



System Analysis Report

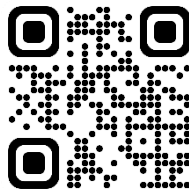
For

<https://www.echannelling.com>

Kavindu Silpage

The Bridge Boot Camp – Software Development

2023



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Chapter 01

1.1 Introduction

A pioneer in providing a complete ecommerce-based service, eChannelling was launched in 2001 becoming the first software development and ICT service provider to enter the digital healthcare industry in Sri Lanka.

Over the last 2 decades, eChanneling has revolutionized the Sri Lankan healthcare sector with its innovative doctor channeling service. Strengthening the country's healthcare offerings with cutting-edge technologies, eChannelling has been bridged the gap between healthcare service providers and the public, by improving effectiveness and efficiency in a user-friendly manner. The company's dominance over this domain over the last 2 decades has seen it carve a large market share, with the brand undoubtedly at the forefront when it comes to doctor channeling in Sri Lanka. This has been further validated by the eChannelling brand consistently being a part of the 100 top brands in Sri Lanka, while the latest Brands Annual has placed eChannelling as the top brand in the country. In addition, the Company was awarded as the Best ICT Service Provider -2019 by CFI.Co, United Kingdom.

eChannelling is a subsidiary of Mobitel (PVT) Ltd, a fully-owned subsidiary of Sri Lanka Telecom PLC, and plans are currently in place to further develop the eChannelling network to offer greater value and benefits to the end-user.



Figure 1.1.1

Our Products

Doctor Channeling - Mobile Application (eChannelling)

eChannelling is conceptualized to empower Sri Lankans from all walks of life by providing state of the art facilities to enable millions of Sri Lankans residing island wide, thousands living abroad, as well as tourists to obtain health services at the touch of their fingertips. In addition to this, in order to reach remote locations, eChannelling has partnered with various institutions such as Banks, Post Offices, Pharmacies, Supermarkets, third party applications to enhance its services into different market urban and rural areas. Being a sophisticated and comprehensive system with various modules, eChannelling is a user-friendly system designed to provide speed and convenience for its customers. The system is updated real-time, so that patients can see the most up-to-date schedule of a consultant, make appointments with a consultant, and process the payment at their own convenience. Additional features include the doctor notification service, which sends an SMS notification to patients about the doctor's arrival, delay or any other status for the specific session which is a free-of-charge service to all hospitals.

HIS - (Hospital Information System)

eChannelling also includes a Queue Management Service that provides customers updates on the current serving appointment number at the room in the hospital for the doctor they have channeled. This can be viewed in both the eChannelling website and the mobile application. eChannelling also offers a Hospital Information System (HIS), which is an integrated hospital management software that supports the complete automation of operations of a multiple-care, residential hospital. eChannelling has also introduced a member card, which is a loyalty card that provides special discounts to customers to channel a doctor. Due to continuous excellence, eChannelling has won multiple awards both locally and internationally, making its mark as the only digital healthcare provider to win such recognitions in Sri Lanka. With this, eChannelling strives to further improve its services by extending its facilities to international providers with the goal of connecting professionals and patients globally with no geographical boundaries.



Figure 1.1.2

Chapter 02

2.1 Main Function and Features

The analysis of the system shows that the main function here is that any patient can easily book dates and times online for channeling any doctor in a hospital in his area or in another area. It can be done in two stages. That is normal searching and advanced searching.

Imagine, if you want to be channeled under a doctor you know, you can enter the name of the doctor in the **Search Doctors Name** textbox under normal searching and search. Then he will show the hospitals where he is currently working. From there, select the most convenient hospital for you and click on the Book Now option.

Also, you have been given the opportunity to channel a doctor according to your budget, according to the location, according to the doctor's gender, according to the session time and according to the type of hospital. For that you should use advance searching.

The screenshot displays a web interface for doctor channeling. At the top, there are three tabs: 'Doctor Channeling' (Channel a doctor), 'Tele-Channelling' (Video consultation), and 'Driving License Medical' (Book an appointment). The 'Doctor Channeling' tab is active. Below the tabs, there are two main search sections. The first section, 'Normal Search', includes a 'Select Type' dropdown (set to 'Doctors'), a 'Doctors Name' search box with a placeholder 'Search Doctors Name (Max 30 Characters)', and a 'Search' button. Below this is a link 'Click here for Advanced Search' with an upward arrow icon. The second section, 'Advanced Search', contains several filters: 'Hospital Type' (dropdown set to 'Private Hospital'), 'Location' (text box set to 'Any' with a clear button), 'Hospital' (text box set to 'Select Hospital'), 'Specialization' (dropdown set to 'Select Specialization'), 'Gender' (dropdown set to 'Any'), 'Session Time' (dropdown set to 'Any'), 'Date' (text box set to 'Any/Any/Any' with clear and calendar icons), 'Price Range' (dropdown set to 'Any'), and 'Doctor Name' (text box set to 'Any' with a clear button). At the bottom of the advanced search section, there is a message: 'Please ensure to provide hospital, specialization or doctor along with other search criteria.' and a large 'Advanced Search' button. A watermark 'Activate Windows Go to Settings to activate Windows' is visible in the bottom right corner.

Figure 2.1.1

2.2 Other Functions and Features

Other functions found here are Tele-Channeling, Driving License Medical and PCR.

Tele – Channeling

Through this you can get advice from your doctor online. It happens through video consultations. You can enter the name of the doctor in the **Enter Doctor Name** textbox and search. After you can get advices from you doctor.

