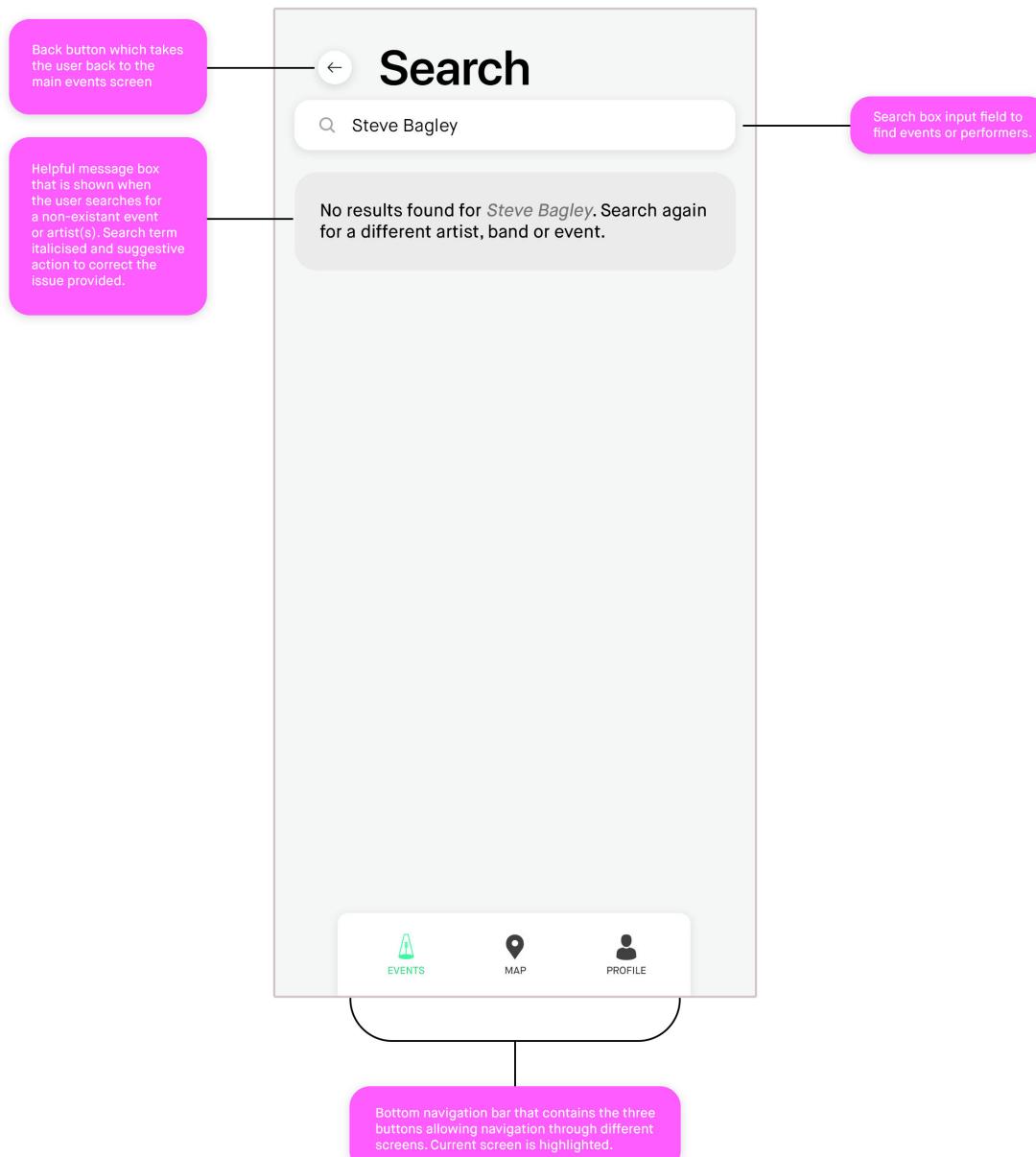
Events Screen — Search result

This screen shows the search results from the search term entered in the search bar. This information is presented as expandable cards - like on the main events screen.



