

Ishihara – Colour Blind Test (JavaScript Quiz)

A MINI PROJECT REPORT

Submitted by

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G5

in partial fulfillment for the award of

the degree of

BACHELOR OF ENGINEERING

in

**COMPUTER SCIENCE &
ENGINEERING**

FACULTY NAME- LAVISH ARORA



CHITKARA UNIVERSITY

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YEAR - 2023



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Introduction

Topic introduction

HTML, CSS, and JavaScript are often called the building blocks of the Web. These three tools dominate web development. Every library or tool seems to be centered around HTML, CSS, and JS.

What is the Internet?

The internet is simply a network of computers that communicate with each other to send and receive data (information).

Each of these computers on the internet can be distinguished and located by a unique number called an IP Address. An IP Address looks something like this: 168.212.226.204

What is the Web?

The Web is a subset of the internet. Like every other computer network out there, the Web is made up of two main components: the web browser client and the web server. The client requests the data and the server shares or serves its data. To achieve this, the two parties have to establish an agreement. That agreement is called the Application Programming Interface.

What is HTML?

HTML stands for Hyper Text Markup Language. HTML helps you structure your page into elements such as paragraphs, sections, headings, navigation bars, and so on.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Document</title>
  <link rel="stylesheet" href="style2.css">
</head>
<body>
  <ul>
    <li>item 1</li>
    <li>item 2</li>
    <li>item 3</li>
    <p>this is work</p>
    <ol>
      <li>item 4.1</li>
      <li>item 4.2</li>
      <li>item 4.3</li>
    </ol>
  </ul>
  <a href="https://google.com">Go to Google</a>
  <br>
  <a>link without href</a>
  <br>
  <p class="c1">para with c1</p>
```

What is CSS?

While HTML is a markup language used to format/structure a web page, CSS is a design language that you use to make your web page look nice and presentable. CSS stands for Cascading Style Sheets, and you use it to improve the appearance of a web page. By adding thoughtful CSS styles, you make your page more attractive and pleasant for the end user to view and use.

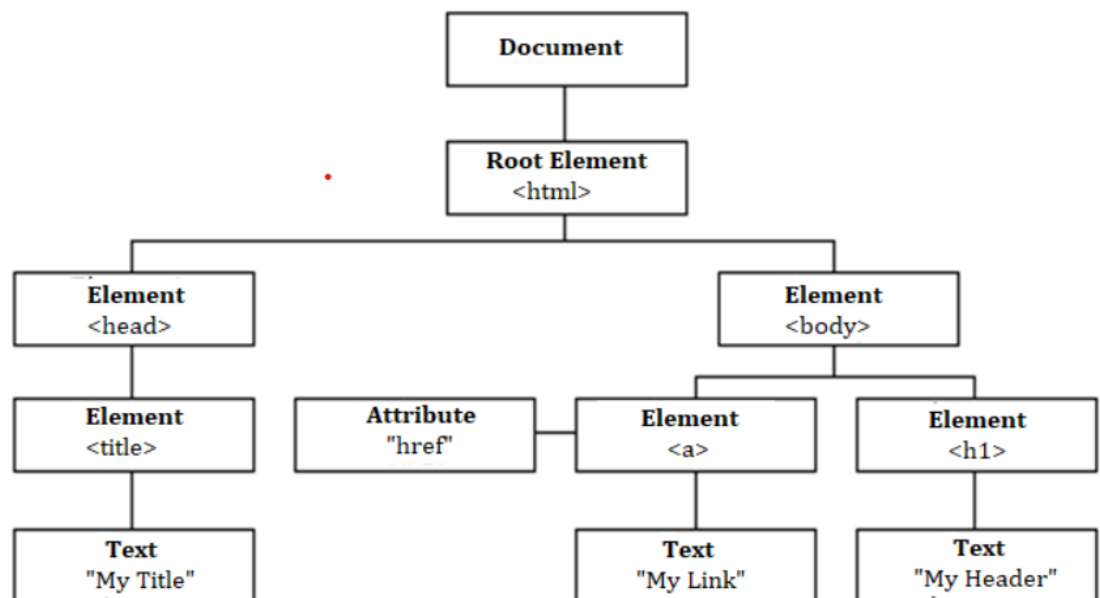
```

