

Design Specifications

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TEAM 078

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Project information

The ShipUsSafe app will be designed to allow the user to book and plan routes for the ship to travel from one port to their destination port. To do this, the app will be displayed with different UI designs for booking, viewing available ships and ports, and viewing their booked routes on the map. The weather conditions will also be provided on each port where user will arrive. When the app is loaded, the list of booked routes will be shown on page. On the top-left corner, if the user is not in the progress of booking, he can click on it and see three different buttons Bookings, Ships and Ports button for navigating to look at bookings, ships or ports.

For Ships button, the user will be taken to a new page showing all the different ships and their details. There will be a plus button on the top right corner which allows the user to input a new ship of their own. The user needs to input all the details such as the name, ship cost, ship range etc.

For Ports button, the user will be taken to a page showing all the different ports and a map on the right hand side. The user will be able to select the port and view it on the map. There is a "NEW PORT" button on the top right corner, which will allow the user to input the port by searching for a new place. He can freely input the port type and size.

After clicking 'NEW BOOKING', a map will display on the left hand side. On the right hand side, space for ship, start, destination, departure date and departure time will be prompted for the user to input. For ship, start and destination, a mixture of both drop down list and input will be used. The user can also type the first letter of the ship or port and it will come up with a list of ships or ports with the same starting letter for user to choose them easier. For departure date, the user can either input the date or there will be a calendar icon on the side for the user to select. For time, the user will be prompted to input time to the nearest minute. They will also be prompted to input whether it's AM or PM. The user is then prompted to select either to go to the next page or they could choose to cancel the booking.

After confirming the ships, starting point and destination and the departure time, another page will appear to show several details of the journey. On the left hand side a map will be shown, and as the user selects a waypoint, the point on the map will turn red and the rest will turn green. The user can also delete waypoints by pressing delete waypoints. If none of the waypoints are clicked, a blue marker will appear on the map indicating where the user clicked. This blue marker also defines where the new waypoint goes if the user chooses to add waypoint. The ship range will be confirmed again in this page, and total distance will be calculated according to waypoints being selected. If the distance exceeds the ship's range, user will be alerted to choose another waypoint.

Onto the next page, several details including estimated travel distance, estimated journey time and estimated arrival time as well as the cost of the booking will be displayed. The cost will be calculated based on the total distance travelled and the cost of the ship per kilometer. The estimated arrival time will be calculated by the initial departure time and the journey time. The map on the left hand side will show again the route, then by pressing the ports and waypoints on the route, a window will appear showing the current weather and the estimated weather for 7 days.

Proceeding to the next page, all the booking details from previous pages will be shown again on the page for the user to confirm the information. If the user confirms the booking details, he can press the button "confirm" and the booking will be saved into the system.

For booking, there is an interface where all the bookings are shown as table rows. When a booking is clicked, the interface will switch to a different UI that displays a map showing the route path and the booking details below it such as estimated time arrival, travelling distance and cost. For the map displaying the path, the start port will be shown as a yellow marker and the end port will be shown as a purple marker. The waypoints will be shown as green markers and the path will be rendered as a grey line that's relatively thick. The user can also select any of these markers to see their forecast at their particular times.

