FIT5032 Design Report

Major Application Development

{Credit/Distinction/High Distinction}

Ultrasound Imaging

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Contents **Page**

Your design report must include the following:

Credit Level

1. Web application title and description
2. User stories and a Use case diagram
3. Block/Functional diagram
4. Your selected approach when constructing the application

Additional Distinction Level (the above and the following)

5. Class Diagram or Entity Relation Diagram
6. Mockup prototypes and Implementation
7. Data dictionary
8. Usability Design Review

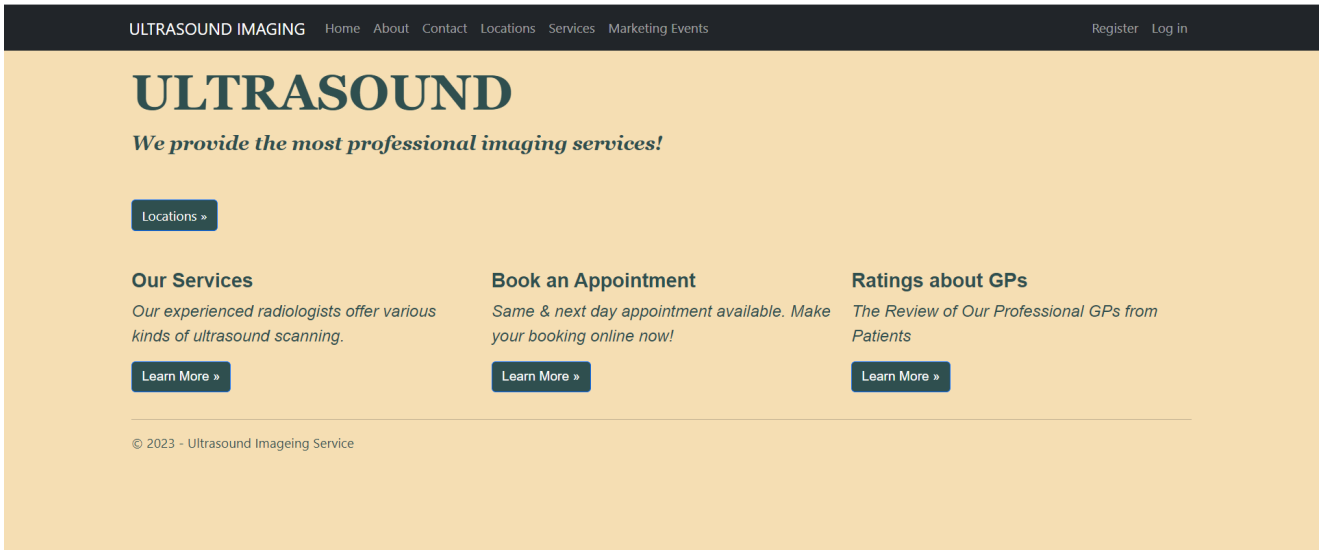
Additional High Distinction Level (the above and the following)

9. Development Methodology
10. Versioning

11. Checklist of site functionality.

Your design report must include the following (Pass Level and Above):

1. Web Application Title and Description



The home page of my web application introduces "ULTRASOUND IMAGING," a specialized online platform designed for the ultrasound service provider.

Key Features:

- **About:** This section offers information about the ultrasound service provider, providing users with a detailed understanding of their expertise and background.
- **Contact:** Easily accessible contact information for two branches, ensuring clients can quickly reach out for inquiries or appointments.
- **Location:** A convenient location search feature assists users in finding the nearest ultrasound facilities for their convenience.
- **Services:** A comprehensive breakdown of the various scanning services offered, allowing users to explore the range of diagnostic options available.
- **Marketing Events:** Users can stay updated on promotional events and offers, making it a valuable resource for those seeking cost-effective ultrasound services.
- **Book an Appointment:** Registered users gain access to the convenience of scheduling appointments online, streamlining the booking process.
- **Ratings About GPs:** Registered users have access to view the rating of GPs.

Admin Management: Administrators can efficiently manage information related to the ultrasound service provider, patients, and GPs.

Patient Interaction: Patients benefit from online appointment booking and access to vital provider information, enhancing their experience and streamlining healthcare access.

GP Collaboration: GPs can upload ultrasound images and share results with patients through emails.

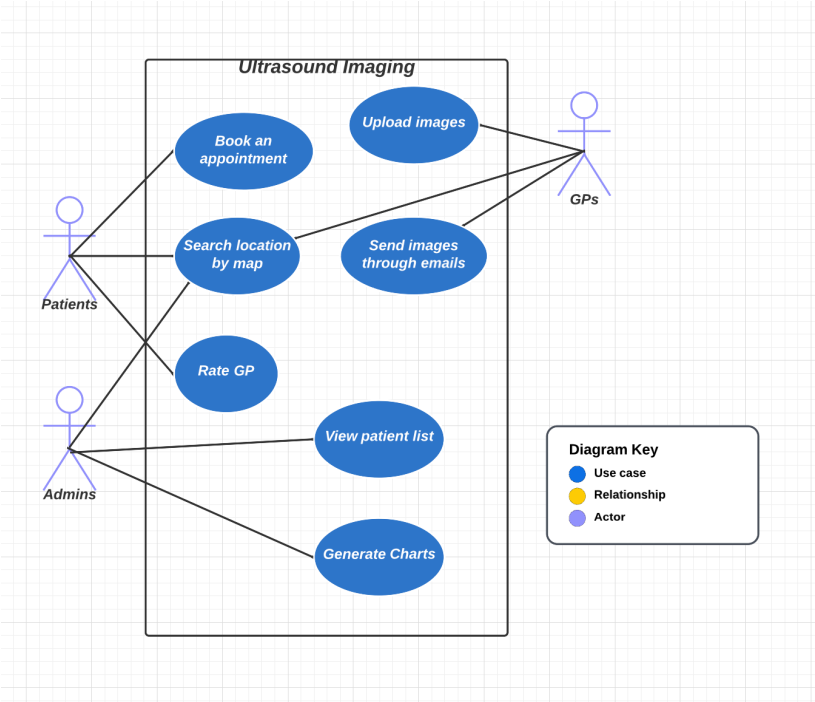
"ULTRASOUND IMAGING" aims to create a seamless and informative online environment for both service providers and their valued clients, enhancing the accessibility of ultrasound services and improving the efficiency of healthcare delivery.