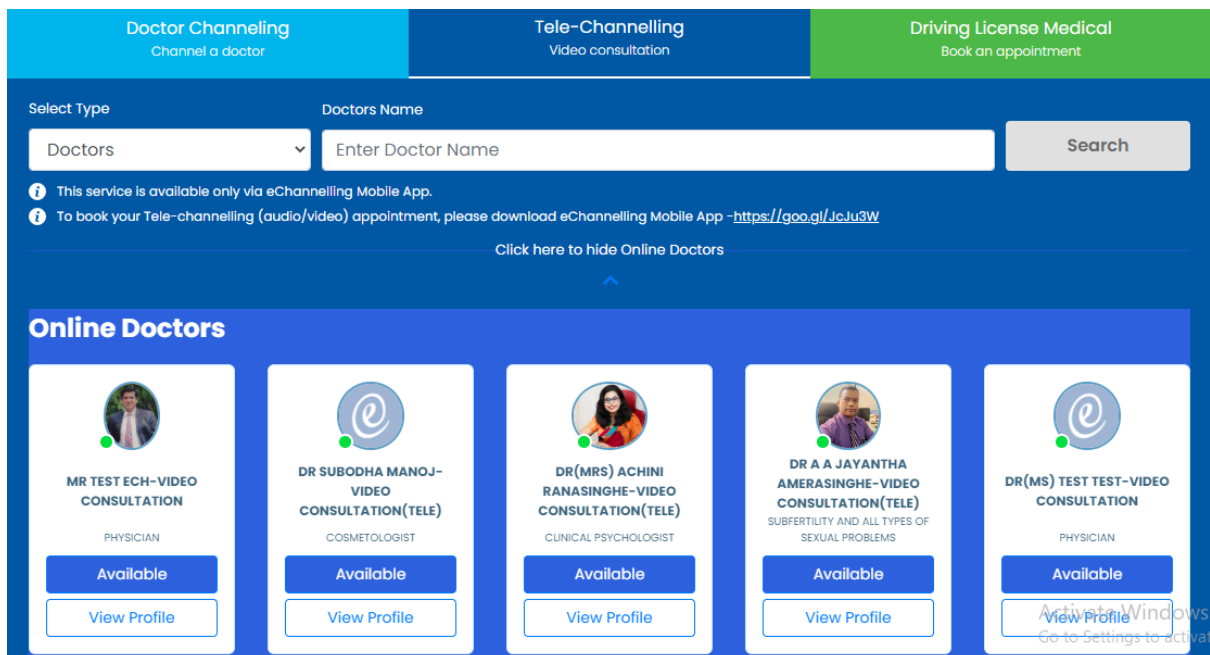


Figure 2.2.1

Driving License Medical

This allows you to book dates and times online to get your required medicals for driving license. There you can reserve the dates by specifying the branch and date under the branch name and search.

Doctor Channelling
Channel a doctor

Tele-Channelling
Video consultation

Driving License Medical
Book an appointment


Branch Name

Date

Gampaha

19/03/2023

Search



**National Transport
Medical Institute**
Terms and Conditions

Special Note
Please bring a clear NIC or Passport when you visit. You are advised to read the Terms & Conditions sent to you via SMS. A reservation is only valid for three months.

Also Available On
National Transport Medical Institute (Medical for Drivers)

Monday, 20th Mar 2023

Total Sessions = 17

Time: 12:00 PM
< FULL

Time: 12:30 PM
FULL

Time: 1:00 PM
FULL

Time: 1:30 PM
FULL

Tuesday, 21st Mar 2023

Total Sessions = 17

Time: 6:00 AM
Not Available

Time: 6:45 AM
FULL

Time: 7:00 AM
FULL

Time: 7:15 AM
Active Patients: 17
Medical Fee:
1500 + Booking Fee
Available >

Figure 2.2.2

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PCR

If you want to get a PCR done, this will show you the places where it will be done. Therefore, this enables you to book an appointment for the same at near Hospital.

The screenshot displays the booking process for a PCR test at Asiri Central Hospital. At the top, a header bar shows the hospital's name and location: "Asiri Central Hospital Norris Canal Road" and "Colombo 10". Below this, a card titled "- PCR TESTING FOR COVID 19- ASIRI" features a "Book Now" button. A section titled "Book PCR Test" follows, showing a card for the hospital and a calendar view for "Saturday, 18th Mar 2023". The calendar indicates "Total Sessions = 2" and lists two available time slots: 8:00 AM and 3:00 PM. Both slots show a patient count of 0 and a test fee of 6500 + Booking Fee, with an "Available" button for each.

Asiri Central Hospital Norris Canal Road
Colombo 10

- PCR TESTING FOR COVID 19- ASIRI

PCR TEST

Book Now

Book PCR Test

Asiri Central Hospital Norris Canal Road
Colombo 10

- PCR TESTING FOR COVID 19- ASIRI

Saturday, 18th Mar 2023 Total Sessions = 2

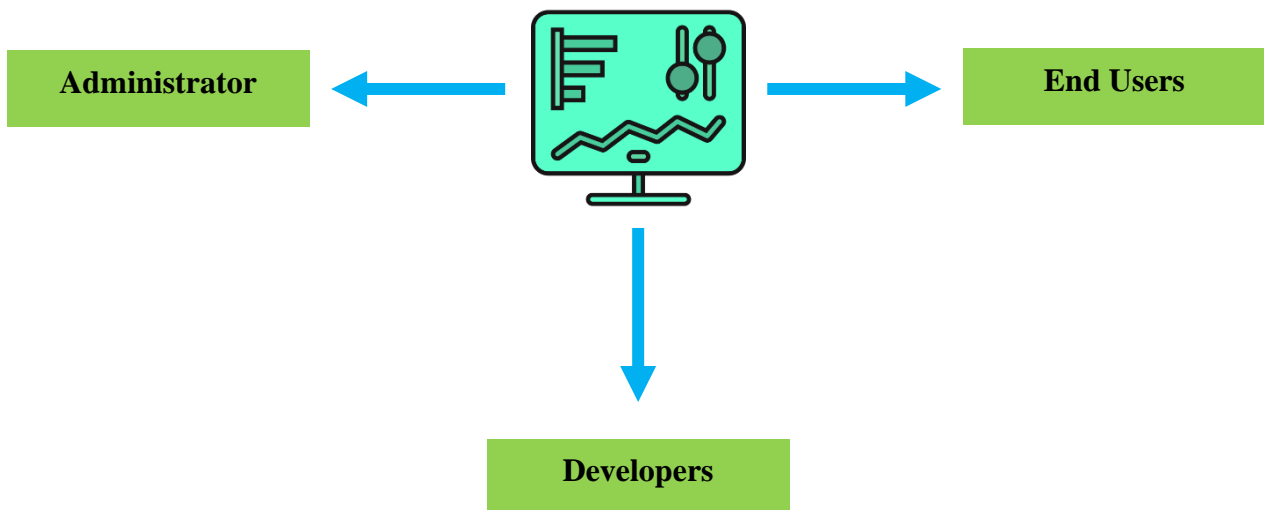
Time :	Patient Count :	Test Fee :	Availability
8:00 AM	0	6500 + Booking Fee	Available
3:00 PM	0	6500 + Booking Fee	Available

Figure 2.2.3

Chapter 03

3.1 Users of The System

A typical web – based system has users with different right and permissions who use it for different purposes. Some users retrieve data and some back it up. The users of this web – based system can be broadly categorized as follows.



Administrator

Administrator maintain the web – based system and responsible for administrating the database. He is responsible to look after its usage and by whom it should be used. They create access profiles for users and apply limitations to maintain isolation and force security.

Developers

The group of people who actually work on the designing and developing part of the system.

End Users

End users are those who actually reap the benefits of having a web – based software system.

3.2 Benefits for users

Administrator

- **Accessibility:** Because a web-based system can be accessed from any device with an internet connection, administrators can access the system from anywhere, at any time.
- **Easy updates:** Updating a web-based system is usually easier than updating a desktop-based system, and updates can be pushed out automatically to all users.
- **Reduced costs:** Web-based systems can often be less expensive to set up and maintain than desktop-based systems, since they require less hardware and IT support.
- **Scalability:** Web-based systems can more easily accommodate growing numbers of users or increasing amounts of data than desktop-based systems.
- **Collaborative capabilities:** Web-based systems can enable multiple users to collaborate on the same data or project, no matter where they are located.
- **Integration with other web-based tools:** Web-based systems can often integrate more easily with other web-based tools, such as online storage solutions or project management tools.