UI Designs

Ship Us Safe

Booking Confirmation

Ship: _____

Starting Port: _____

Destination Port: _____

Departure date and time: _____

Arrival date and time: _____

Travelling distance (km): _____

Booking cost: _____

Dialog

Are you sure you want to confirm booking?
Yes No

BACK CONFIRM

Figure : Wireframe of booking confirmation

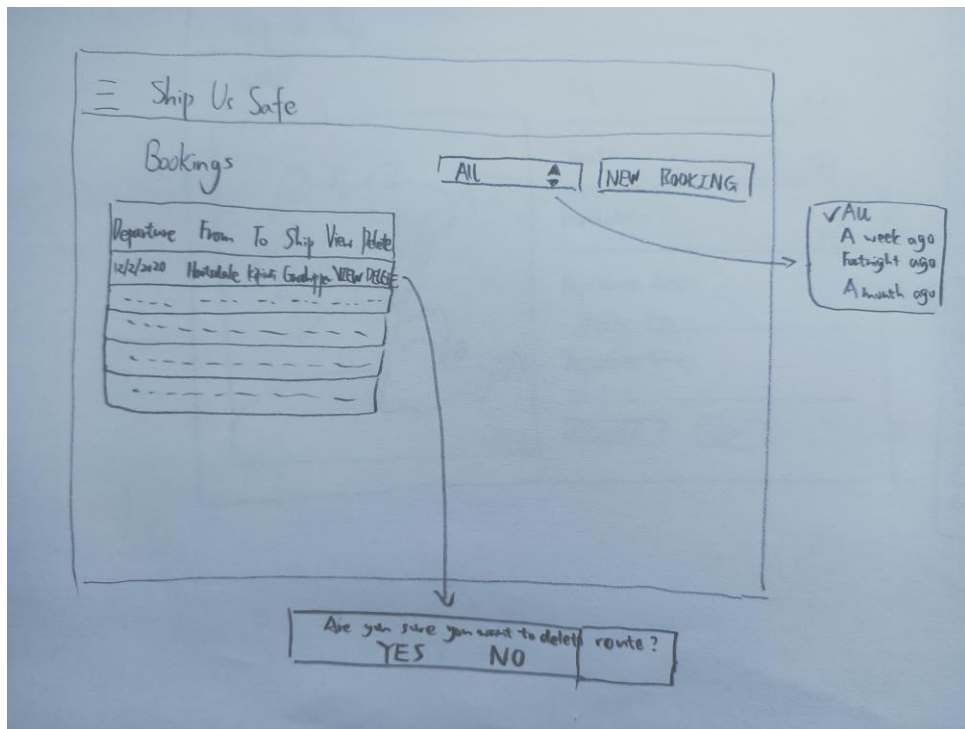


Figure: Wireframe for booked list

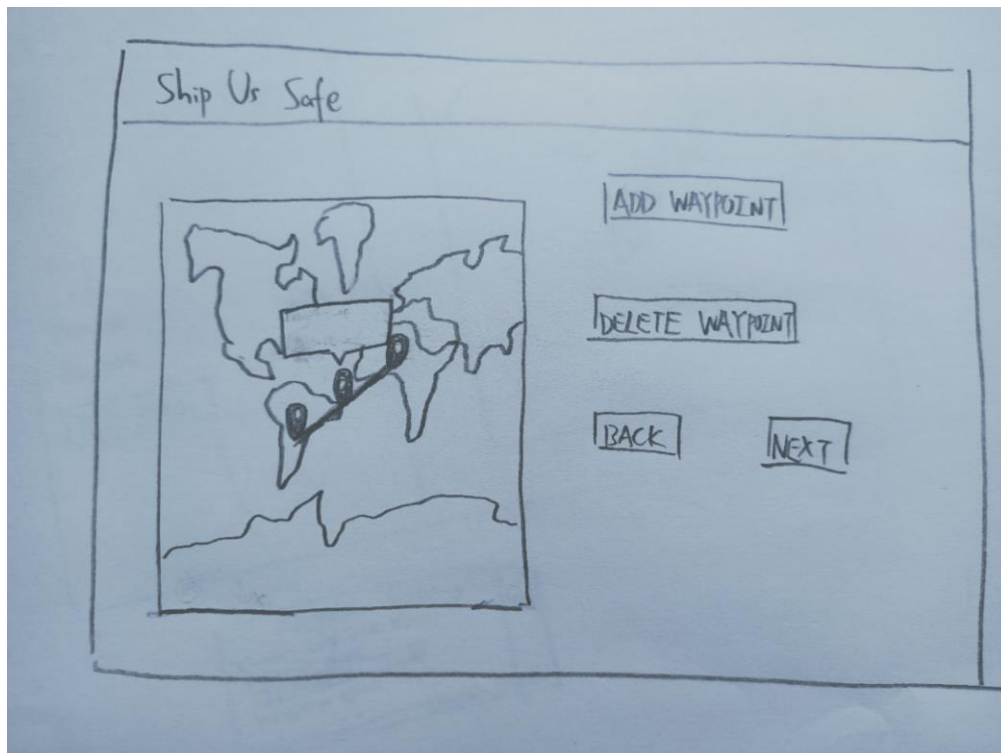


Figure: Wireframe for Adding waypoint or deleting waypoint

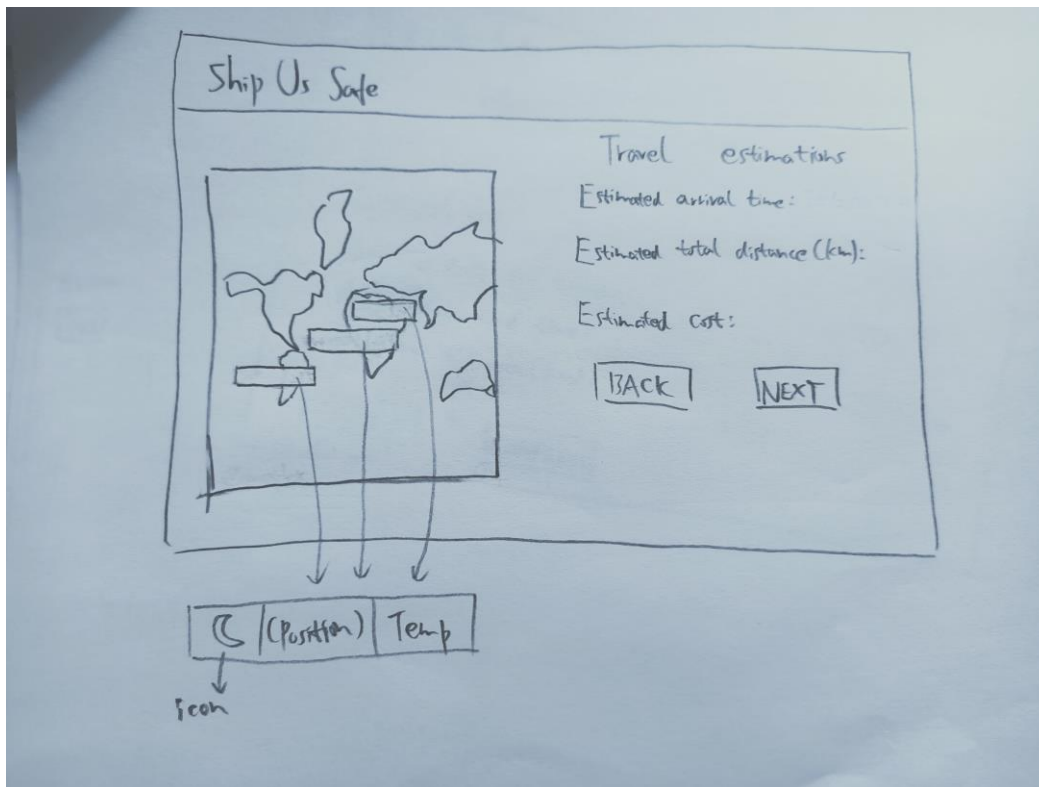
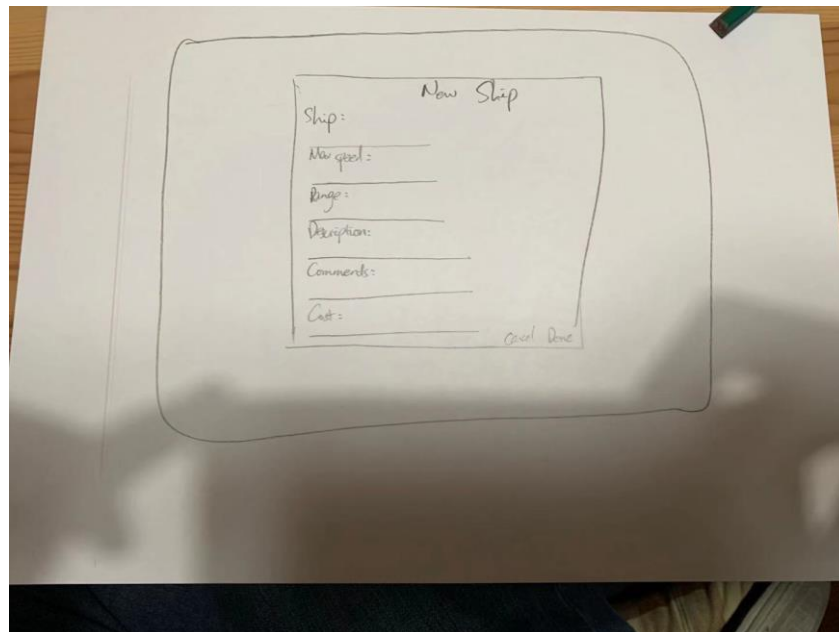