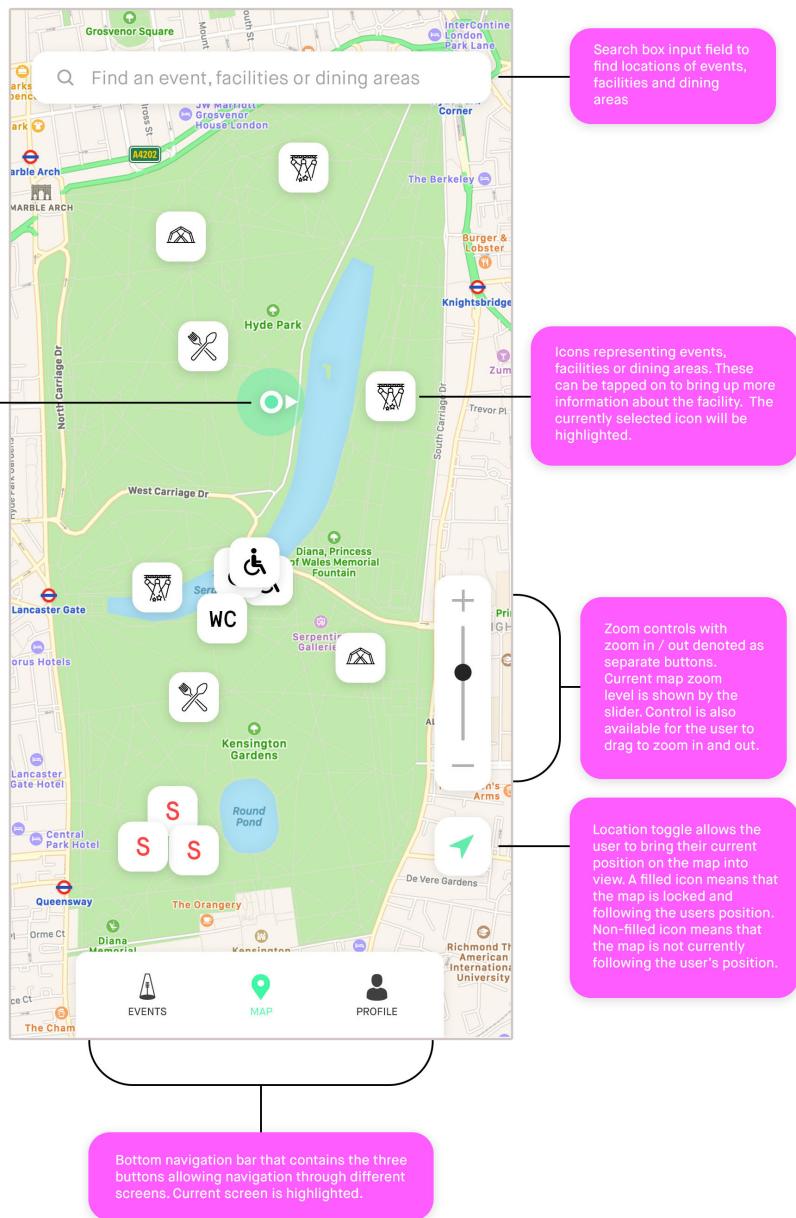
Events Screen — Search (No results)

This screen shows what happens when there are no search results found from the search term entered.