2. User stories and Use case diagram

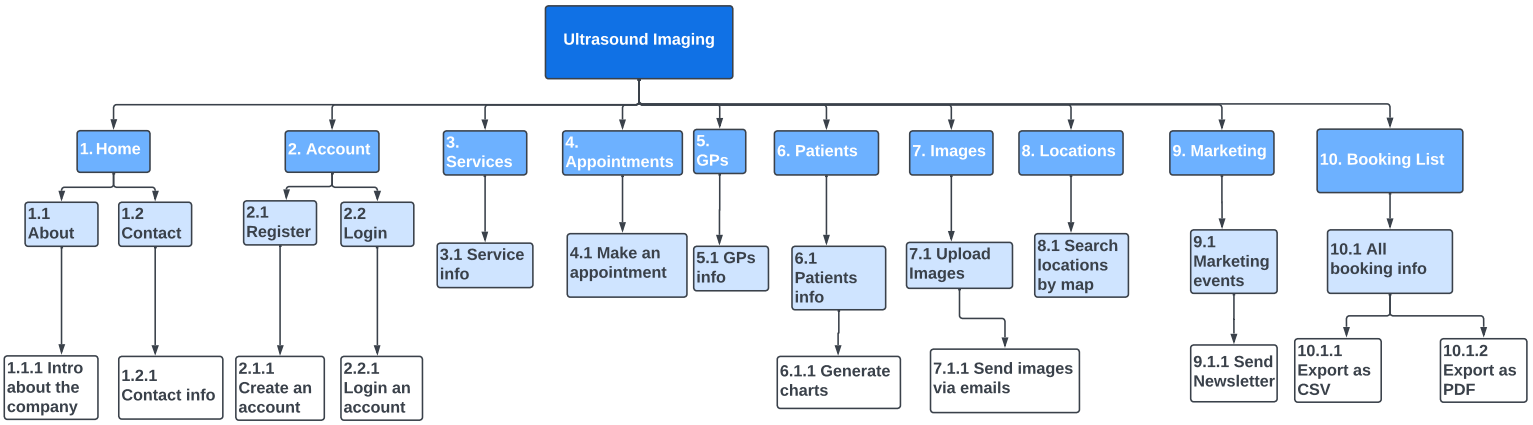
-User Stories:

(1) As a patient, I want to book an appointment online, so that I can schedule a visit without the need for a phone call or in-person visit.
(2) As a patient, I want to search locations by map, so that I can find the nearest branch.
(3) As a patient, I want to rate GPs, so that I can share the feedback of my visit.
(4) As an admin, I want to access to the patient list, so that I can manage the information of patients.
(5) As an admin, I want to generate charts about patients' information, so that I can get the insights of the current status.
(6) As a GP, I want to upload images to the website, so that I can review the patients' data at a later time.
(7) As a GP, I want to send the results to patients via emails, so that patients can receive timely updates.

-Use case diagram



3. Block/Functional diagram



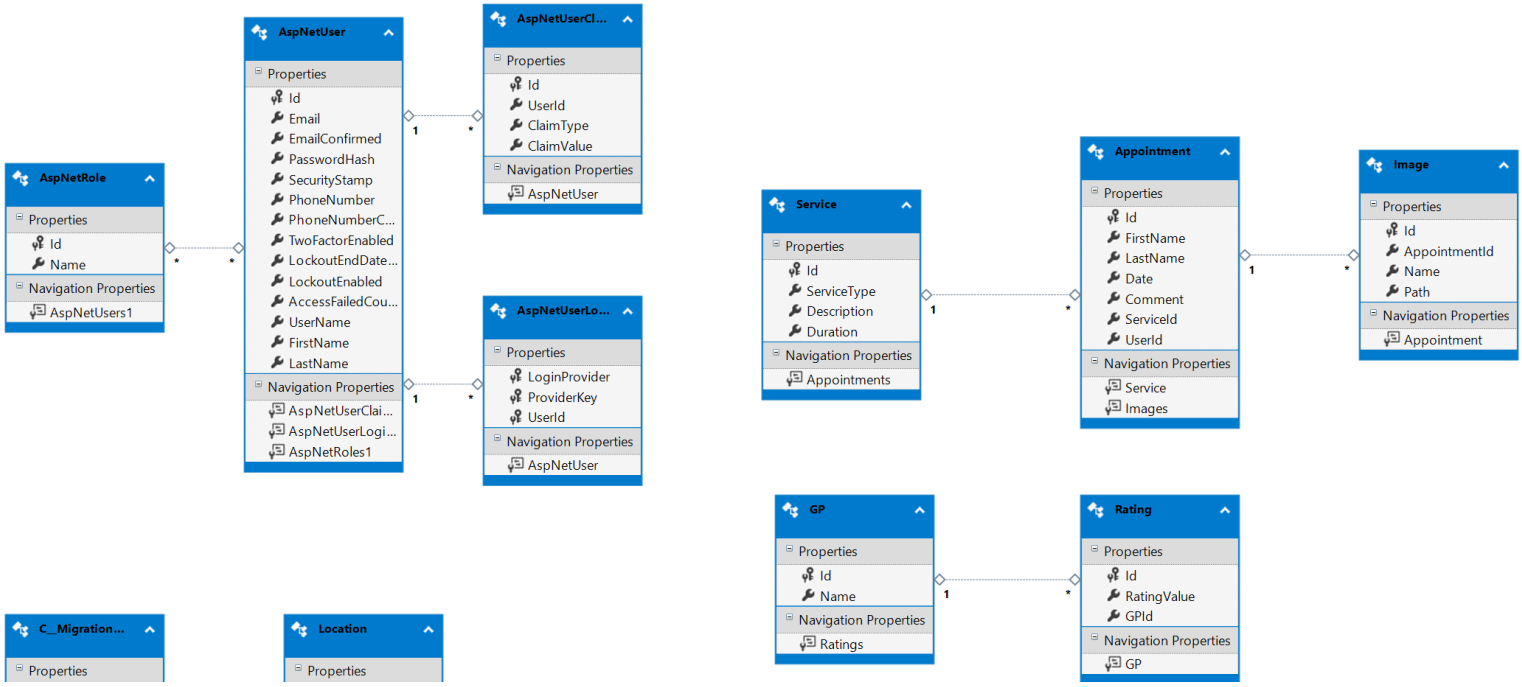
4. Your selected approach when constructing the application.

