
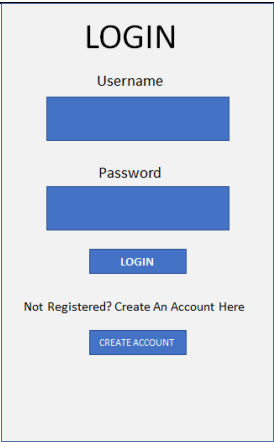
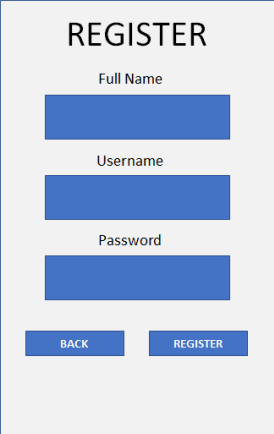


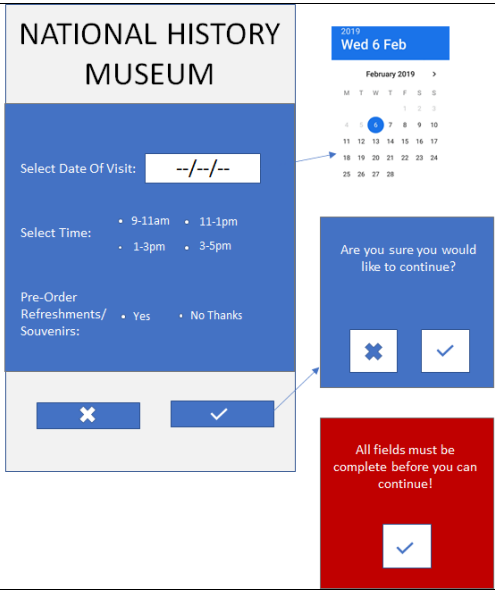


# Mobile Application Development Design Document

Student Number: 169079462

## Paper prototype sketches

<p><b>Home Page</b></p> <p>The Home page of the World Museums application where the user can select their language and navigate to the login page.</p>	 <p>The Home Page mockup features a blue header with the text 'WORLD MUSEUMS'. Below the header is a large image of ancient Greek ruins. A white 'LOGIN' button is centered over the image. At the bottom, there are three flags: the United Kingdom, France, and Germany.</p>
<p><b>Login Page</b></p> <p>The Login page, two input fields for the username and password. A button to login and another one which will navigate to the register page if the user does not already have an account.</p>	 <p>The Login Page mockup has a light gray background. It features a 'LOGIN' title, a 'Username' label above a blue input field, a 'Password' label above another blue input field, a blue 'LOGIN' button, and a link 'Not Registered? Create An Account Here' above a blue 'CREATE ACCOUNT' button.</p>
<p><b>Register Page</b></p> <p>The Register page has three input fields where the user can type their name, username and password. There are two buttons for confirming their registration or going back to the login page.</p>	 <p>The Register Page mockup has a light gray background. It features a 'REGISTER' title, a 'Full Name' label above a blue input field, a 'Username' label above another blue input field, a 'Password' label above a third blue input field, and two blue buttons at the bottom: 'BACK' and 'REGISTER'.</p>

<p><b>Places to Visit Page</b></p> <p>The Places to Visit page where the user can browse the available museums. By clicking on the picture or text of the museum will navigate the user to the page specific to that museum.</p>	
<p><b>Specific Museum Page</b></p> <p>This is the specific museum page, it contains more information about the museum selected. It contain two buttons which allow the user to book a visit to the museum and another button to return to the Places to Visit page. The book button takes the user to the Booking page.</p>	
<p><b>Booking Page</b></p> <p>The Booking page where the user selects the date of visit, the interaction is set to accept DateTime data. There are four time slot options for the user to choose from aswell as the option to pre-order refreshments and souvenirs. When confirming the booking a pop up box will appear to ask if the user is sure that all choices are correct. If an fields are left blank when the user presses the continue button another pop up box will appear to warn them that they need to fill in all fields.</p>	
<p><b>Shop Page</b></p>	

The Shop page contains a table with items to buy and their prices. A quantity for each can be inserted at the end column. There are two buttons, one to return to the previous page and another to confirm the selection.