Figure : Wireframe for Travel estimations

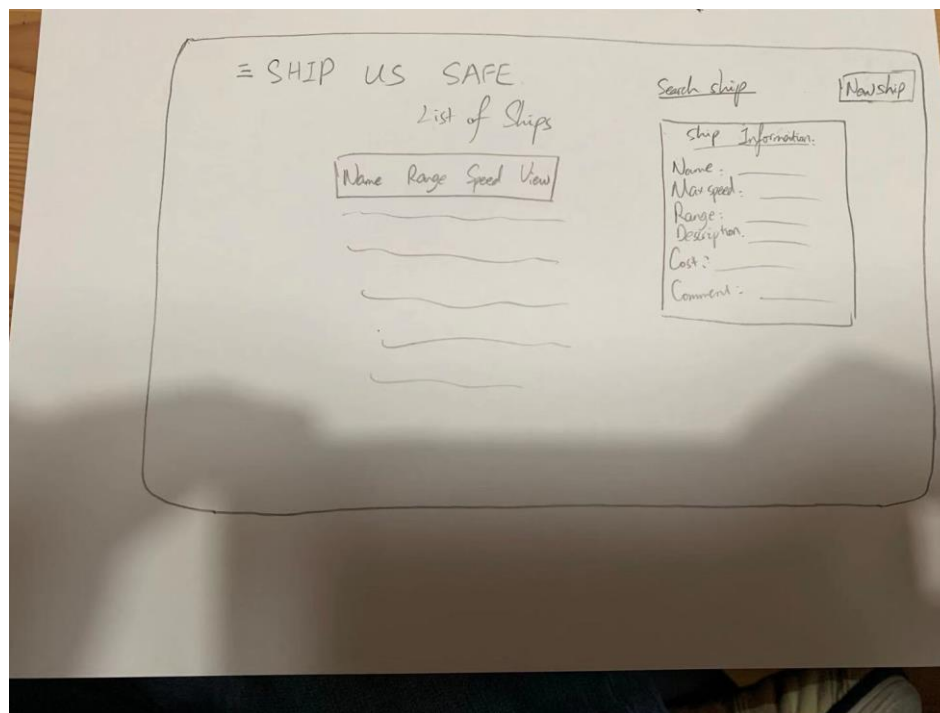


Figure : Wireframe for inputting information for route



A hand-drawn wireframe for a 'New Ship' form. The form is titled 'New Ship' and contains several input fields: 'Ship:', 'Max speed:', 'Range:', 'Description:', 'Comments:', and 'Cost:'. A 'Cancel' button is located at the bottom right of the form.

Figure: Wireframe for adding ship



A hand-drawn wireframe for a 'List of Ships' page. The page has a header with 'SHIP US SAFE' and 'List of Ships'. On the left, there is a table with columns 'Name', 'Range', 'Speed', and 'View'. On the right, there is a 'Search ship' section with a 'New ship' button and a 'Ship Information' form containing fields for 'Name:', 'Max speed:', 'Range:', 'Description:', 'Cost:', and 'Comment:'.