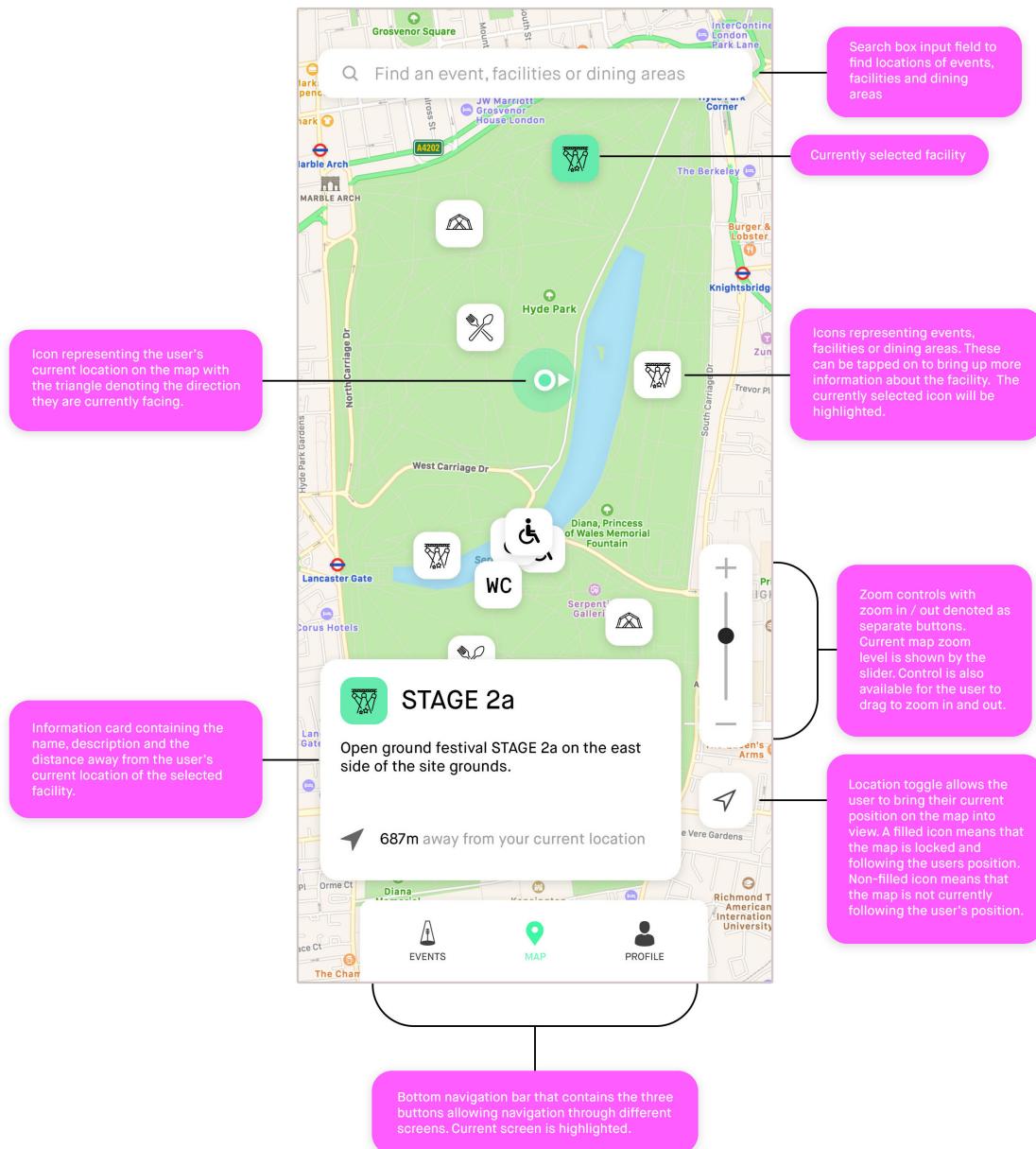
Map Screen

This screen shows an interactive map with an overlay of information about different facilities overlaid on top. Users can choose to search for the location of a facility and see their current position on the map