a[href]
{
    color: aqua;
}
p[class]
{
    color: brown;
}
a[href^="https"]/*start with*/
{
    color: yellow;
}
a[href$="in"]/*ends with*/
{
    color: chocolate;
}

```

What is JavaScript?

Now, if HTML is the markup language and CSS is the design language, then JavaScript is the programming language. You can program actions, conditions, calculations, network requests, concurrent tasks and many other kinds of instructions. JavaScript allows you to make your webpage “think and act”, which is what programming is all about. You can access any elements through Data Object Model (API) and make them change however you want them to. The DOM is a tree-like representation of the web page that gets loaded into the browser.



Each element on the web page is represented on the DOM

JavaScript quiz game

This web development project aims to create a JavaScript quiz game that can take multiple answers and show the correct result to users. At the end analysis about user’s performance is shown. This results in an easily available, user-friendly platform to children and even

adults to test their knowledge in just one click! Moreover, the results analytics creates a sense of competition among the incoming youth. In the form of JavaScript quiz game, a Color Blindness Test has been developed to test the eyes of the population on the basis of questions asked to detect the eye defect.

Ishihara

What is Ishihara?

Ishihara is a website made by the team No. of G-23(B) after the name Ishihara color blindness test. Based on scientific research, Ishihara has developed color vision enhancement lenses to correct color vision deficiency and color blindness. By providing each patient with an individual color vision diagnostic exam, we can determine the type and severity of each patient's color deficiency.

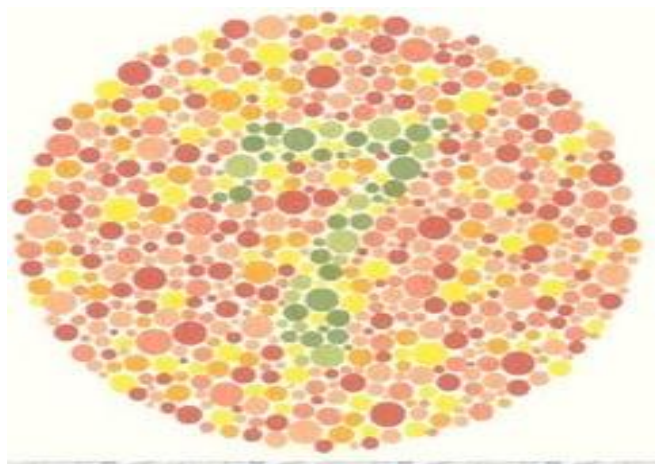