The “Model First” approach is used in my web application to create the data models and the associated entities, relationships, and attributes. This approach is chosen since it allows visual modeling, which is easier for me to conceptualise the data structure.

Moreover, it helps to rapidly establish the data model and relationships. In addition, it can automatically generate code, which saves time and reduces the risk of coding errors. Although the approach limits flexibility and control over database schema, it is considered as the suitable approach for my web application for the design and data modeling are emphasised in this portfolio.

Additional Distinction Level (the above and the following)

5. Class Diagram or Entity Relation Diagram



6. Data dictionary

Table Name: Appointment

Attribute Name	Data Type	Allow Null values(Y/N?)	Primary Key(Y/N?)	Sample Data
Id	int	N	Y	1
FirstName	nvarchar(MAX)	N	N	Chloe

LastName	nvarchar(MAX)	N	N	Shih
Date	datetime	N	N	10/10/2023
Comment	nvarchar(MAX)	Y	N	Null
ServiceId	int	N	N	1

Table Name: Service

Attribute Name	Data Type	Allow Null values(Y/N?)	Primary Key(Y/N?)	Sample Data
Id	int	N	Y	1
ServiceType	nvarchar(MAX)	N	N	Obstetric Ultrasound
Description	nvarchar(MAX)	N	N	Monitor fetal development during pregnancy.
Duration	nvarchar(MAX)	N	N	20-30 minutes

Table Name: Images

Attribute Name	Data Type	Allow Null values(Y/N?)	Primary Key(Y/N?)	Sample Data
Id	int	N	Y	1
AppointmentId	int	N	N	1
Name	nvarchar(MAX)	N	N	Obstetric Image
Path	nvarchar(MAX)	N	N	ec6411b7-55c5-44ed-adad-27b1ca0efb29.png

Table Name: Locations

Attribute Name	Data Type	Allow Null values(Y/N?)	Primary Key(Y/N?)	Sample Data
Id	int	N	Y	1
Name	int	N	N	Monash Ultrasound
Description	nvarchar(MAX)	N	N	Clayton Clinic
Latitude	numeric(10,8)	N	N	-37.8682300
Longtitude	numeric(11,8)	N	N	145.04583700

Table Name: BookingLists

Attribute Name	Data Type	Allow Null values(Y/N?)	Primary Key(Y/N?)	Sample Data
Id	int	N	Y	1
FirstName	nvarchar(MAX)	N	N	Chloe
LastName	nvarchar(MAX)	N	N	Shih
Date	nvarchar(MAX)	N	N	10/10/2023
Email	nvarchar(MAX)	N	N	test@gmail.com

Table Name: GPs

Attribute Name	Data Type	Allow Null values(Y/N?)	Primary Key(Y/N?)	Sample Data
Id	int	N	Y	1
Name	nvarchar(MAX)	N	N	Taylor Swift

Table Name: Marketings

Attribute Name	Data Type	Allow Null values(Y/N?)	Primary Key(Y/N?)	Sample Data
Id	int	N	Y	1
Content	nvarchar(MAX)	N	N	Promotion: 30% off

Table Name: Patients

Attribute Name	Data Type	Allow Null values(Y/N?)	Primary Key(Y/N?)	Sample Data
Id	int	N	Y	1
FirstName	nvarchar(MAX)	N	N	Chloe
LastName	nvarchar(MAX)	N	N	Shih
Email	nvarchar(MAX)	N	N	test@gmail.com
Phone	nvarchar(MAX)	N	N	0412345678
Gender	nvarchar(MAX)	N	N	Male

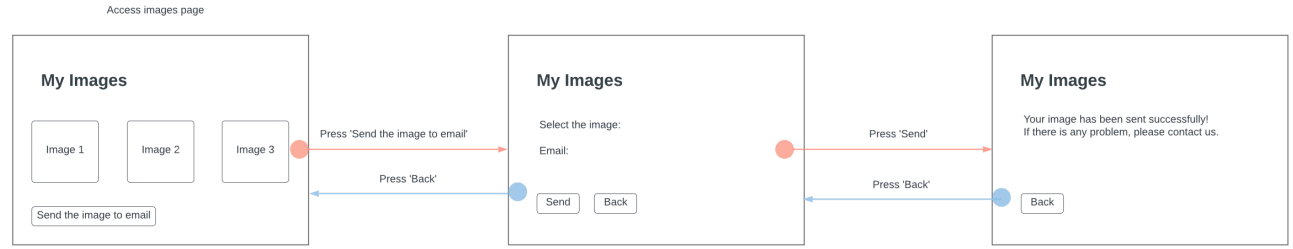
Table Name: Ratings

Attribute Name	Data Type	Allow Null values(Y/N?)	Primary Key(Y/N?)	Sample Data
Id	int	N	Y	1
RatingValue	int	N	N	5
GPId	int	N	N	1

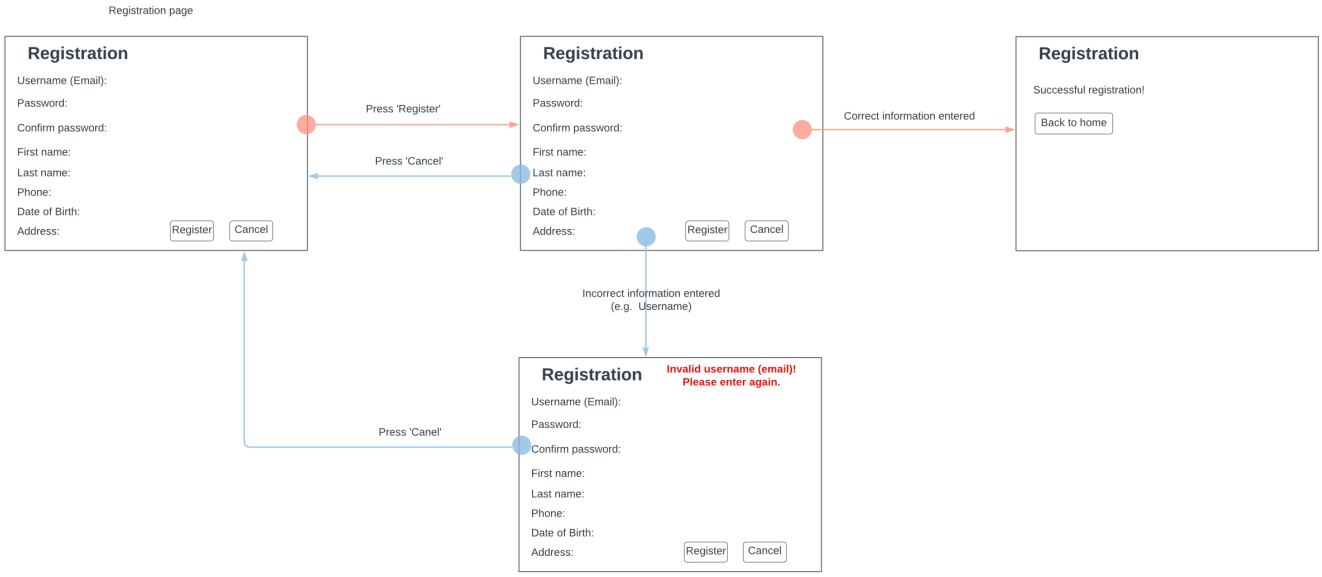
7. Mockup prototypes and implementation with user registration and authentication