Figure : Wireframe for List of Ships

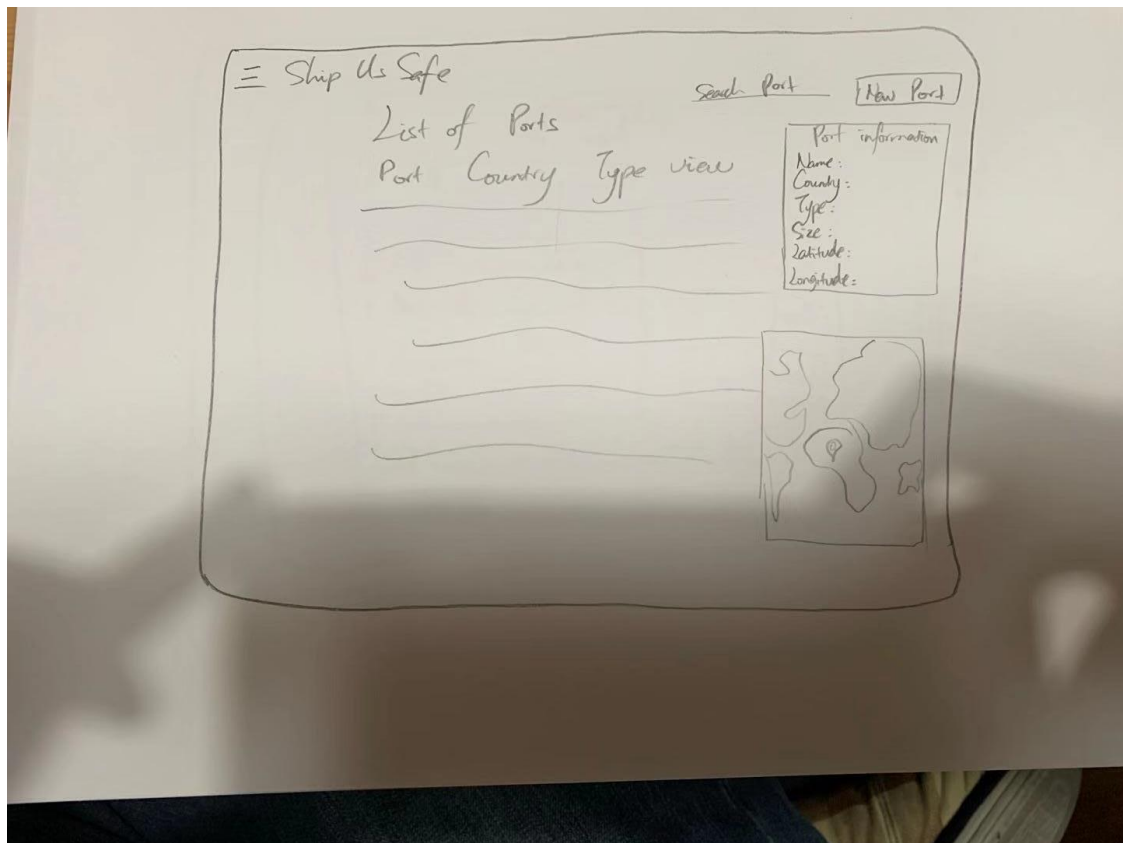


Figure: Wireframes