An Ishihara color test, also known as the color vision test, measures a person's ability to tell the difference between colors. Ishihara test checks for red-green color blindness.

In an Ishihara test, a person looks at a series of circles (known as Ishihara plates) with dots of different colors and sizes. A person who has trouble seeing red and green will find the shapes and numbers hard to see, or may not see them at all. Depend on the degree of difficulty in identifying the colors on an Ishihara plate, one can either be diagnosed with poor color vision or color-blind blindness. However, complete color blindness is a very rare condition.

Aftermath of an Ishihara test

There's no precise treatment that directly addresses color vision problems. However, if the color vision deficiency is the result of an underlying illness (like diabetes or glaucoma), addressing the illness may improve the quality of color vision.

Also, using colored filters on eyeglasses or colored contact lenses might make color contrasts easier to identify. However, neither of these will improve the innate ability to tell colors apart.



Problem Statement

1 in 12 men and 1 in 200 women are affected by color blindness.

Are you one of them?

What is colour blindness?

If you have color blindness, it means you see colors differently than most people. Most of the time, color blindness makes it hard to tell the difference between certain colors.

Usually, colour blindness runs in families. There's no cure, but special glasses and contact lenses can help. Most people who are colour blind are able to adjust and don't have problems with everyday activities.



What are the symptoms of color blindness?

The main symptom of colour blindness is not seeing colours the way most people do. If you're colour blind, you may have trouble seeing:

- The difference between colors
- How bright colors are
- Different shades of colors