SHOP

FOOD

Sn o.	Item	Prices (£)	Qty
01	Tea	£1	0
02	Water	£1	0
03	Coffee	£2	0
04	Flatbread	£2	0
05	Sandwich	£2	0
06	Sweet roll	£2	0
07	Salad	£2	0

Back To List

Next

### Payment Page

The Payment page lists all the items the user has selected in a table. The sum total is displayed along with an input field to pay. The input field is set to the number data type so that when it is clicked the number pad will appear. This is to make the user experience easier and to reduce the clicks required to complete an action. There are two buttons at the bottom of the page which allow the user to cancel the order or confirm their payment.

PAYMENT

ORDER

Sno.	Item	Prices (£)	Qty
01	Tea	£1	2
02	Water	£1	1
03	Ticket	£5	1

Total: £8

Enter payment

Cancel

Pay

### Receipt Page

The Receipt page displays the user information, the museum which has been booked and any other items purchased. The receipt is printed in a table which includes the price and booking code. There is a button at the bottom of the screen to navigate back to the Places to Visit page.

RECEIPT

Customer	Sophie Watt
Museum	National History Museum
Date of Visit	11/05/21
Time	1-3pm
Refreshments	Tea, Water
Souvenirs	None
Total Cost	£8
Payment	£8
Change	£0.00
Booking Code	263809

Cancel

Confirm

## Principles of design

*Principles of Design Norman and Shneiderman provide two principles of designing a good application. The two principles together provide a list of 12 elements to consider in designing a good application. Select some of these elements to convince the management that the application is going to be effective for the users [Maximum 3 pages].*

The World Museums application is an effective piece of software as during its development design principles were examined and implemented to create an application which is easy for users to operate and understand. The initial design principles that were implemented were Normans Fundamental Principles. The first being Visibility, the idea that the functionality is clear for the user to see. The World Museums Application implements this design by having spacious screen layouts, large title text and limited functionality per page. This removes the chance for confusion and creates a consistent layout which the user will quickly become familiar with.

Normans Fundamental Principles of Feedback is also implemented. This is an important design feature to include as it prompts the user to perform an action when an error has been made. This helps to create an application which is easy to use and doesn't frustrate the user. An example of when Feedback is helpful is when a username or password is incorrectly entered, the application will pop up some text to inform the user, the text box will also turn red to indicate that an error has been made.

The principle of Consistency was applied throughout this application. Consistency is the design principle of creating a familiar environment for the user to inhabit. The World Museums application achieved this in a number of ways, the first was a uniform layout for elements such as titles and input boxes. They are positioned identically across all the pages of the application. The buttons and input boxes are of equal size again to create a uniform aesthetic. Along with Normans Fundamental Principles the application was also designed using Shneiderman Principles. Consistency is a principle that also appears in the Shneiderman Principles. During development a house style for the application was created, this will make it easier for the user to identify the functionality.

The Constraints principle from Normas Fundamentals is implemented to create a streamlined experience for the user when inputting data into the application. For example, if the data that is requested of the user is a phone number the keypad will automatically be switched to the number pad. This makes the process of inputting the data quicker and requires less clicks from the user to achieve their goal.

Shneiderman Principles has a design principle for error handling. This is an import principle to include for an application as users will inevitably make errors. The World Museums application implements error handling to improve the users understanding of the application and to allow them to fix the error and perform the choice they want to make correctly.

## Addressing user's concern

*Users Concern - considering that the company serves diverse people, mostly tourists from various parts of the world, users concern is paramount in the success of the mobile application. In considering this, you have to convince the management on how you will address the cultural diversities of the customers that will use the application. Typical examples are language variation and currency. Discuss how you will address the users' concern in developing the application. [Maximum 1 page]*

As this application will be used by a wide range of people from different countries and cultures the aim of the World Museums application during development was to create an inclusive experience which can be used by all. This was achieved by first implementing a settings page where the user could select the language they wanted to see, this allows the application to be used by more users than a single language program. Along with the language choice the currency of the shop and ticket prices match that of the language chosen by the user. For example if the user selected German as their language of choice the shop's currency would reflect that choice by displaying the price of items in Euros.