for List of Ports

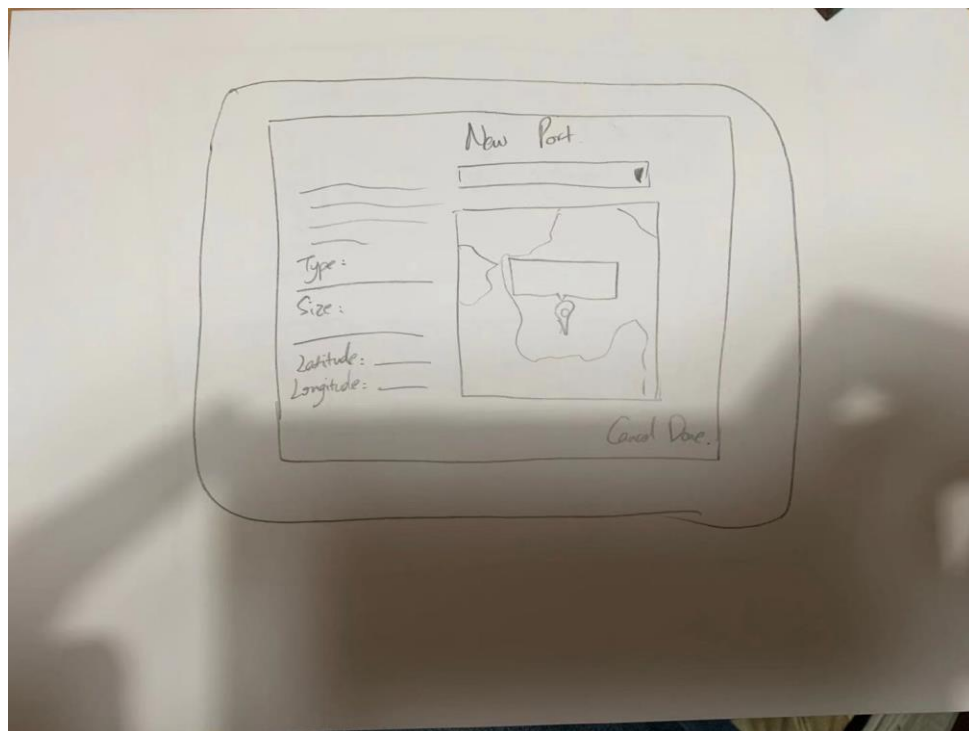
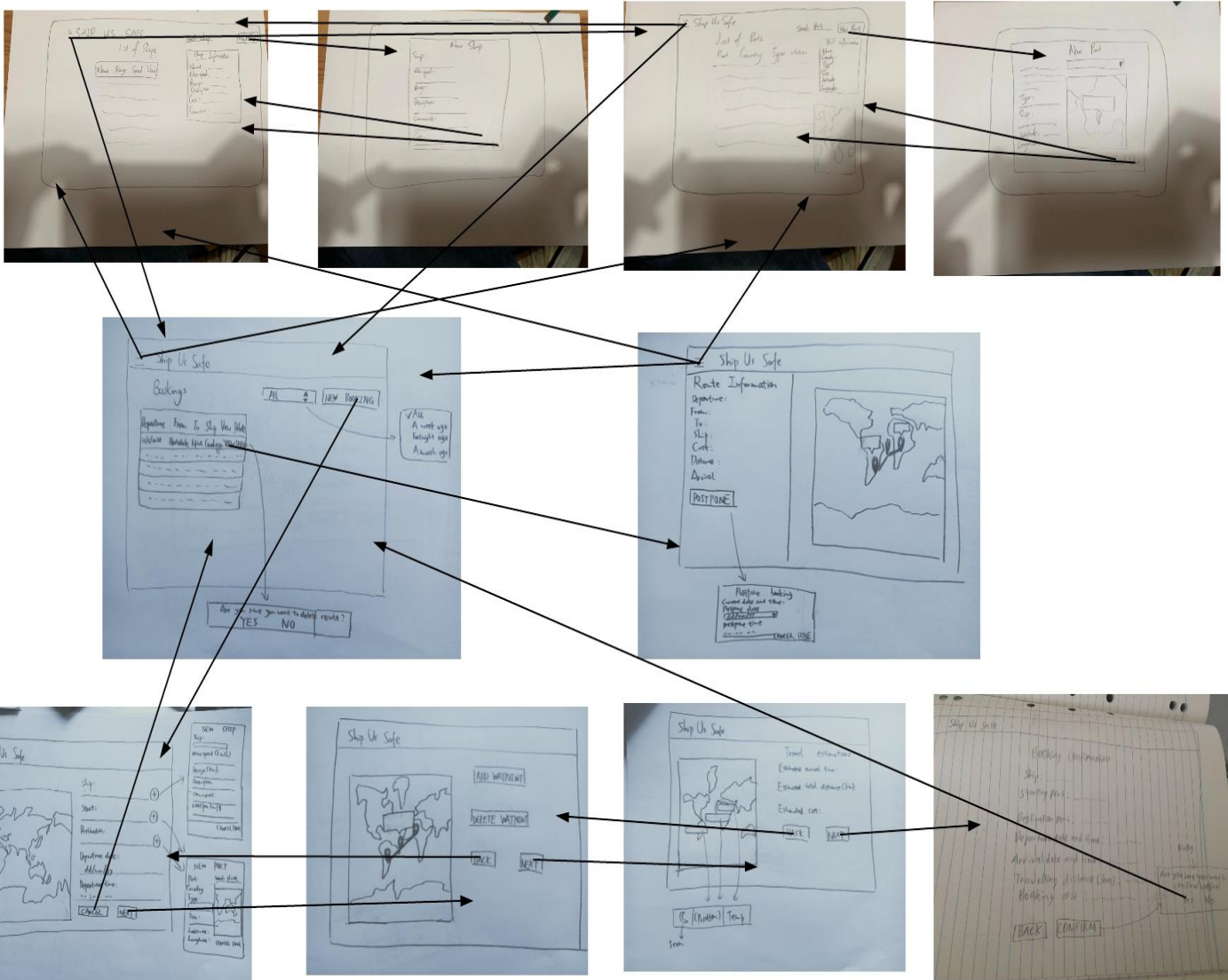