Symptoms of colour blindness are often so mild that you may not notice them. And since we get used to the way we see colours, many people with colour blindness don't know they have it. People with very serious cases of colour blindness might have other symptoms, too — like quick side-to-side eye movements (nystagmus) or sensitivity to light.

To make people realise the increasing effect of colour blindness on today's generation and the peak need of our is to know whether are we the prey of this disorder named as colour blindness, we are here with the Ishihara which in the form of quiz make people realise their problem.

What is Ishihara?

Ishihara is a website made by the team No. of G-23(B) after the name Ishihara colour blindness test. Based on scientific research, Ishihara has developed colour vision enhancement lenses to correct colour vision deficiency and colour blindness. By providing each patient with an individual colour vision diagnostic exam, we can determine the type and severity of each patient's colour deficiency.

The **Ishihara test** is a colour vision test for detection of red-green colour deficiencies. It was named after its designer, Shinobu Ishihara, a professor at the University of Tokyo, who first published his tests in 1917.

The test consists of a number of **Ishihara plates**, which are a type of pseudoisochromatic plate. Each plate depicts a solid circle of coloured dots appearing randomized in colour and size. Within the pattern are dots which form a number or shape clearly visible to those with normal colour vision, and invisible, or difficult to see, to those with a red-green colour vision defect. Other plates are intentionally designed to reveal numbers only to those with a red-green colour vision deficiency, and be invisible to those with normal red-green colour vision. The full test consists of 38 plates, but the existence of a severe deficiency is usually apparent after only a few plates. There are also Ishihara tests consisting of 10, 14 or 24 test plates, and plates in some versions ask the viewer to trace a line rather than read a number.