Developers

- **Increased functionality:** Web-based applications have come a long way in terms of functionality, thanks to advancements in technology, security, and internet speeds. As a result, developers have more options when it comes to delivering complex functionality to end-users.
- **Streamlined updates:** Web applications allow developers to easily roll out updates to users, rather than having to push updates out to individual machines. This means that developers can quickly address issues and add new functionality, without causing significant disruptions for users.

- Accessible documentation: Many web applications offer API documentation that developers can use to build their own applications and integrations. This documentation makes it easier for developers to work with the application, and ensures that they have the information they need to build effective solutions.
- Reduced reliance on front-end developers: Content management systems (CMS) can be used to publish web pages, which reduces the need for front-end developers to make changes. In addition, cloud computing allows developers to access all of the features and files of a system without having to maintain them locally.

End Users

- Accessibility: Web-based applications can be accessed from anywhere with an internet connection, allowing users to use the system regardless of their location or device.
- Cost-effectiveness: Web-based applications often require less hardware and software, reducing the overall cost for organizations and potentially lowering subscription costs for individual end-users.
- Scalability: Web-based applications can easily handle multiple users and accommodate growth in usage without the need for significant upgrades or modifications.
- Ease of use: Web-based applications usually have a simple and intuitive user interface that requires minimal training, allowing end-users to easily navigate and utilize the system.
- Automatic updates: Web-based applications are updated automatically by the provider, so the end-users always have the latest version without having to manually upgrade or install updates.

Chapter 04

4.1 Comparison with similar system

I am using the website <https://www.doc.lk/> for comparison. The factors I want to compare here are performance, accessibility, SEO, and plugins (Publisher Ads). First of all, let's see what this doc.lk is.

Doc990, operated by Digital Health Private Limited is Sri Lanka's pioneering digital health solutions service provider, offering medical services to subscribers from the convenience of their mobile phone and website.

A subsidiary of Sri Lanka's premier connectivity provider, Dialog Axiata PLC and with its footprint as the digital platform enabler at leading private hospitals groups; Asiri Hospital Holdings PLC, Nawaloka Hospitals PLC, Ceylon Hospitals PLC (Durdans), Ninewells Hospital & Lanka Hospitals PLC, Digital Health aims to implement and develop a state-of-the-art, integrated, e-commerce infrastructure for Sri Lanka's healthcare sector.

Doc990, launched in 2016, has connected more than 5000 doctors in over 140 hospitals within five years of its inception, through its digital health platform which is accessible to users via www.doc.lk, by dialing 990 or via the Doc990 app, available both on Android and iOS. Doc990 currently offers a range of medical services including doctor channeling sessions at hospitals island wide for physical consultations while connecting qualified Doctors, quality pharmacies and laboratories virtually through digital health tech with the aim of transforming the delivery of integrated healthcare through home-based solution.

Sri Lanka's leading medical booking app, Doc990 app, is integrated to all mobile operators and banks for multiple payment options such as add to bill, eZ Cash, Genie, Amex, Visa and Master Card.

The service is open and available to all 22 million plus Sri Lankans, and we at Digital Health aim to transform the health care service sector and experience for all Sri Lankans and serve as the benchmark for integrated e-commerce healthcare solutions in the Asia-Pacific region.

I used Google Lighthouse extension here for comparison.

Performance

Website performance can have a significant impact on a variety of factors, including conversion rates, sales, user satisfaction, and search engine rankings. Studies have consistently shown that faster loading times result in better conversion rates and increased revenue. Slow loading times, on the other hand, can lead to high bounce rates, low user engagement, and lower search engine rankings. It is important to optimize website performance by testing website speed, optimizing images and code, minimizing HTTP requests, reducing server response time, and using content delivery networks (CDNs) when appropriate. Additionally, website performance can be affected by factors such as latency, file size, and DNS poisoning, blocking IP access, or other types of website attacks. It is important to regularly monitor website performance and address any issues that arise to ensure optimal user experience and maximize website effectiveness.

Performance of www.doc.lk

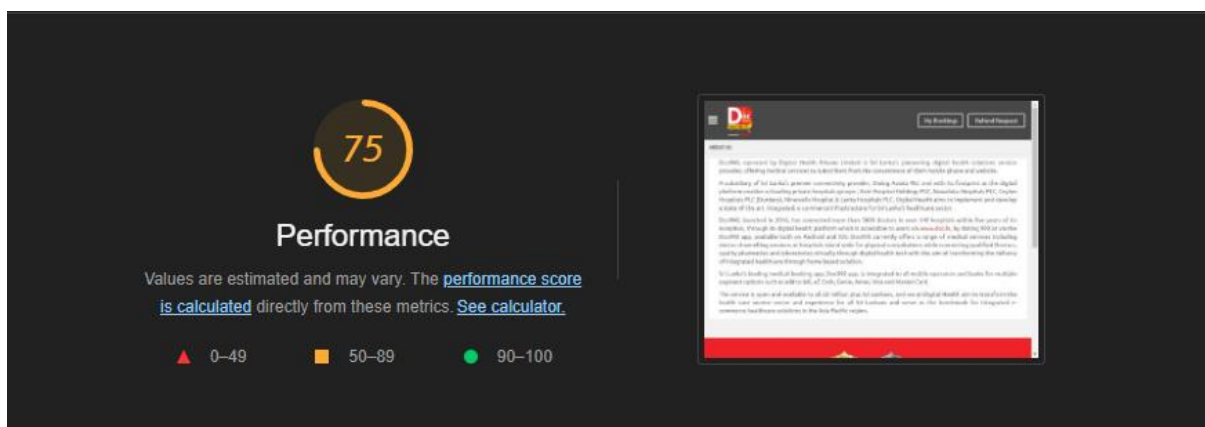


Figure 4.1.1

Performance of www.echannelling.com

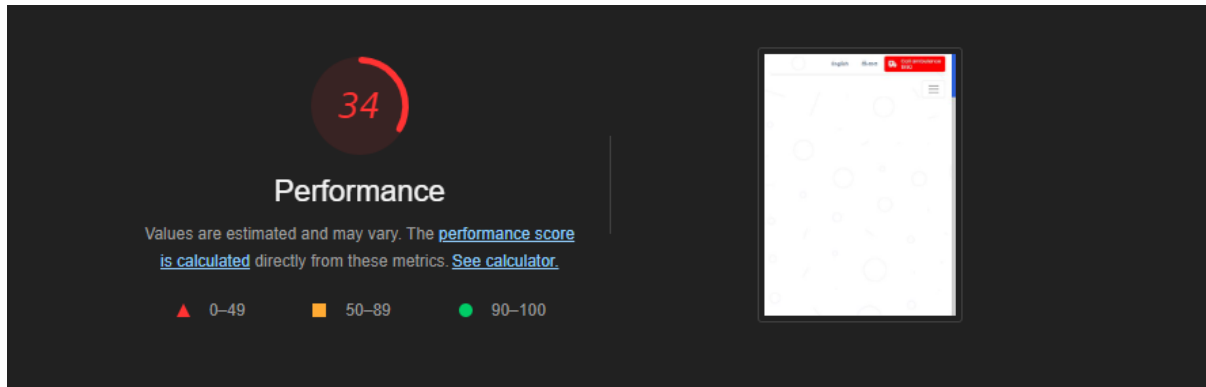


Figure 4.1.2

SEO - Search Engine Optimization

SEO stands for search engine optimization, which is the process of improving the visibility and ranking of a website or a web page in search engine results pages (SERPs). The goal is to increase the quality and quantity of website traffic by improving the relevance and authority of the website or web page to the search query.