Figure: Wireframe for Inputting new Port

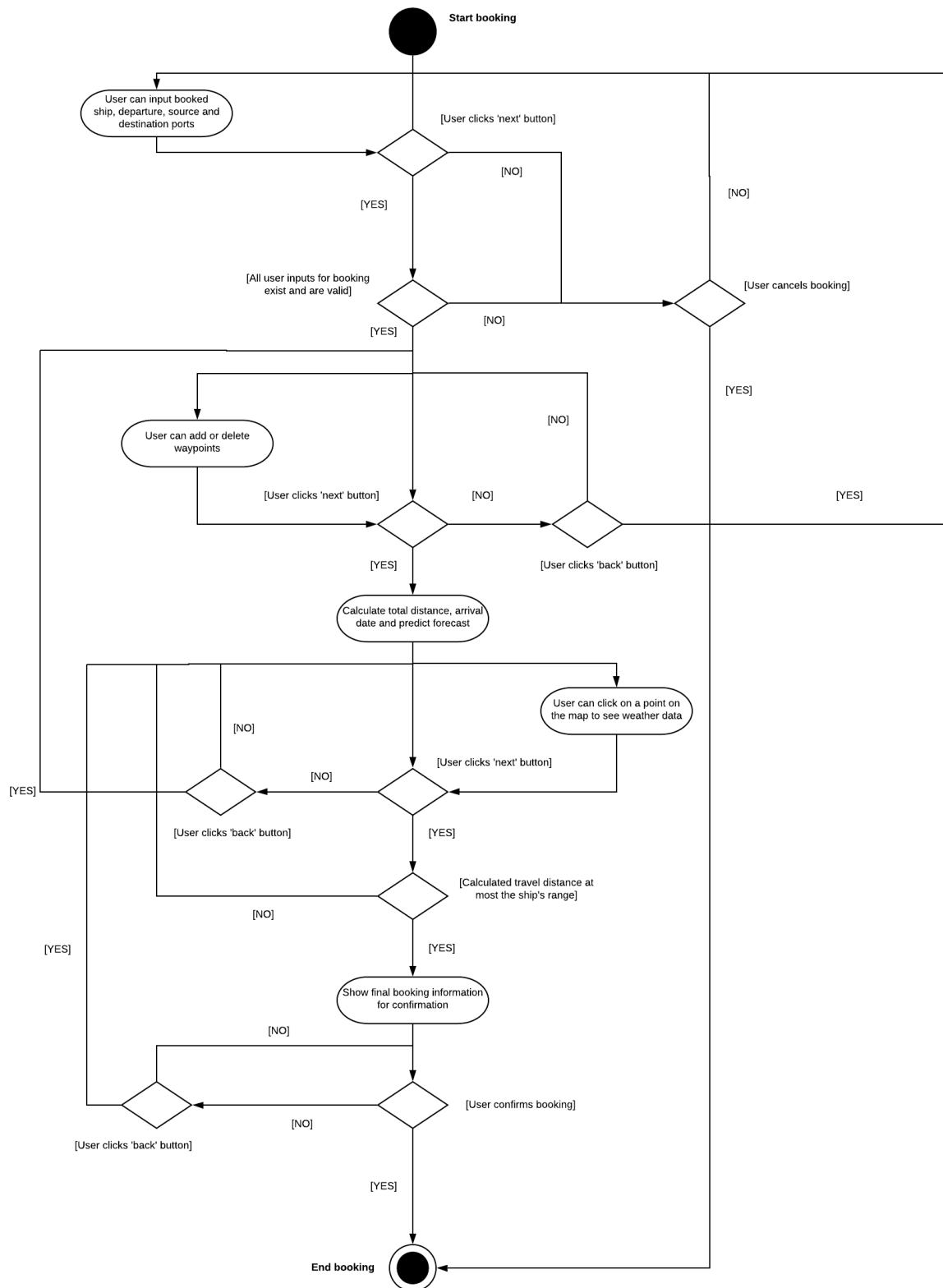


Figure: Wireframe for viewing booked route

Storyboard with wireframes



High level app code design



The high-level code design of the app, in the diagram above, illustrates how the app would operate when the user is booking a new route. When user starts booking a new route, user can choose the ship to travel, the starting point and destination ports and a departure time to commence sailing. If user clicks the 'next' button, the next interface will be loaded if all information given are valid. If user clicks the 'cancel' button, the user can cancel the booking and the booking activity ends.