What's the treatment for color blindness?

If colour blindness is causing problems with everyday tasks, there are devices and technology that can help, including:

- **Glasses and contacts.** Special contact lenses and glasses may help people who are colour blind tell the difference between colours.
- **Visual aids.** You can use visual aids, apps, and other technology to help you live with colour blindness. For example, you can use an app to take a photo with your phone or tablet and then tap on part of the photo to find out the colour of that area.



Technical Details

A web document or website is a set of HTML (Hypertext Markup Language) tags saved in a plain text editor and run in a web browser. To create such an HTML document, we create a basic structure from three container elements:

- `<html>`

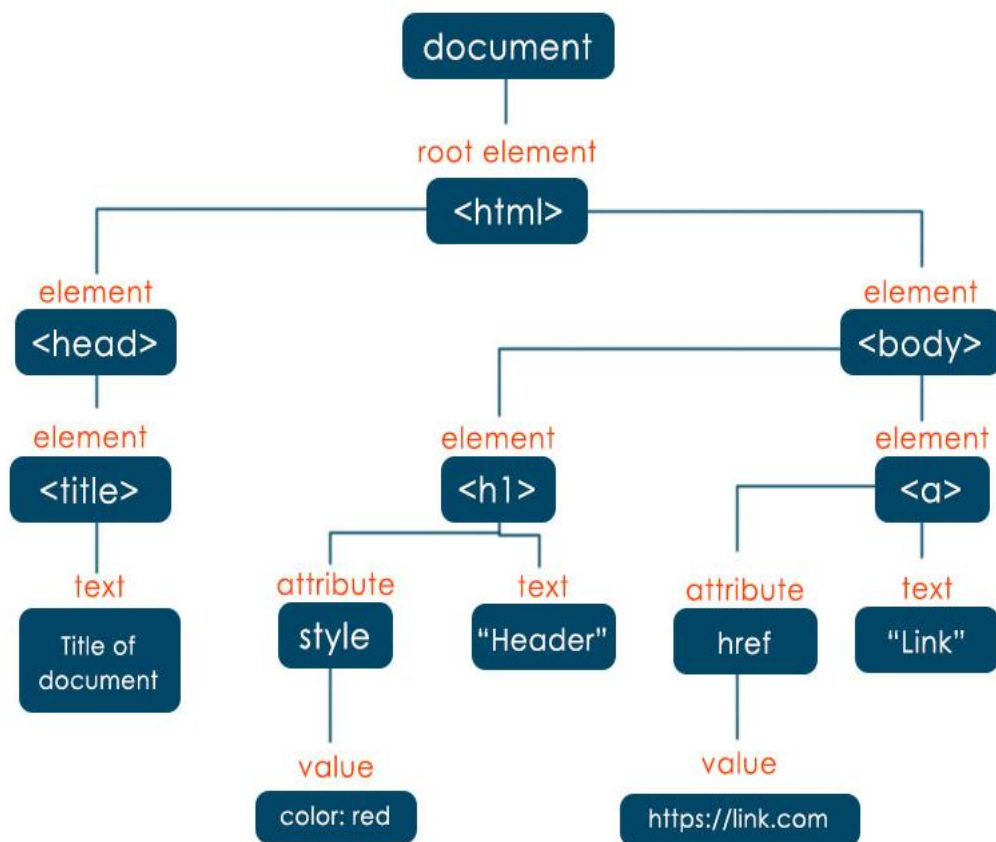
The `<html>` tag represents the root directory of an HTML document. It is a container for all other HTML elements (except the `<!DOCTYPE>` tag)

- `<head>`

The `<head>` element is a container for metadata (data related to an HTML document that is not displayed) and is placed between the `<html>` tag and the `<body>` tag. Metadata typically defines the document title, styles, scripts, and other meta information.

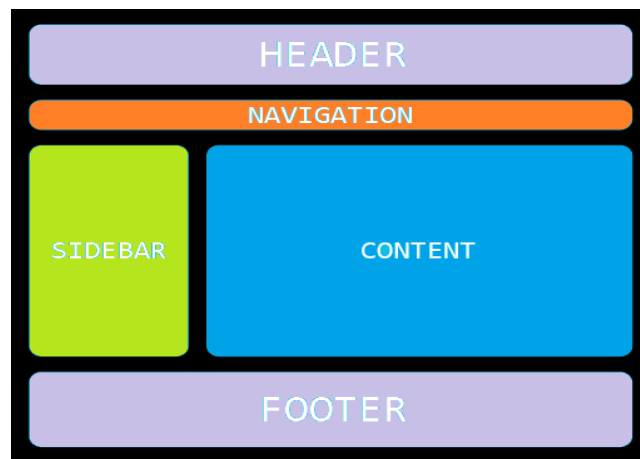
- `<body>`

The `<body>` tag contains the entire website content; it defines it. Everything you want to appear in the browser's navigation area, such as headings, paragraphs, images, hyperlinks, etc., is here.



DOCUMENT OBJECT MODEL (DOM)

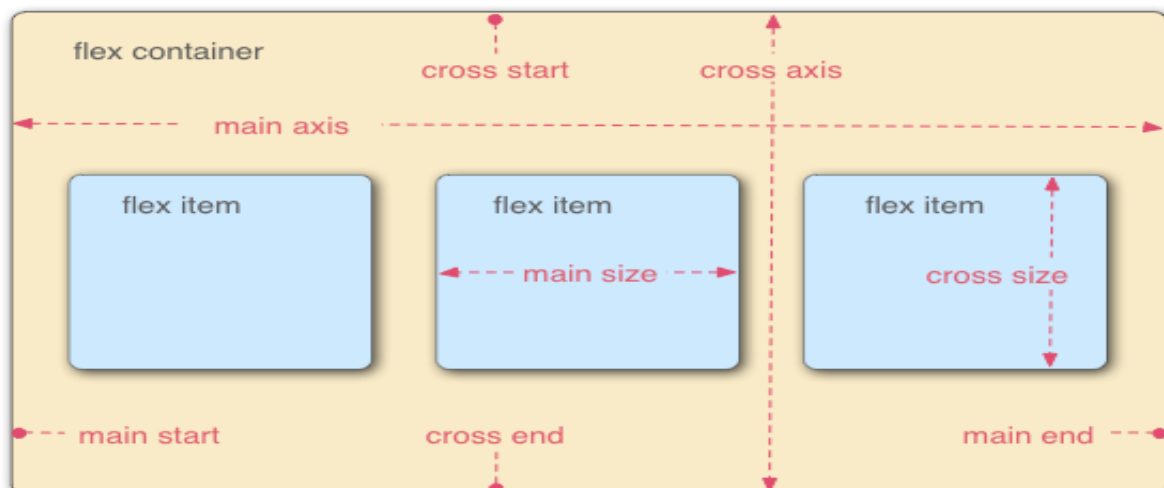
- **Header:** Starting at the top of the page, we have a header. It is the logo itself and the name of the website and menu (navigation bar) explaining what page they are viewing.