SEO involves a variety of practices such as optimizing the website's content for keywords, improving the website's user experience and mobile-friendliness, building high-quality backlinks, and making technical improvements to the website's infrastructure. The ultimate goal of SEO is to attract more organic traffic to a website, which can lead to higher engagement, more conversions, and ultimately more revenue.

In summary, SEO is an important aspect of digital marketing that involves optimizing a website or a web page to improve its visibility, rank higher in search results, and attract more traffic from search engines.

SEO of www.doc.lk

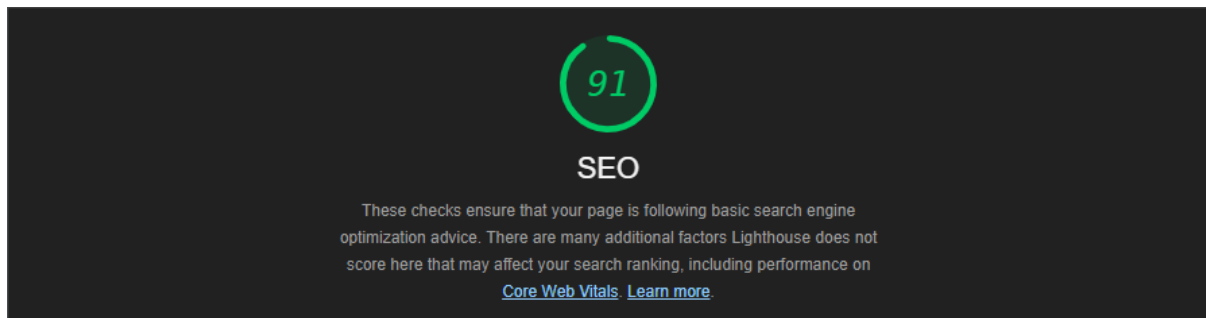


Figure 4.1.3

SEO of www.echannelling.com

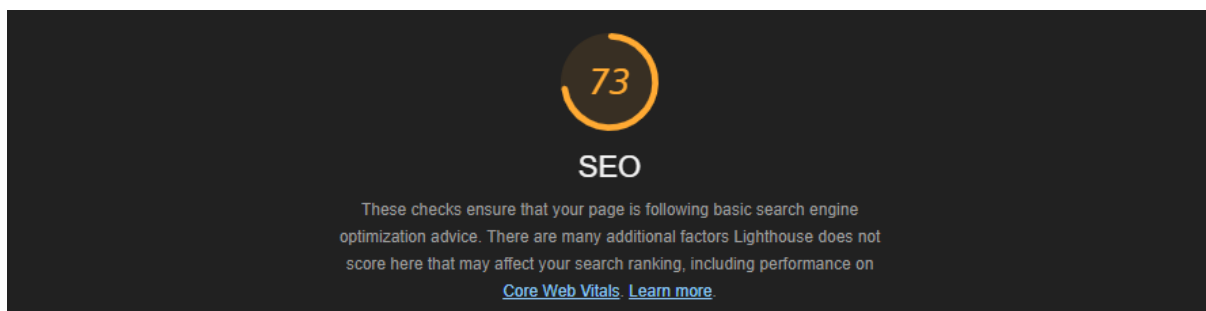


Figure 4.1.4

Accessibility

Firstly, accessibility ensures that websites are usable by individuals with various disabilities, such as visual, auditory, or motor impairments. This means that websites need to be designed and coded in a way that allows users to navigate and consume content easily, even with assistive technologies such as screen readers or braille displays. Failing to make a website accessible can exclude a significant portion of potential users, which can hurt the site's engagement and conversion rates.

Moreover, accessibility is increasingly gaining recognition as a legal requirement in some countries. For example, the Americans with Disabilities Act (ADA) requires that websites be accessible to individuals with disabilities, and failure to comply with the ADA can result in

significant legal liabilities for a business or organization. Similar laws are also emerging in other countries around the world.

Finally, accessibility can also impact a website's SEO and search rankings. Search engines give preference to websites that are accessible to all users, and incorporating accessibility best practices can result in a more optimized, user-friendly site that ranks higher in search results.

Overall, ensuring accessibility is crucial for the success of a website or online business, as it not only expands the potential audience but also helps to meet legal obligations and optimize search rankings.

Accessibility of www.doc.lk

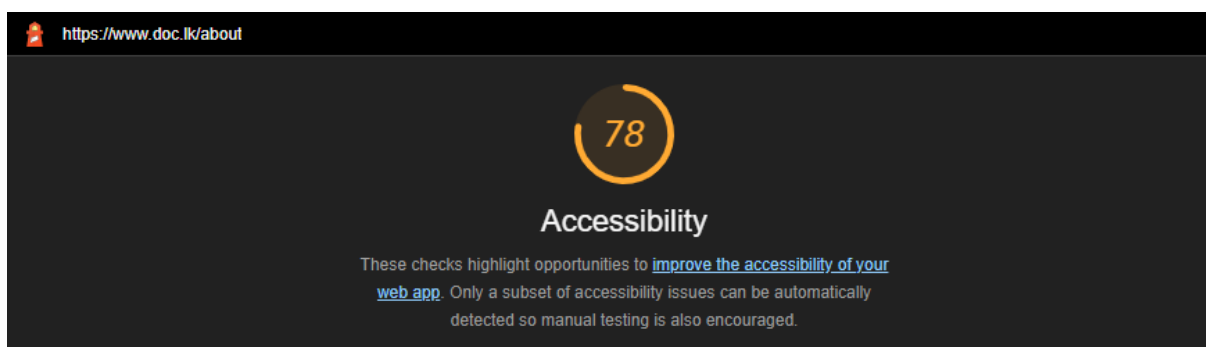


Figure 4.1.5

Accessibility of www.echanneling.com

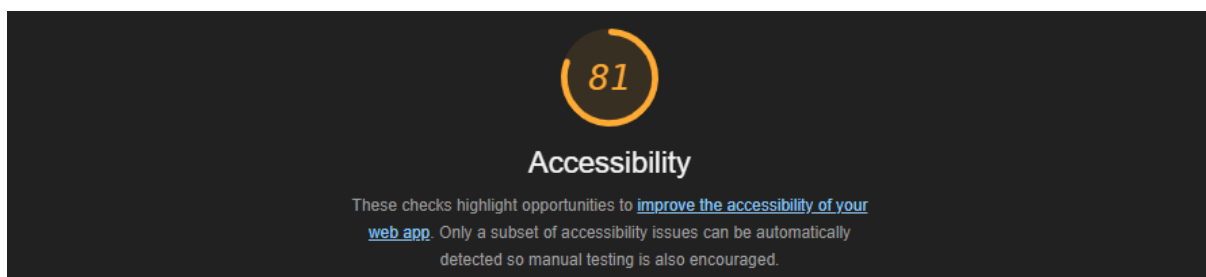


Figure 4.1.6

Plugins (Publisher Ads)