Onto the next interface, the user can optionally add and delete waypoints on the map. If user clicks the 'back' button, user moves back to the previous interface. If user clicks the 'next' button, next interface will be loaded where the app will automatically calculate the route's total estimated distance and arrival date, while predicting the forecast during the time of travel.

The user can click on any map points that are part of the route path to see their weather data for estimated arrival time. In this next interface, if the user clicks on the 'next' button, final page will be loaded if the total distance is at most the chosen ship's range. In the final interface, the booking entries will be displayed as well as the calculated travel distance, arrival date and time and the booking cost. If user chooses to confirm booking, the route will be booked and booking activity ends. Otherwise if user clicks the 'back' button, user goes back to the previous interface.

Class diagram

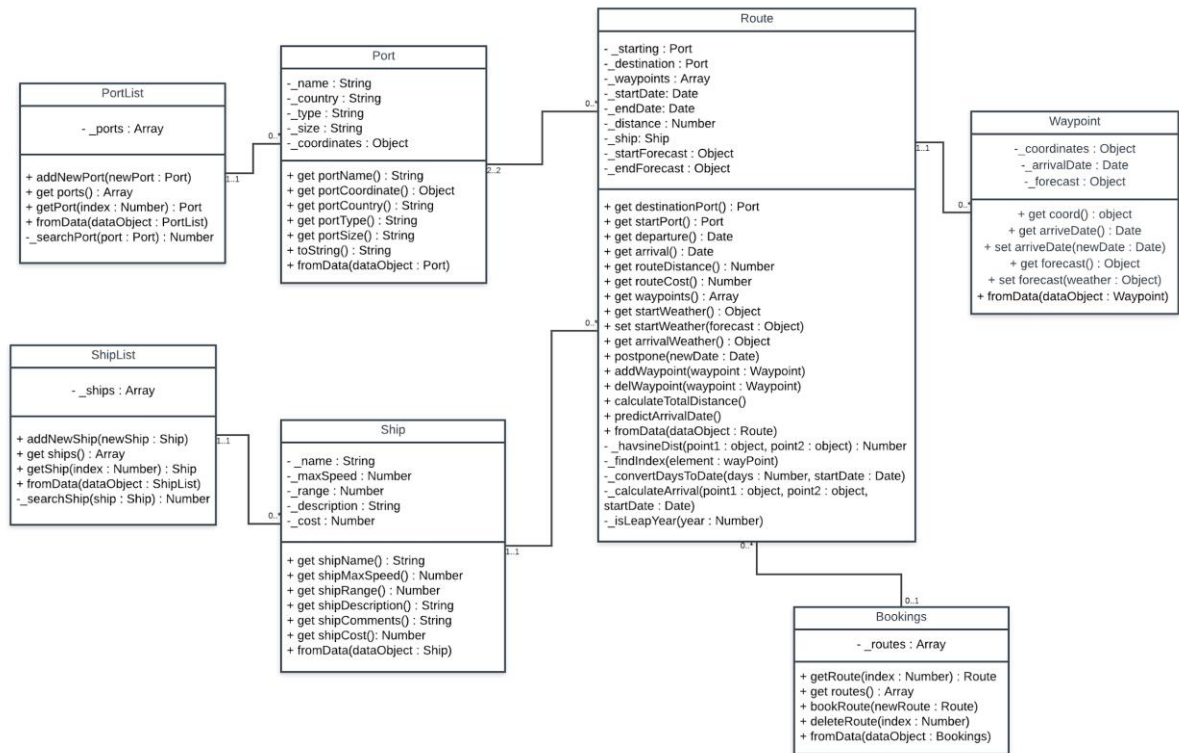


Figure: Class Diagram