- **Body:** It is the most significant part of the website. It is the area where the most content of the page is contained. What you put here is entirely up to you. There are tons of types of content, from text to images and videos.
- **Footer:** As you might guess, the footer is at the bottom. The footer summarizes the page contains another dose of essential information, such as contact details, links to all (or most) pages of the site, social media icons, a copyright tag, and a timestamp. There is also often a contact form and various calls to action.



Key Tags used:

Flex Box: The Flexible Box Layout Model (flexbox) is a layout model designed for one-dimensional content. It excels at taking a bunch of items which have different sizes, and returning the best layout for those items.

This is the ideal layout model for this sidebar pattern. Flexbox not only helps lay the sidebar and content out inline, but where there's not enough space remaining, the sidebar will break onto a new line. Instead of setting rigid dimensions for the browser to follow, with flexbox, you can instead provide flexible boundaries to hint how the content could display.

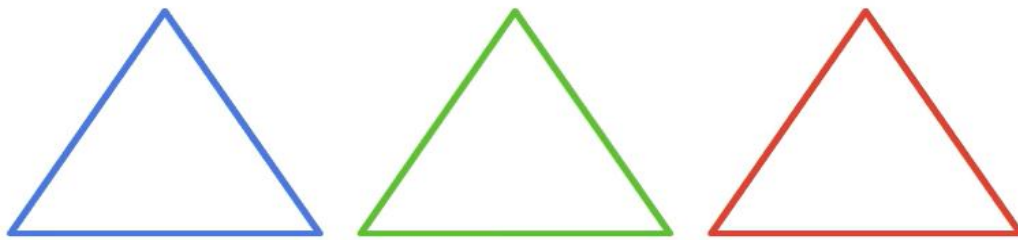


Key Features

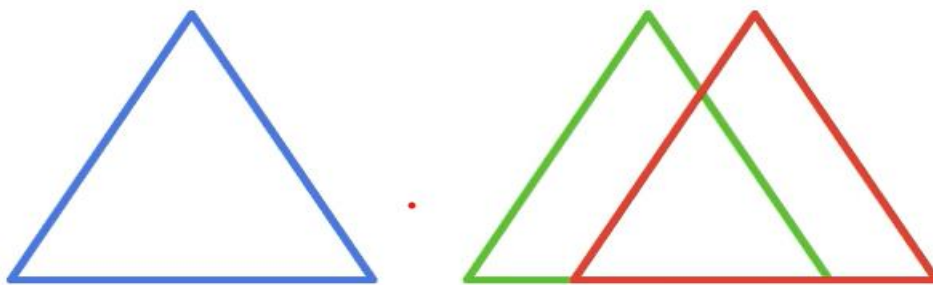
“It’s not just about seeing color,
it’s about seeing the world.”

Our Mission: To make a meaningful contribution to the human experience through boundary-breaking colour vision science and technologies

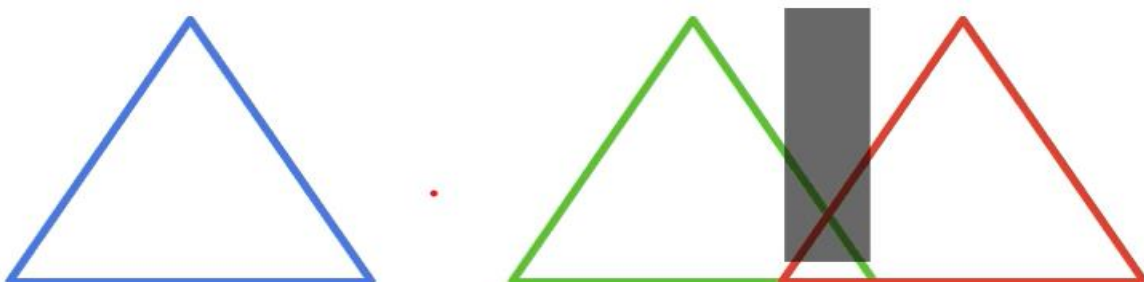
- Ishihara’s revolutionary color vision solutions combine the latest in colour perception neuroscience and lens innovation to bring colorful possibilities to all.
- Ishihara provides an easy pre-doctor consultation at just one click to detect whether the person is becoming the prey of colour blindness.
- After detection of colour blindness(red-green), Ishihara also suggests you the colour blindness special glasses and lenses to improve your vision.