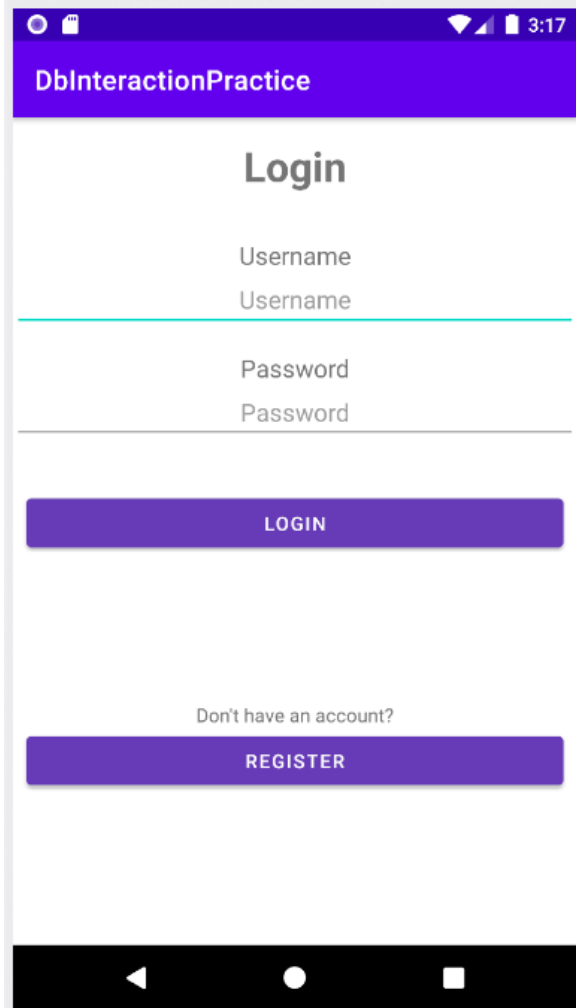
The next step taken to create an inclusive experience for the user was to implement icons and symbols rather than words. This technique is used frequently in the automobile industry, cars sold in the UK and Europe have the same buttons and dashboard. This is possible as the controls are identified using icons and not words. The World Museums application makes use of this to indicate to the user what the buttons and functions for the application do. It also means that less translations have to take place due to the reduction of words. A final effort was made to create a layout which enabled users who were not computer literate to be able to understand how to use the application quickly.

## Screen shots of the implemented application

The registration page allows the user to create a new user login. The details for the new user are added to a SQLite table. Once registration is complete a popup will appear to indicate that it has been successful. The login page button will navigate the user to the login page.

The screenshot shows a mobile application interface for a registration page. At the top, there is a purple header bar with the text "DbInteractionPractice". Below the header, the title "Register" is displayed in a large, bold, black font. The form consists of four input fields, each with a label and a placeholder text: "Name" with "name", "Username" with "Username", "Password" with "Password", and "Re-password" with "Password". Each input field is separated by a horizontal line. Below the input fields, there are two purple buttons with white text: "REGISTER" and "LOGIN PAGE". The bottom of the screen shows a black navigation bar with three white icons: a back arrow, a circle, and a square.