Plugins can affect publisher ads on websites. Outdated plugins may break other scripts on the website and can be a security risk for publishers. However, there are also plugins, such as those mentioned in, that can help with tasks like integrating AdSense and improving ad speed and quality. The security of plugins, especially in the context of preventing ad fraud, is also a concern for publishers. It's important for publishers to use trusted plugins and keep them up to date to avoid any negative impact on their ads and website.

Plugins of www.docs.lk

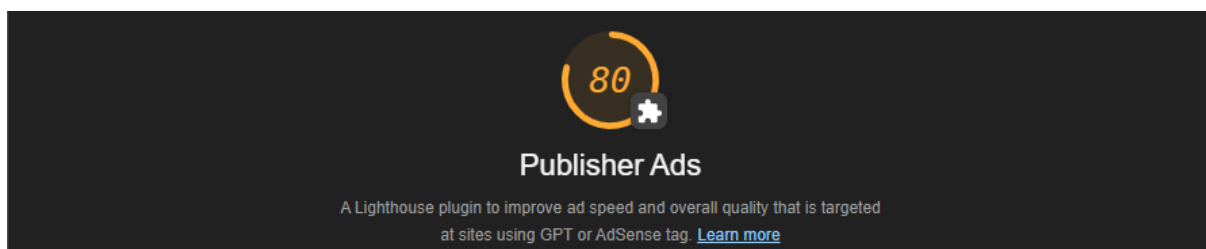


Figure 4.1.7

Plugins of www.echanneling.com

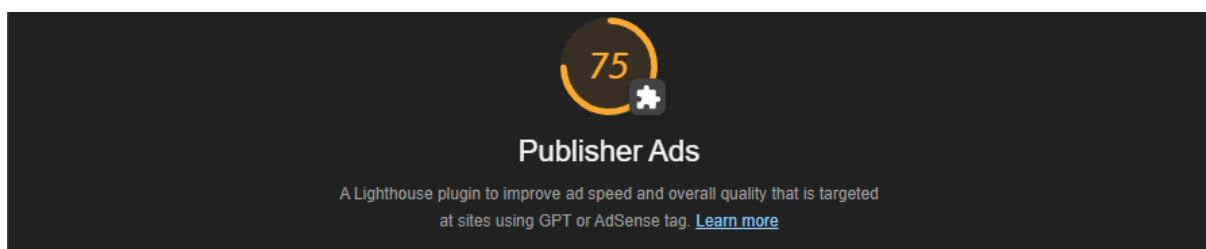


Figure 4.1.8

Summary of the comparison

Factor	www.doc.lk	www.echanneling.com
Performance	75%	34%
SEO	91%	73%
Accessibility	78%	81%
Plugins	80%	75%

From this it can be concluded that www.doc.lk is ahead in every way. www.echanneling.com performance, SEO and plugins should be improved.

Chapter 05

5.1 User Manual

Let's see here how to channel a doctor online. First you want to go to the <https://www.echannelling.com/>. Then you can see below interface.

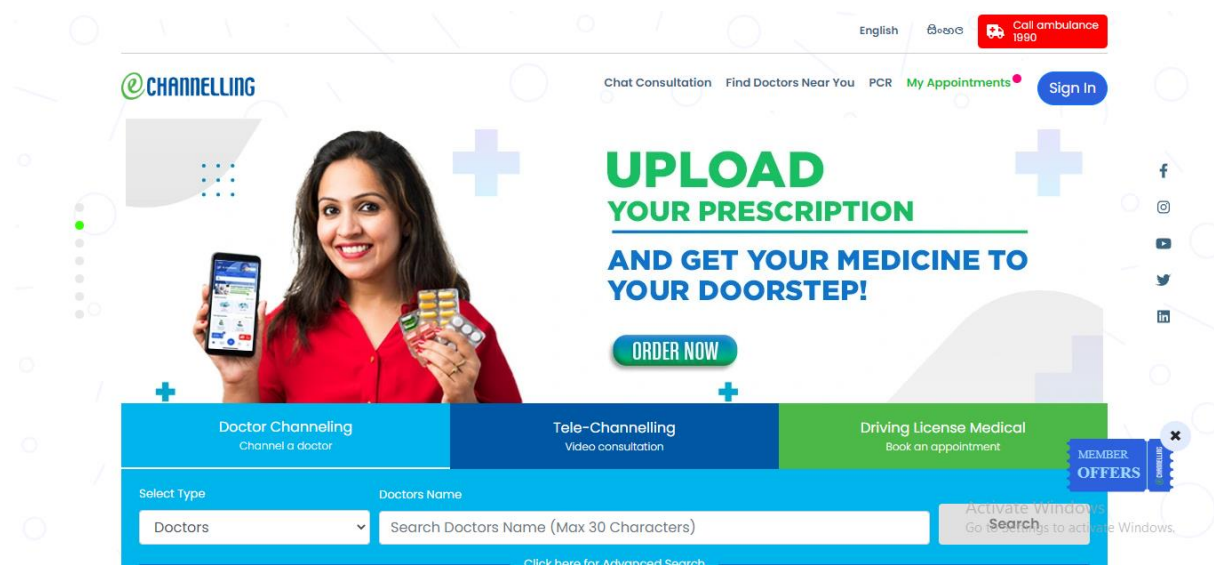


Figure 5.1.1

After, you need click the Sign In button.

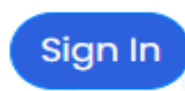


Figure 5.1.2

Then you can see the below interface.

Welcome
don't have an account [sign up](#)

Member ID/ Email / NIC

This field is required!

Password

Password is required!

☒ Keep me signed in [Forgot Password?](#)

[Sign In](#)

or

[Mobile](#) [Go to Settings to activate Window](#)

Activate Windows

Figure 5.1.3

If you already have an account, you can log in to the system by entering the email and password.

If not, you need to click sign up option and fill below details.

Step 01 – Select your nationality and add your phone number.

[Back](#)

Welcome
Already have an account? [Sign In](#)

eCHANNELLING

Become a premium member and enjoy a 15% reduction on your ECL service fee.

1 Nationality 2 Verification 3 Member Type 4 Member Details 5 Summary 6 Confirmation

Nationality
Sri Lankan

Mobile Number
+94 0785877857

[Back](#) [Next](#)

Figure 5.1.4

Step 02 – After entering you phone number, they have sent OTP to your mobile number. So, enter it and press verify.