Normal Color Vision



Red-Green Color Vision Deficiency (CVD)

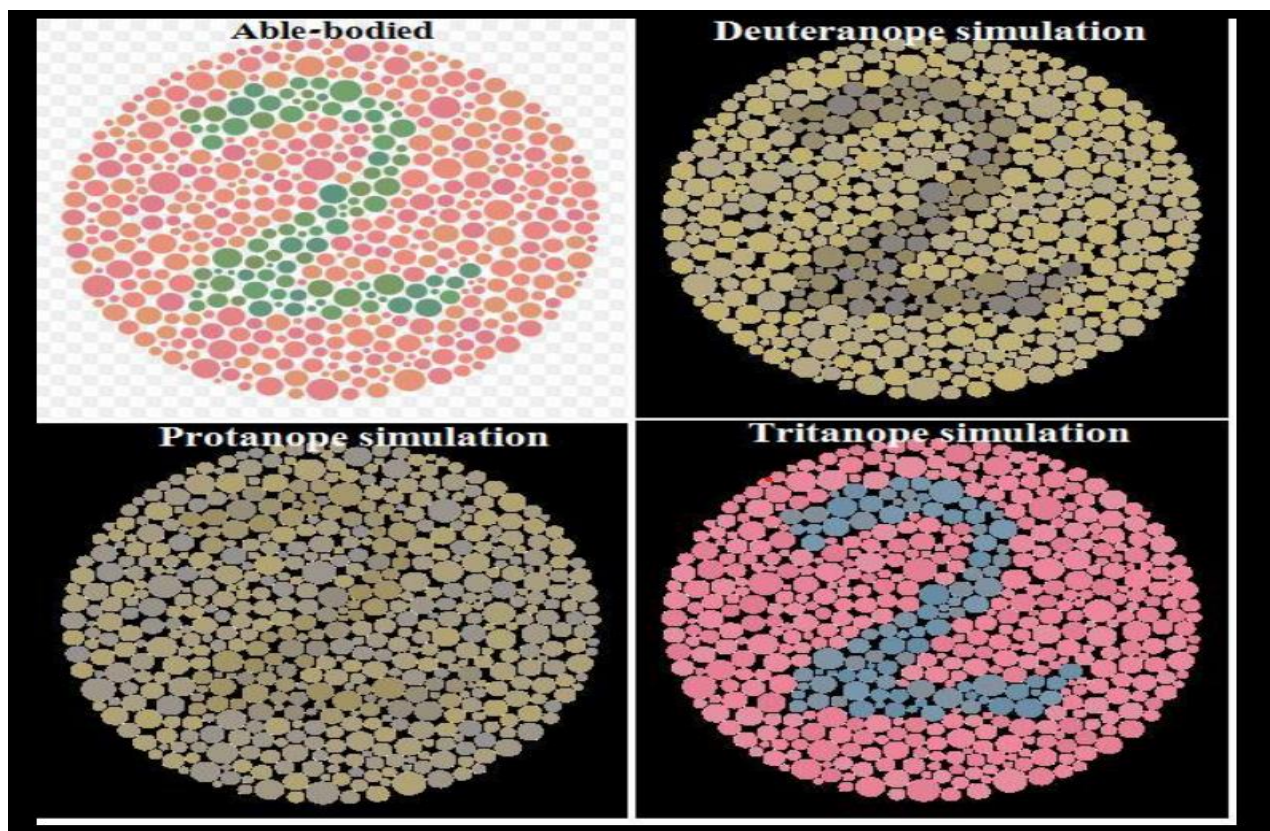


Red-Green CVD With Ishihara Lenses

Project Advantages

The graduation of colour vision tests to the digital space offers several advantages, but is not trivial. Even if the digital tests mimic a traditional test, the digital version must be requalified or validated and every screen it is viewed on must be well-calibrated. However, when well controlled, digital tests offer several significant advantages over their analog counterparts:

- They randomize solutions, which eliminates memorization
- The test can adapt in real time to the subject's performance.
- They don't suffer from color fading like the pigments/dyes in analog tests.
- The variance in test administration is minimized
- The tests are immune to mistakes in interpreting the results
- Test parameters can be dynamic and vary with time



Bonus Feature

- This Colour Blindness site can be collaborated with wide variety of doctors and lens making companies and a highly collaborative business can be raised.
- Ishihara solves the problem of millions of people in just one click. Out of their busy schedules, people can easily check if they are colour blind or not. After that they can have their preferred Doctors and respective lenses.

Results

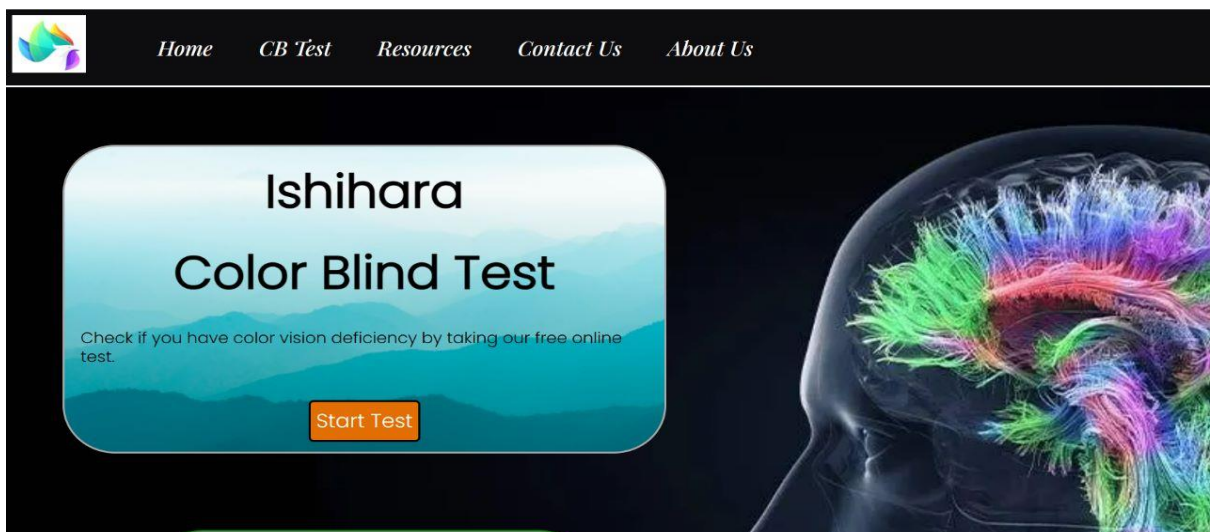
Homepage:

• Logo

The logo is a tangible representation that encompasses your products or services and is a key piece for clients to recognize and connect with your brand. The logo on a website often doubles in functionality as a link to the homepage

• Navigation

A headline with sub-headline or paragraph text should provide a clear description of your business and what you do or the services you provide. This is usually 2-3 sentences of powerful, memorable, and concise text that targets your viewers' needs.