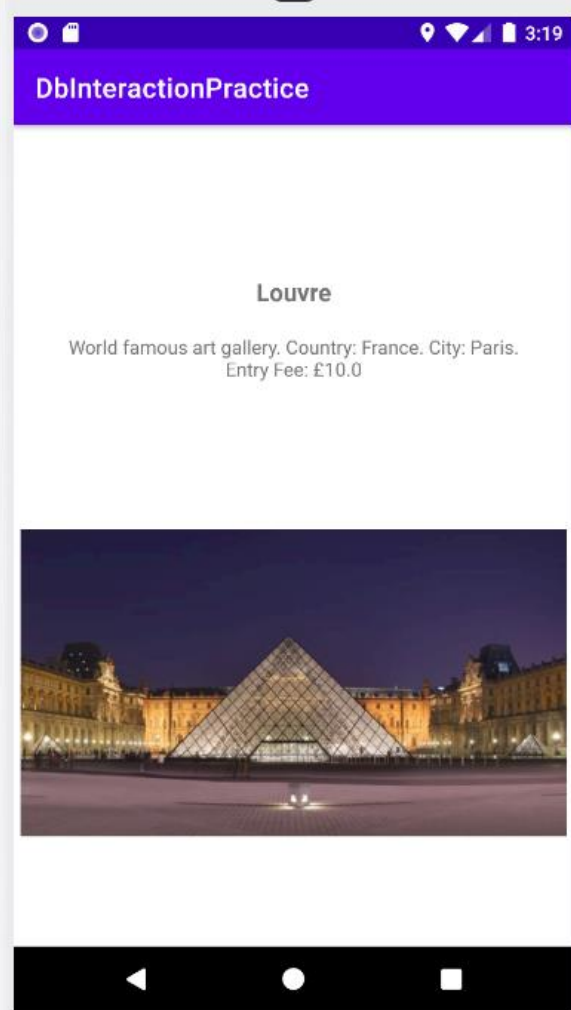
The login page takes a username and password, if credentials are in the database and correct the app will take the user to the museum select page once the login button is pressed. The register button will take the user back to the registration page to add a new user.



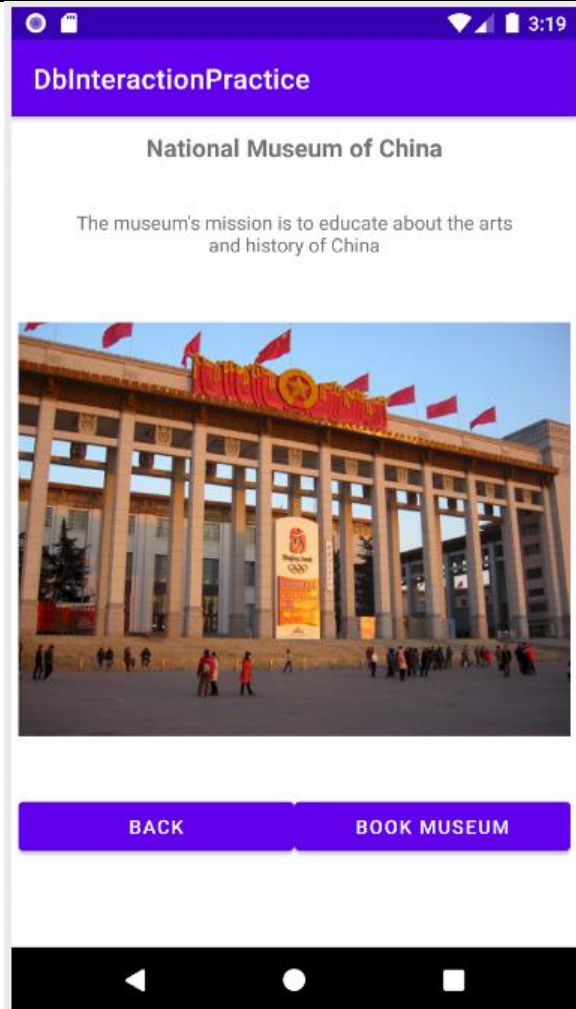
The image shows a mobile application interface for 'DbInteractionPractice'. The app has a purple header bar with the title 'DbInteractionPractice'. Below the header, the word 'Login' is displayed in a large, bold, black font. There are two input fields: the first is labeled 'Username' and has 'Username' entered; the second is labeled 'Password' and has 'Password' entered. Both fields have a light blue underline. Below the password field is a large purple button with the text 'LOGIN' in white. Further down, there is a link that says 'Don't have an account?' followed by another large purple button with the text 'REGISTER' in white. At the bottom of the screen is a black navigation bar with three white icons: a back arrow, a home circle, and a recent apps square. The status bar at the very top shows the time as 3:17 and various system icons.



The museum select page uses a recycler view to display all the museums and allows the user to scroll through them. The museum data is stored in a SQLite table which is returned to a java class using T-SQL. Once in the java file the information is formatted and put into a class object which is store in an array list of museums and fed into the recycler view.