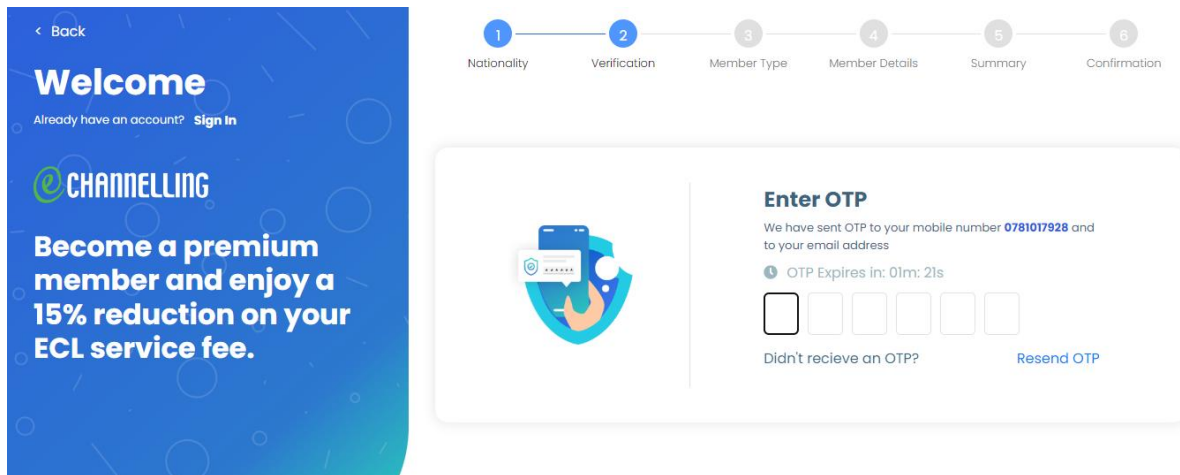


Figure 5.1.5

Step 03 – Next select your package and press next.

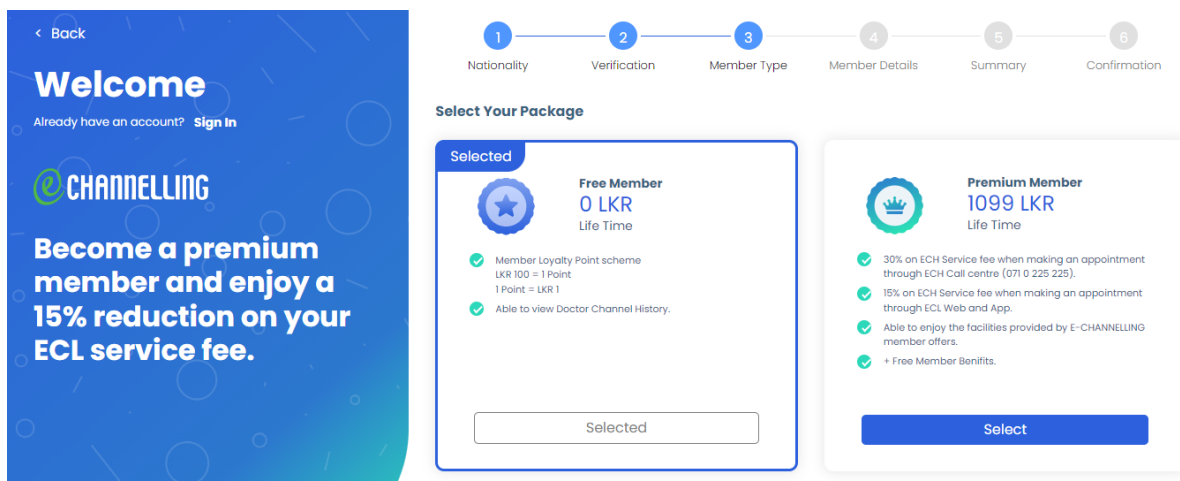


Figure 5.1.6

Step 04 – Now you want to fill details about you and press next button.

The screenshot shows a registration form for CHANNELLING. On the left is a blue sidebar with a 'Welcome' message, a 'sign in' link, the CHANNELLING logo, and a promotional offer: 'Become a premium member and enjoy a 15% reduction on your ECL service fee.' The main form area has a progress bar at the top with six steps: 1. Nationality, 2. Verification, 3. Member Type, 4. Member Details (current step), 5. Summary, and 6. Confirmation. The form fields include: Title (dropdown menu with 'Mr' selected), First Name, Last Name, Email, Mobile Number, a radio button selection for 'NIC' (selected) or 'Passport', a NIC Number field, Password, and Confirm Password. There are 'Back' and 'Next' buttons at the bottom.

Figure 5.1.7

When you create a password, you should need to follow below conditions.

The screenshot displays a password strength indicator. At the top, the word 'Strong' is shown in blue, followed by a green progress bar that is nearly full. Below this, there is a list of five requirements, each preceded by a green checkmark: 'Minimum of 8 Characters', 'Maximum of 15 Characters', 'At least one numeric Character', 'At least one special Character', and 'There has to be at least one text Character'.

Figure 5.1.8

Step 05 – After you can see a summary. Then you want put a tik for “Click here to Agree”.
Next press the next button.

The screenshot shows the 'Summary' step of a 6-step registration process. The steps are: 1. Nationality, 2. Verification, 3. Member Type, 4. Member Details, 5. Summary, and 6. Confirmation. The 'Summary' section displays a 'Free Member' badge, a title of 'Mr', and a first name of 'Kavindu'. Below this, there are fields for 'Last Name', 'NIC', 'Mobile Number', and 'Email'. A checkbox labeled 'Click here to Agree eChanneling Terms and Conditions' is checked. At the bottom, there are 'Back' and 'Next' buttons.

Figure 5.1.9

After successfully sign up, you can see the below interface with your user’s name.