-Mockup prototype

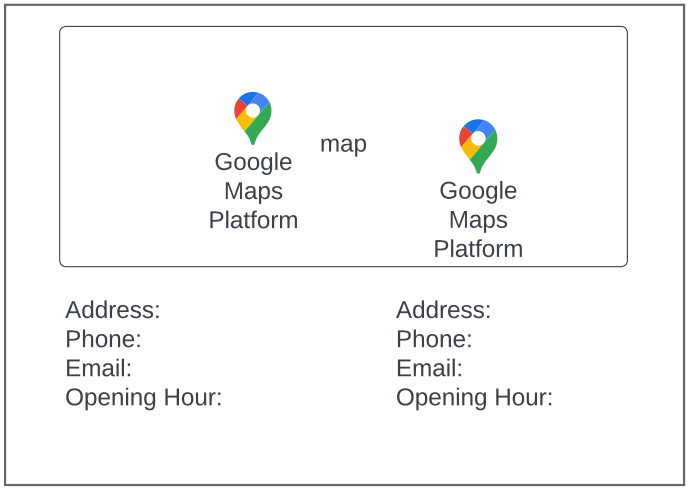
(1) BR (D.2): Email



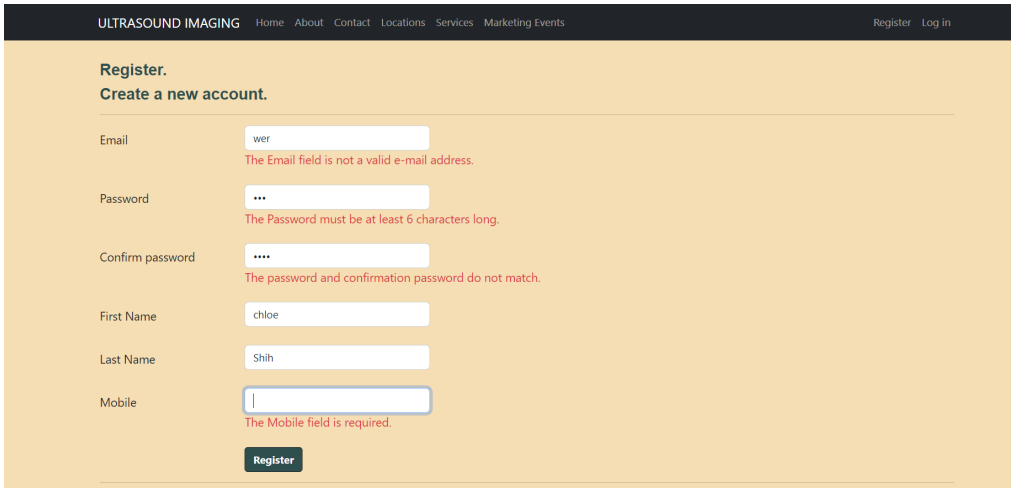
(2) BR (C.2) Validations

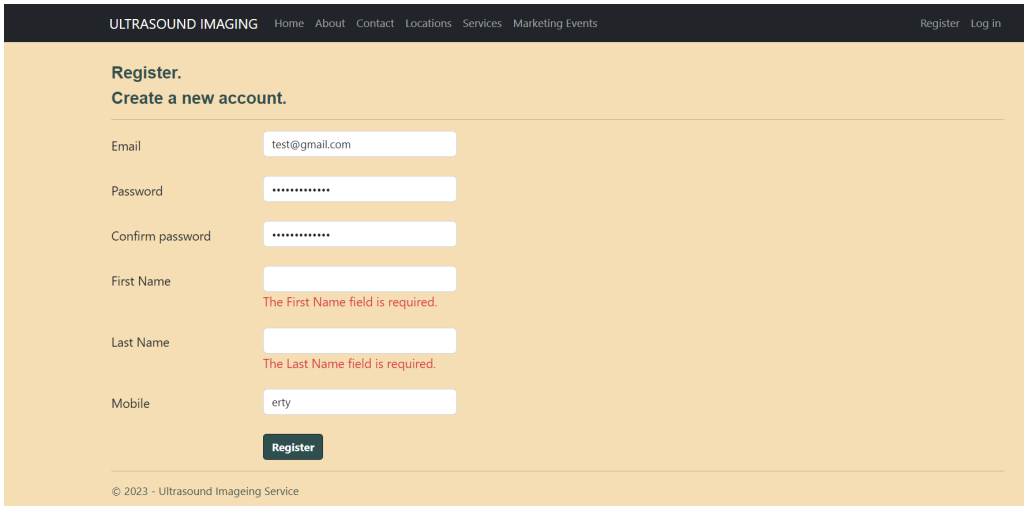


BR (E.2) Geo Location



-User registration and authentication




ULTRASOUND IMAGING
Home
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Marketing Events
Register
Log in
Register.
Create a new account.
Email
test@gmail.com
Password
Confirm password
First Name
The First Name field is required.
Last Name
The Last Name field is required.
Mobile
erty
Register
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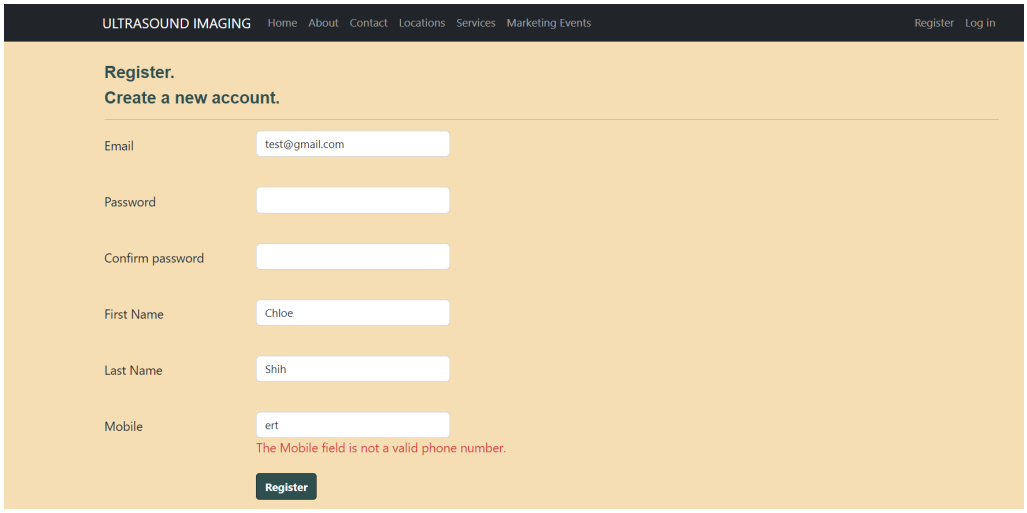
ULTRASOUND IMAGING
Home