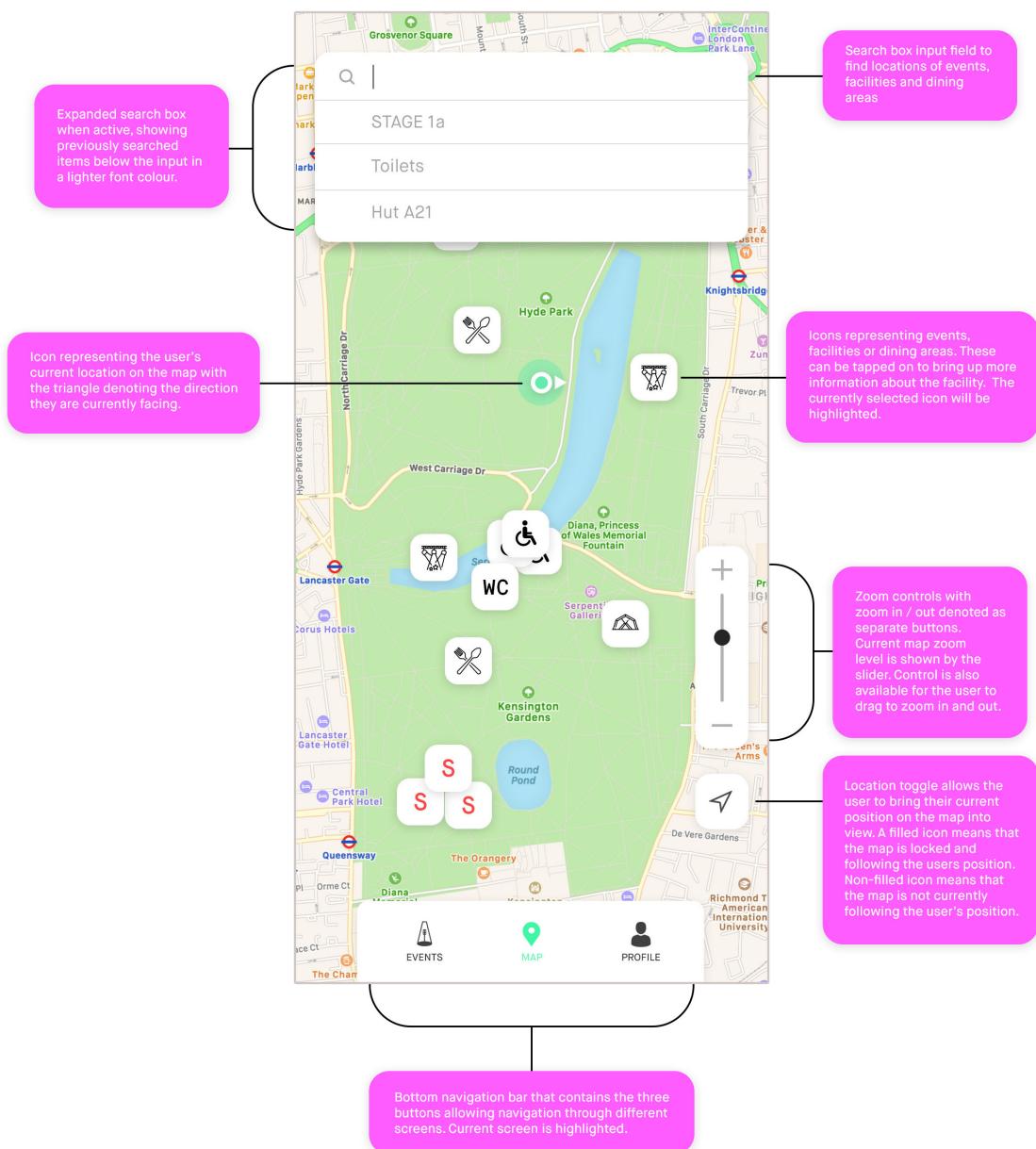
Map Screen — Selected Facility

Similar to the initial Map screen, this screen shows the interface when a facility is selected (highlighted icon) and displays an information card with the relevant information about the facility.



Map Screen — Active Search

Similar to the initial Map screen, this screen shows the expanded state of the search bar when the user is searching for something on the map.