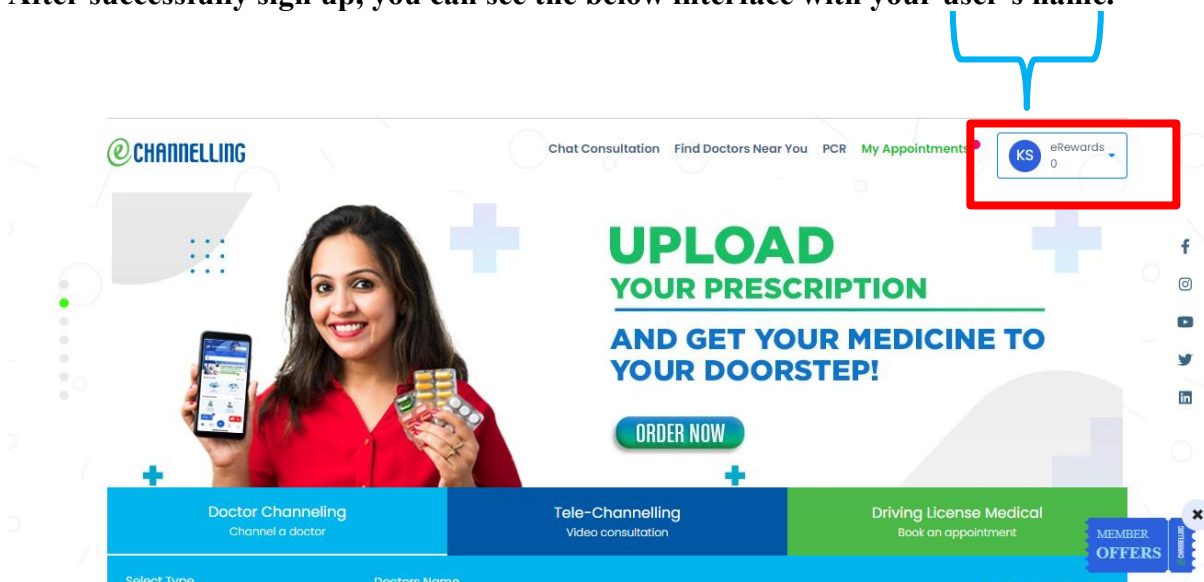


Figure 5.1.10

Okay, now let's channel a doctor. If you want to channel the doctor you used to channel, you can mention the select type and doctor name and click the search button to book the appointment.

The figure illustrates the process of channeling a doctor through a web interface. It is divided into three sequential steps, connected by green downward arrows.

Step 1: Search Form

- Navigation tabs: Doctor Channeling (Channel a doctor), Tele-Channelling (Video consultation), Driving License Medical (Book an appointment).
- Form fields: "Select Type" (dropdown menu with "Doctors" selected), "Doctors Name" (text input field with placeholder "Search Doctors Name (Max 30 Characters)"), and a "Search" button.

Step 2: Search Results

- The "Doctors Name" field now contains "ANURA S.K. BANAGALA".
- A dropdown menu below the input field displays the search result: "ANURA S.K. BANAGALA".

Step 3: Doctor Profile and Booking Options

- Header: DR ANURA S.K. BANAGALA, SURGEON. Includes a "View Profile" button.
- Four hospital booking cards are displayed, each with a "Book Now" button:
 - Asiri Central Hospital Norris**: Canal Road, Colombo 10.
 - Asiri Surgical Hospital**: Kirimandala Mw, Colombo 5.
 - Kings Hospital Colombo**: Colombo 5.
 - Nawaloka Hospital- Colombo**: Colombo 02.

Figure 5.1.11

If you want to channel a top specialist, then go to the top specialist section. Click on the category you want to be a channel from. Then select the relevant specialist and make the booking.

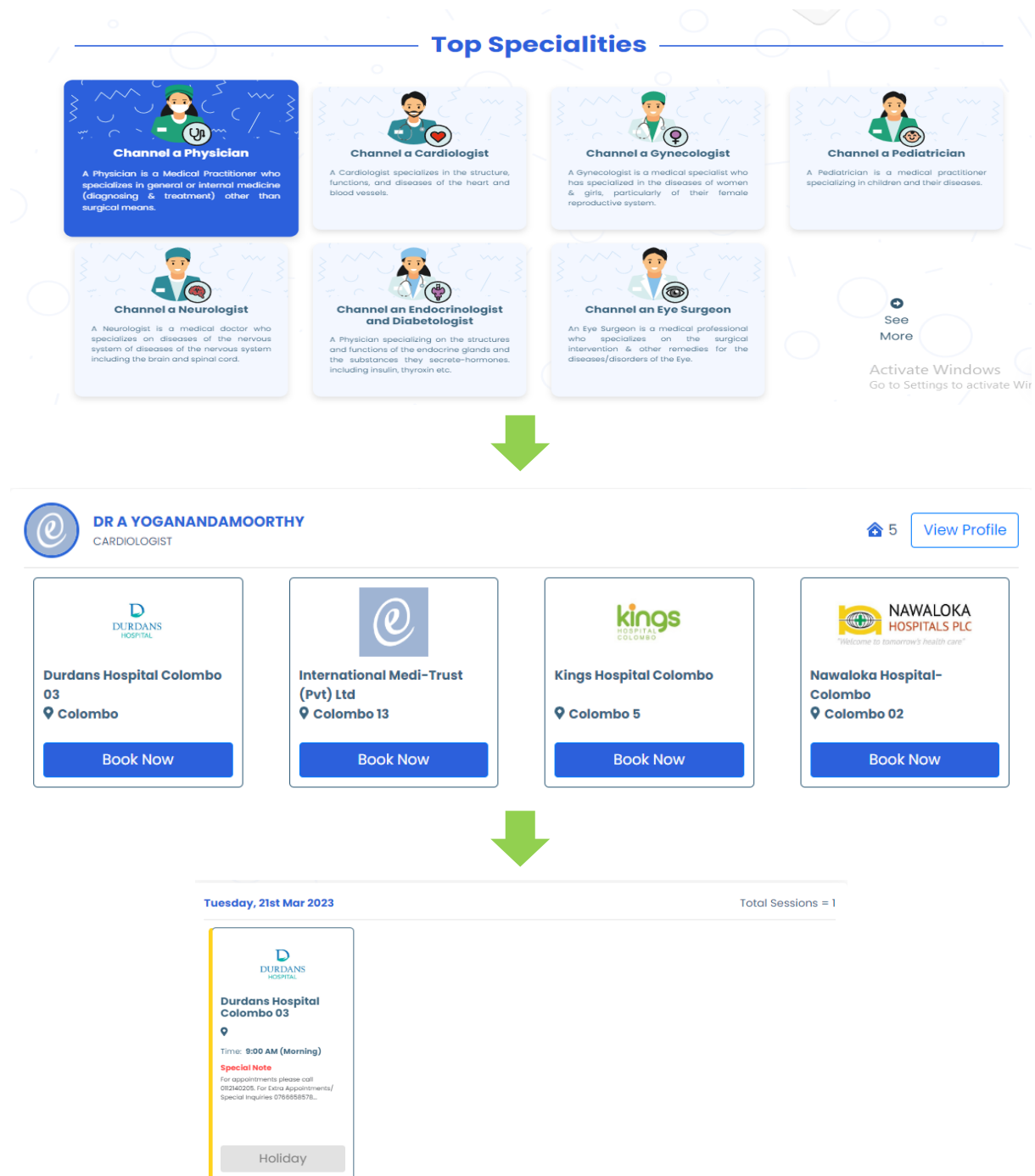


Figure 5.1.12

Chapter 06

6.1 The type of software solution

It's possible that different online booking websites might use different types of software solutions, depending on their specific needs and requirements. Generally speaking, online booking systems can be implemented as web-based applications that customers access through a web browser or mobile app, or as desktop or client-server software that is installed on a user's computer or device. Some online booking systems may also use a combination of both web-based and desktop or client-server software to provide a more flexible and robust solution. And this is also a web - based software.