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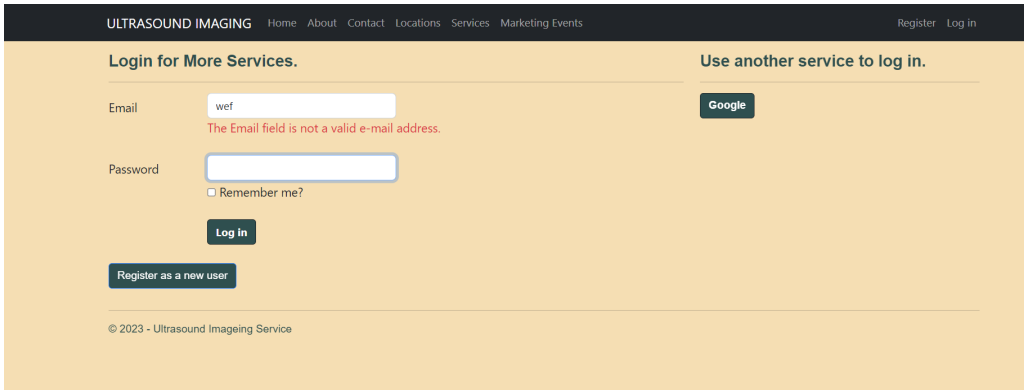
Marketing Events
Register
Log in
Register.
Create a new account.
Email
test@gmail.com
Password
Confirm password
First Name
Chloe
Last Name
Shih
Mobile
ert
The Mobile field is not a valid phone number.
Register


ULTRASOUND IMAGING
Home
About
Contact
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Services
Marketing Events
Register
Log in
Login for More Services.
Email
wef
The Email field is not a valid e-mail address.
Password
Remember me?
Log in
Register as a new user
Use another service to log in.
Google
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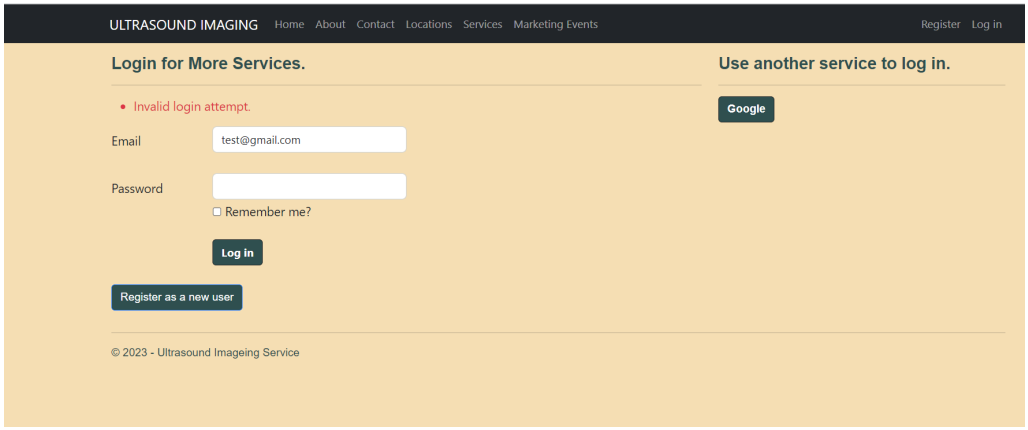
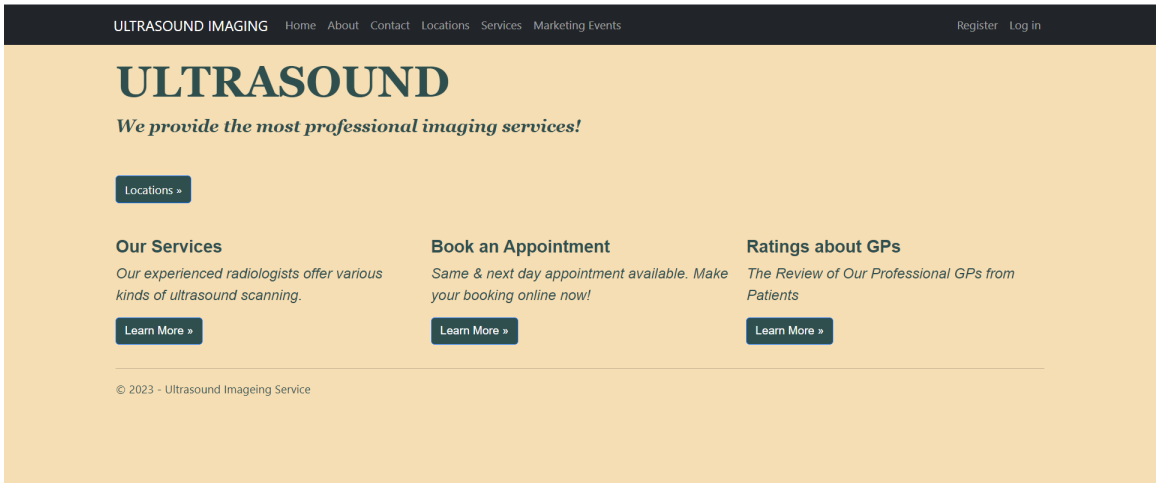