Each museum has its own specific page with more detail on it. From here the user can choose to book the museum or return to the menu.



The booking page lets the user select a day, month and year of visit as well as a time slot and number of tickets.

The screenshot shows a mobile application interface for booking a museum visit. At the top, there is a purple header bar with the text "DbInteractionPractice". Below this, the title "Book Museum" is centered. The main content area features a calendar for May 2021. The days of the week are listed as S, M, T, W, T, F, S. The dates are arranged in a grid. The date 12 is highlighted with a green circle. Below the calendar, there is a section for "Time Slot" with four radio button options: 9-11 am, 11-1 pm, 1-3 pm, and 3-5 pm. To the right of the time slot options, there is a label "Ticket Quantity" followed by a horizontal line. At the bottom of the form, there are two purple buttons: "BACK" and "BOOK MUSEUM". The entire interface is displayed within a mobile phone frame with a status bar at the top showing the time 3:19 and various icons.

DbInteractionPractice

Book Museum

< May 2021 >

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

Time Slot

☐ 9-11 am

☐ 11-1 pm

☐ 1-3 pm

☐ 3-5 pm

Ticket Quantity

BACK BOOK MUSEUM

The museum shop allows the user to add items to a basket which will be checked out with the ticket price at the end of the transaction.

DbInteractionPractice

Museum Shop

Shirt - £10	0
Hat - £5	0
Snow Globe - £5	0
Key Chain - £5	0
Bottle - £5	0
Mug - £5	0
Coaster - £2	0

ADD TO BASKET

SKIP STEP

ORDER ITEMS

The museum café also lets the user add items to their basket.

The screenshot displays the 'Museum Cafe' app interface. At the top, there is a status bar with icons for signal, Wi-Fi, battery, and the time 3:20. Below this is a title bar with the text 'Museum Cafe'. The main content area lists seven items: Tea, Water, Coffee, Flatbread, Sandwich, Sweat Roll, and Salad. Each item has a corresponding input field with the number '0' entered. Below the list are three blue buttons with white text: 'ADD TO BASKET', 'SKIP STEP', and 'ORDER ITEMS'. At the bottom of the screen is a black navigation bar with three white icons: a back arrow, a circle, and a square.

Item	Quantity
Tea	0
Water	0
Coffee	0
Flatbread	0
Sandwich	0
Sweat Roll	0
Salad	0

ADD TO BASKET

SKIP STEP

ORDER ITEMS

The checkout page prints all the items and their quantity to the screen. The total price is displayed along with an input field to enter the amount of the bill. Once the pay button is pressed the amount paid will be printed to the screen and a 6 digit confirmation code.

The screenshot shows a mobile application interface for a checkout process. At the top, there is a status bar with icons for signal, Wi-Fi, and battery, and the time 3:21. Below this is a purple header bar with the text 'DbInteractionPractice'. The main content area is white and contains the following text: 'Museum name: National Museum of China', 'Museum booking date: 25 5 2021', 'Museum time slot: 9-11 am', 'Museum ticket quantity: 1', 'Product name: Snow Globe Product quantity: 2', 'Product name: Key Chain Product quantity: 10', 'Product name: Bottle Product quantity: 1', 'Product name: Flatbread Product quantity: 2', 'Product name: Sandwich Product quantity: 20', and 'Total: £119'. Below this text is a blue input field containing the number '120'. Under the input field is a red button labeled 'PAY'. Below the button, the text 'Total paid: 119' and 'Confirmation code: 336589' is displayed. At the bottom of the screen is a black navigation bar with three white icons: a triangle, a circle, and a square.

DbInteractionPractice

Museum name: National Museum of China  
Museum booking date: 25 5 2021  
Museum time slot: 9-11 am  
Museum ticket quantity: 1  
Product name: Snow Globe Product quantity: 2  
Product name: Key Chain Product quantity: 10  
Product name: Bottle Product quantity: 1  
Product name: Flatbread Product quantity: 2  
Product name: Sandwich Product quantity: 20

Total: £119

120

PAY

Total paid: 119  
Confirmation code: 336589