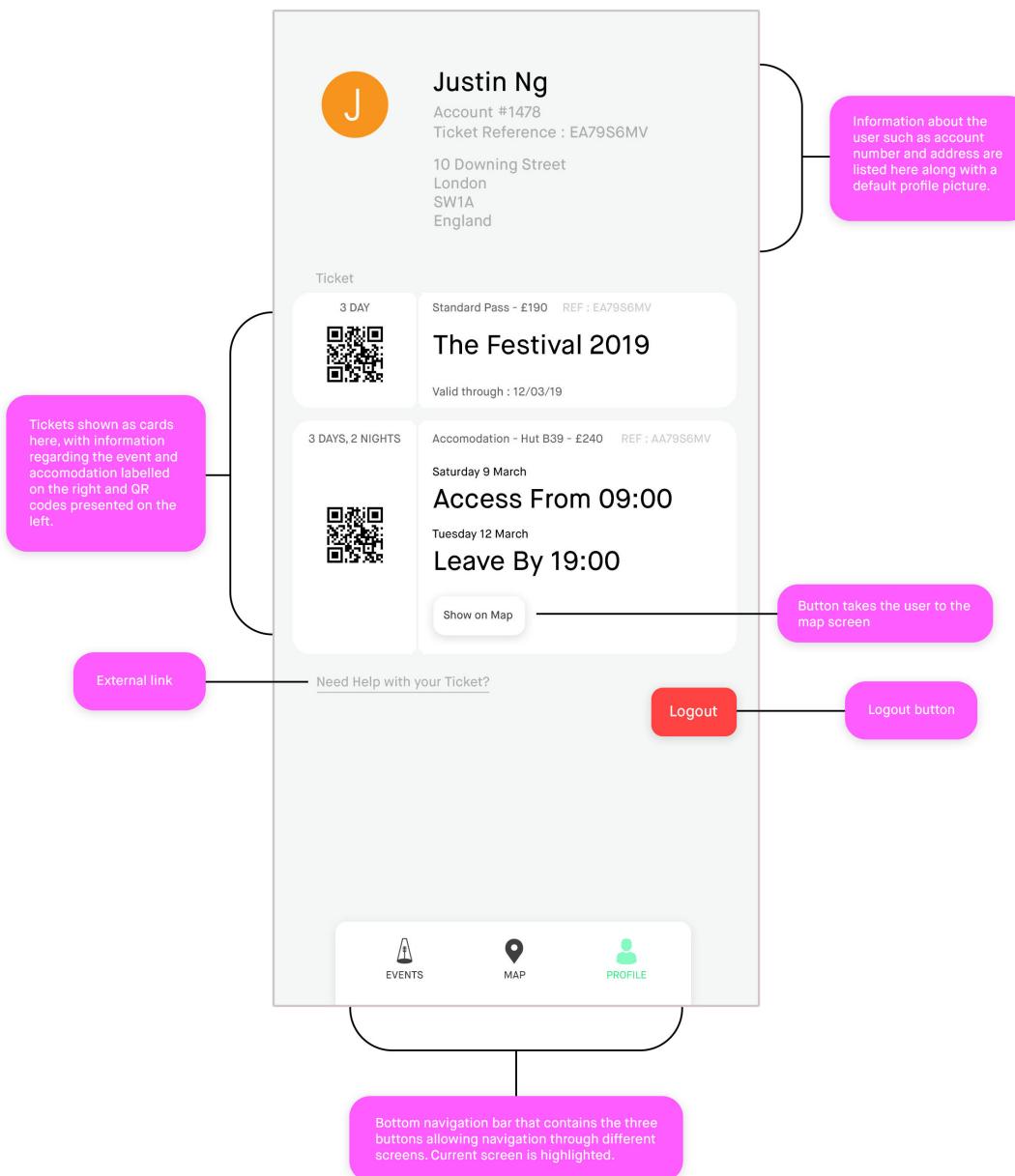
Map Screen — Search result

This screen shows the search results from the search term entered in the search bar. This information is presented as an information card. The map also zooms in to display the found result so that it is visible on the screen.



Profile Screen

This screen shows the user's information and ticket information details. They can see the location of their purchased accommodation from here and have it displayed on the map screen. The user can also choose to logout from this screen.



8. References

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- ⁸ Adobe. (2018). *10 Do's and Don'ts of Mobile UX Design*. [online] Available at: <https://theblog.adobe.com/10-dos-donts-mobile-ux-design/> [Accessed 9 Mar. 2019].