8. Usability Design Review

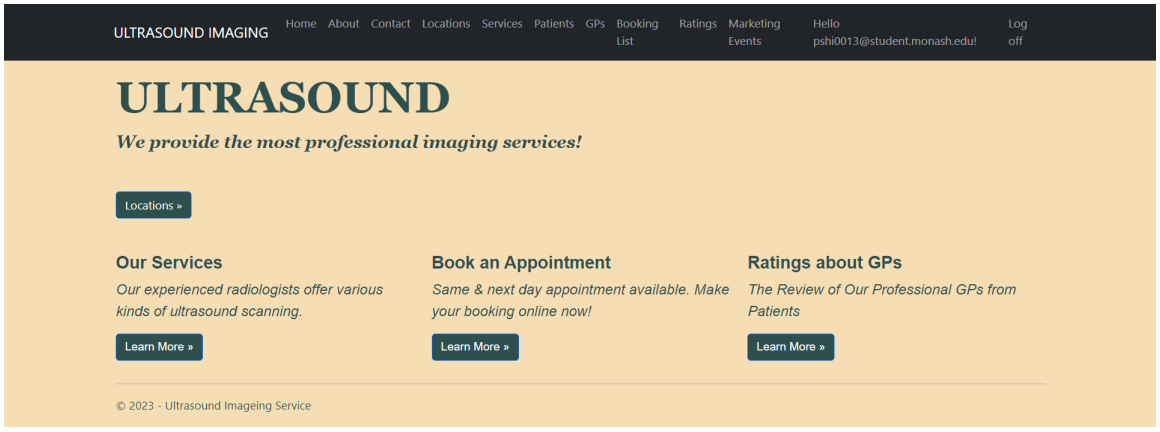
This web application follows Donald Norman's Principles of Design. The example of the application incorporating these principles are illustrated below.

(1) Visibility: The home page shows the most important elements and features for different users, including admins, GPs, and patients, which ensures that these features are clearly visible and accessible.

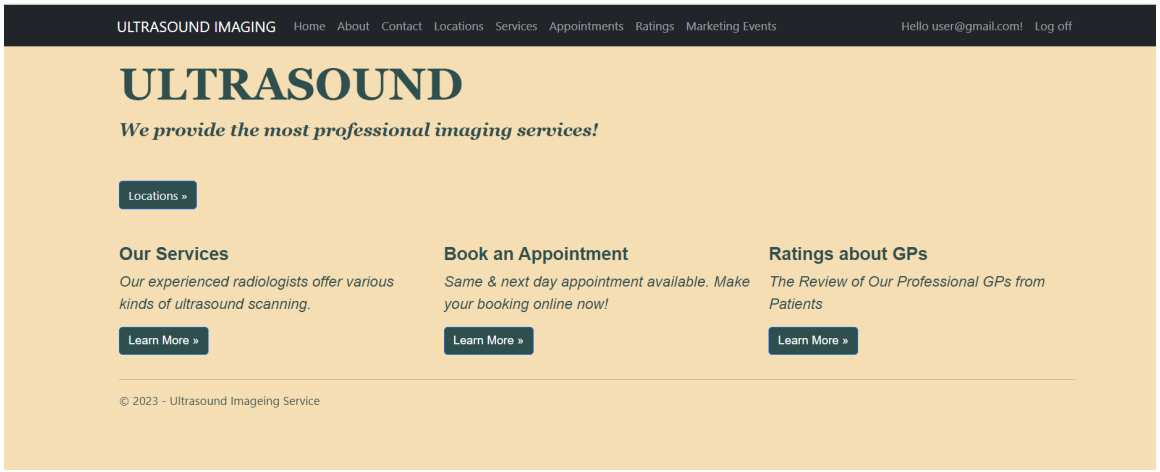
-Homepage for everyone:



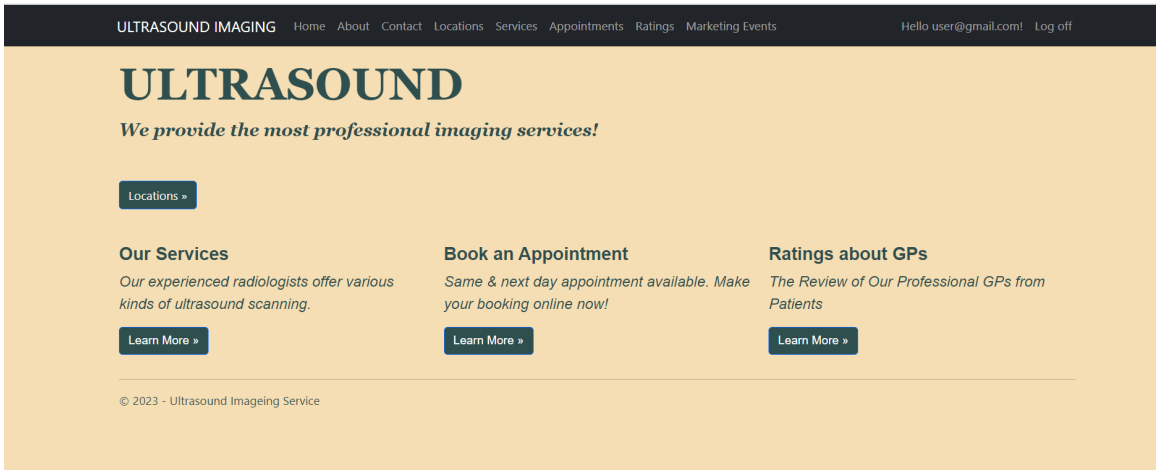
-Homepage for admins:



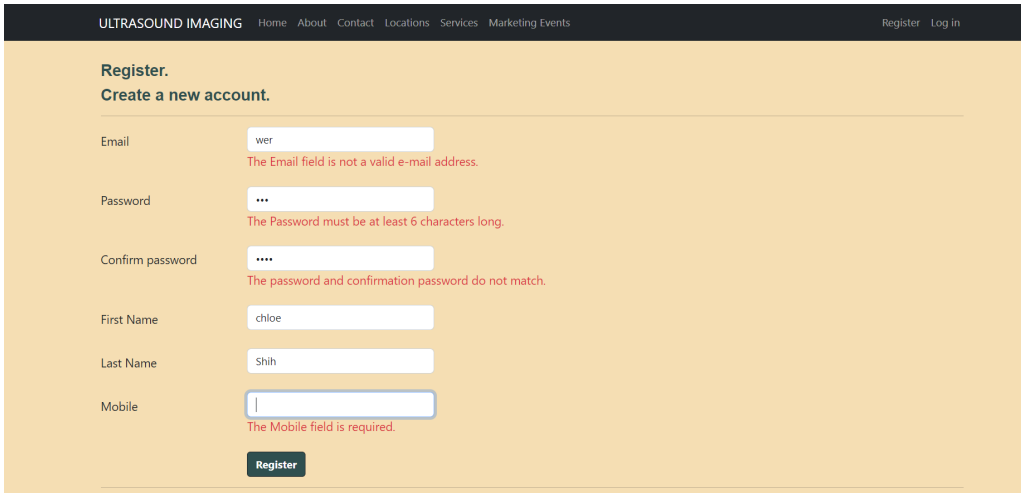
-Homepage for patients:



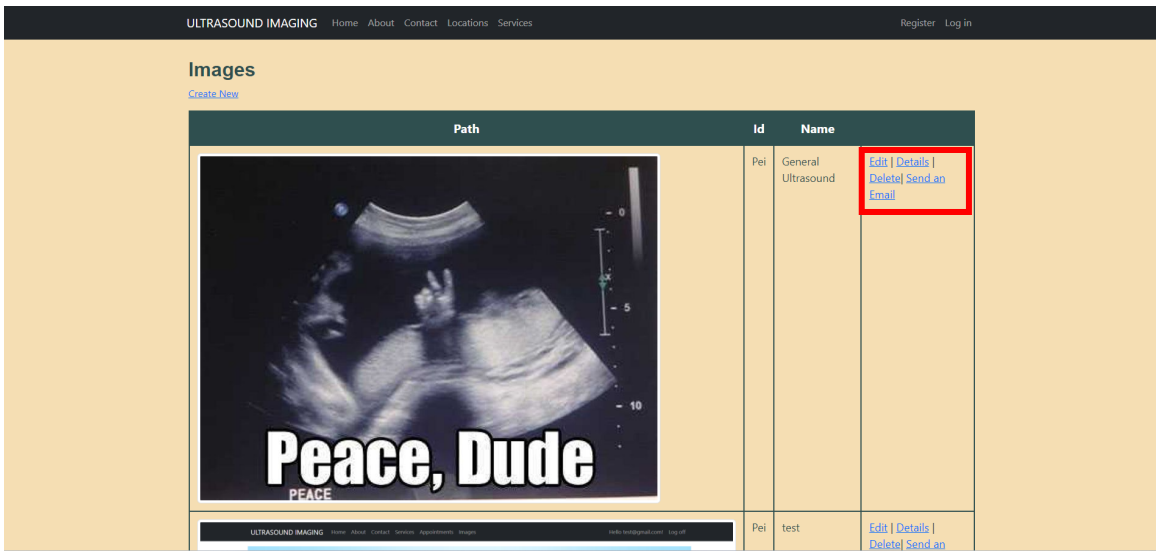
-Homepage for GPs:



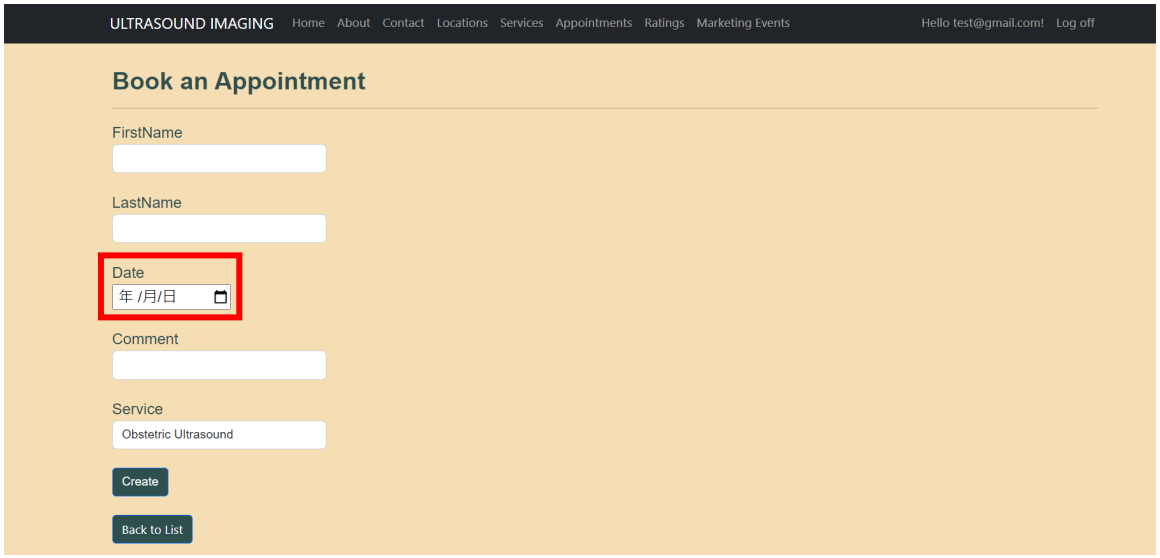
(2) Feedback: When users are registrating an account or logging in, they will receive timely error messages that help users understand the outcome of their actions.