The eChannelling Mobile application enables you to channel doctors/consultants from 260+ private hospitals, clinics, channeling centers and private ayurvedic hospitals in Sri Lanka. It's the easy, convenient, cost and time saving way to channel doctors/consultants.

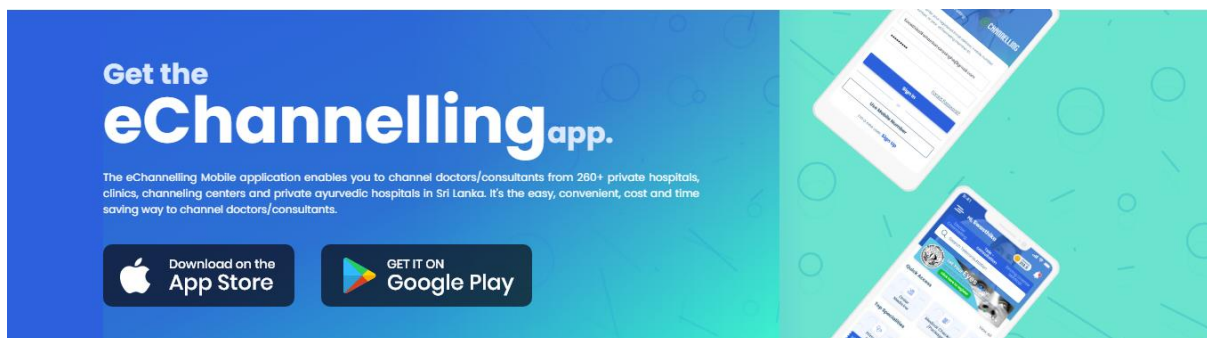


Figure 6.1.1

Chapter 07

7.1 Process of Database

However, generally speaking, the data stored in a database for an online channeling website would typically include information about the following:

- **Customers:** This would include details such as name, contact information, payment information, and booking history.
- **Bookings:** This would include information such as the date and time of the booking, the type of booking, the number of patients, and any special requests or requirements.
- **Availability:** This would include information about when hospitals, doctors, or other services are available for booking.
- **Inventory:** This would include information about the types of packages or services available, their capacities, and any associated costs.
- **Reviews and Ratings:** This would include information of feedback about the services.
- **Booking Administration:** This would include information such as tracking availability, payments and their corresponding statuses, cancellations, refunds and overall customer service data.

Chapter 08

8.1 Storyboard

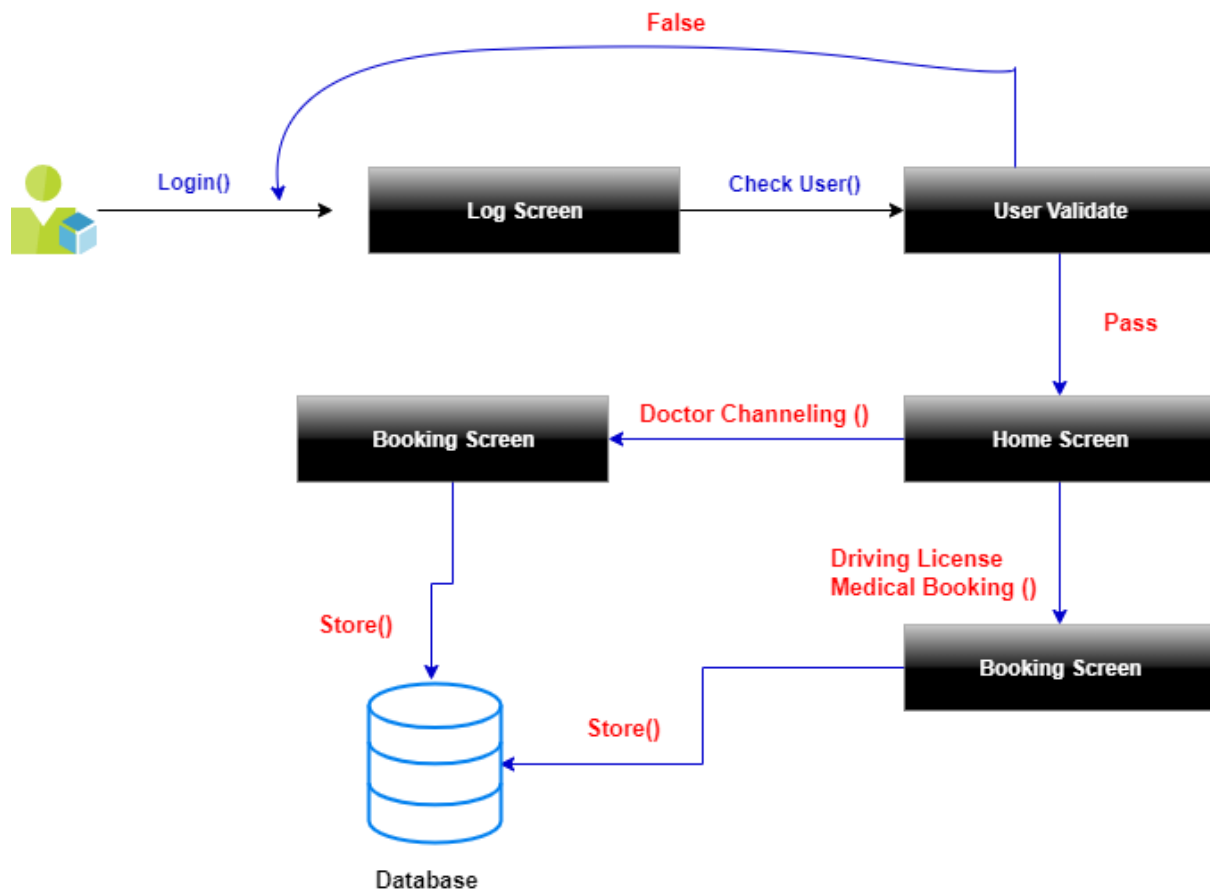


Figure 8.1.1

Chapter 09

9.1 Boundaries

Here the driving license medical has to be obtained from the relevant center. This system has not provided a method for us to get it online. However, it can be provided through a mail application. Then the user will have the ability to save more time.

Chapter 10

10.1 Figures

<i>Figure 1.1.1</i>	<i>SLT Mobitel Logo</i>
<i>Figure 1.1.2</i>	<i>Process of the eChanneling system</i>
<i>Figure 2.1.1, 2.2.1, 2.2.2, 2.2.3</i>	<i>Doctor Channeling Process</i>
<i>Figure 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6, 4.1.7, 4.1.8</i>	<i>Comparison between www.doc.lk vs www.echannling.com</i>
<i>Figure 5.1.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, 5.1.6, 5.1.7, 5.1.8, 5.1.9, 5.1.10, 5.1.11, 5.1.12</i>	<i>The User Manual</i>
<i>Figure 6.1.1</i>	<i>The Mobile Application</i>
<i>Figure 8.1.1</i>	<i>The Technical Diagram</i>

Chapter 11

11.1 References

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