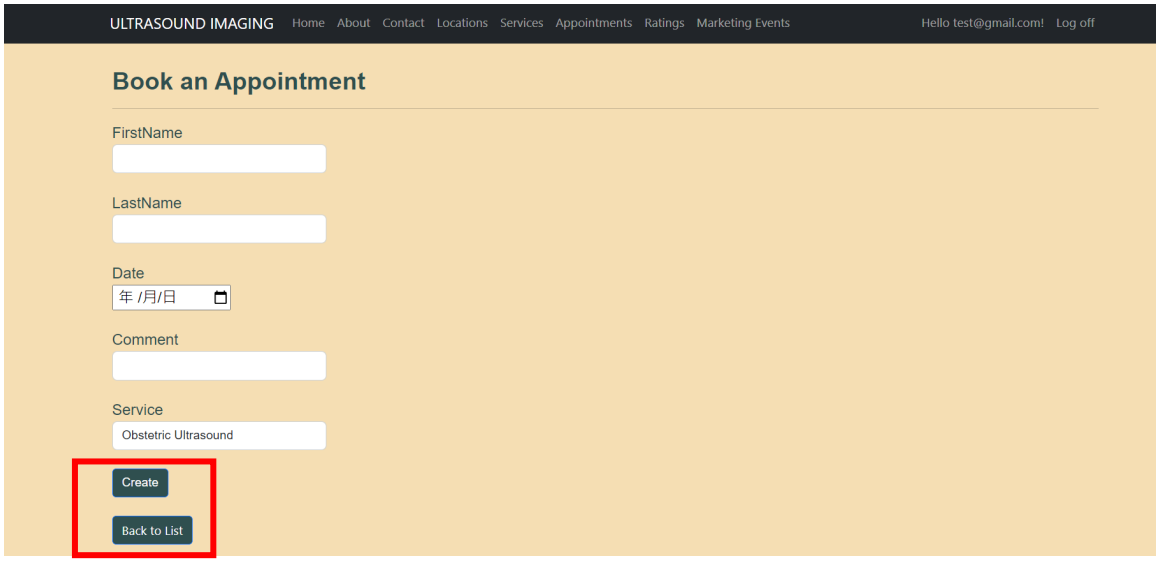
(3) Mapping: Mapping enables users to easily understand how to interact with the interface to achieve their tasks, such as clicking a bottom. For instance, GPs can click the bottom “send an email” to send images to patients in my portfolio.



(4) Constraints: Constraints may guide users in the correct use of the application, such as providing default values. When patients are making an appointment, the format of dates are shown to them to prevent the errors.



(5) Affordance: This web application clearly shows the functionality of the design elements, such as buttons.



(6) Consistency: Most of the pages in my portfolio follows consistent interface and patterns.

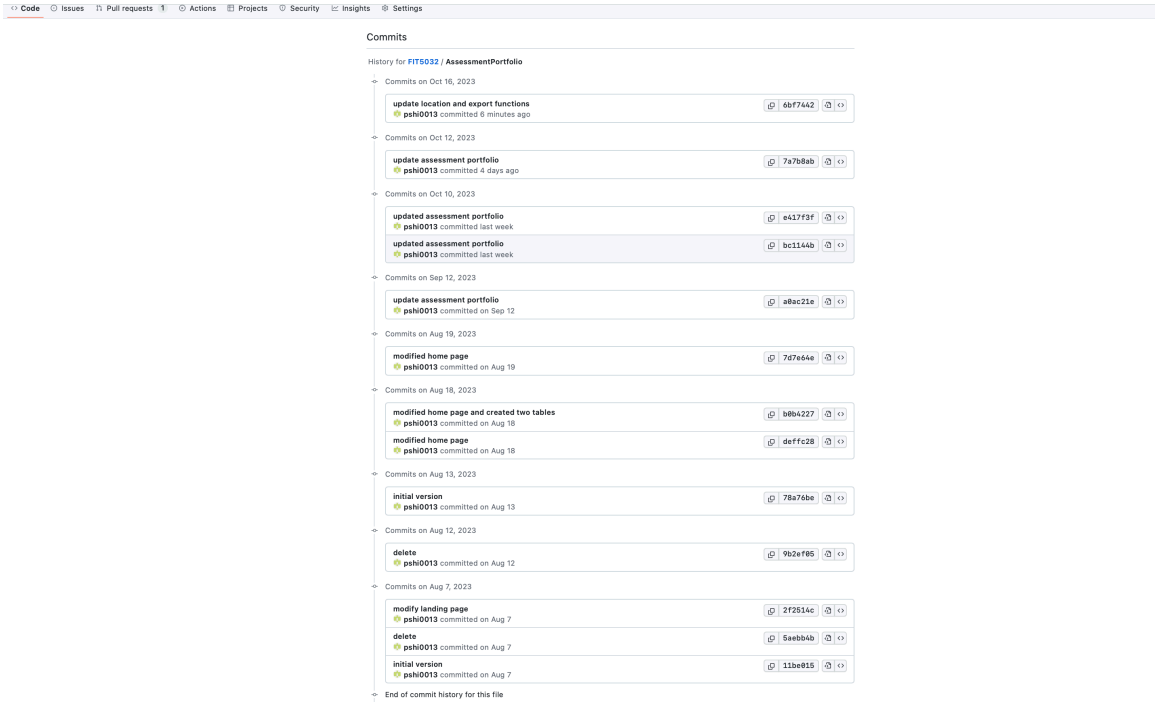
Additional High Distinction Level (the above and the following)

9. Development Methodology

The Code and Fix method is adopted as the development methodology of this portfolio. The development process includes continuous coding and regular testing, so that features are developed incrementally. Any issues or errors were addressed through modifications and refinements.

10. Versioning

GitHub is used for versioning control.
Git repository: https://github.com/pshi0013/FIT5032/tree/main/AssessmentPortfolio



11. Innovation and Research

12. Checklist of site functionality

1. (Layout Page)	TICK if complete
Good Design	✓
Stylesheet	✓
JavaScript	✓
Menu	✓

2. (Home page)	
Design and content	✓
Banner Image	
3. (User Log in)	
Web form and validation controls	✓
Formatted data entry display	✓
Overall page design	✓
4. (Customised Views and Controllers)	
Customised Views	✓
Customised Controllers	✓
Other customisations	✓
5. (Documentation)	
Code Comments	
Attribution of Source of any code used	✓
	✓
6 Business Requirements	
BR(A1): for P	✓
BR(A2): for P	✓
BR(B1): for C to C+	✓
BR(B2): for C to C+	✓
BR(C1): for C+ to C++	✓
BR(C2): for C+ to C++	✓
BR(C3): for C+ to C++	✓
BR(C4): for C+ to C++	✓
BR(D1): for D to D++	✓
BR(D2): for D to D++	✓
BR(D3): for D to D++	✓
BR(D4): for D to D++	✓
BR(E1): for HD to HD+	✓
BR(E2): for HD to HD+	✓
BR(F1): for HD+ to HD++	✓
Audit	
No breaking of copyright	✓