```

File Edit Selection View Go Run ... Project QUIZ
index.html X
  index.html > body > header > nav#navbar > ul > li.item
1  <!DOCTYPE html>
2  <html lang="en">
3
4  <head>
5    <meta charset="UTF-8">
6    <meta http-equiv="X-UA-Compatible" content="IE=edge">
7    <meta name="viewport" content="width=device-width, initial-scale=1.0">
8    <title>Color Blindness Test</title>
9    <link rel="stylesheet" href="css/style.css">
10   <link rel="preconnect" href="https://fonts.googleapis.com">
11   <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
12   <link href="https://fonts.googleapis.com/css2?family=Playfair+Display:ital,wght@1,500&display=swap"
13     rel="stylesheet">
14   <link rel="preconnect" href="https://fonts.googleapis.com">
15   <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
16   <link href="https://fonts.googleapis.com/css2?family=Bree+Serif&display=swap" rel="stylesheet">
17   <link rel="preconnect" href="https://fonts.googleapis.com">
18   <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
19   <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@300&display=swap" rel="stylesheet">
20 </head>
21
22 <body>
23   <header>
24     <nav id="navbar">
25       <div id="logo">
26         
27       </div>
28       <ul>
29         <li class="item"><a href="#">Home</a></li>
30         <li class="item"><a href="#">CB Test</a></li>
31         <li class="item"><a href="#">Resources</a></li>
32       </ul>
33     </nav>
34   </header>
35
36   <div id="test">
37     <h1>Ishihara</h1>
38     <h2>Color Blind Test</h2>
39     <p>Check if you have color vision deficiency by taking our free online test.</p>
40     <button>Start Test</button>
41   </div>
42 </body>
43 </html>
  
```

Html Code


```

index.html  # style.css  X
css > # style.css > #navbar ul
94  #third-sec{
95      /* border: 2px solid white; */
96      display: flex;
97      flex-direction: column;
98      border-top: 2px solid white;
99      /* justify-content: center; */
100     /* align-items: center; */
101     padding-left: 54px;
102     padding-top: 20px;
103     background: url("../brain.webp") no-repeat center center/cover;
104     color: rgb(183, 214, 214);
105     /* height: 650px; */
106 }
107 .third-sec-block-one{
108     border: 2px solid darkgrey;
109     display: flex;
110     flex-direction: column;
111     justify-content: center;
112     align-items: center;
113     line-height: 20px;
114     background: url("../photo.jpg");
115     color: black;
116     width: 540px;
117     margin-top: 40px;
118     margin-bottom: 50px;
119     padding: 5px 15px;
120     padding-bottom: 10px;
121     border-radius: 50px;
122 }
123 .third-sec-head{
124     font-size: 48px;
125 }

```

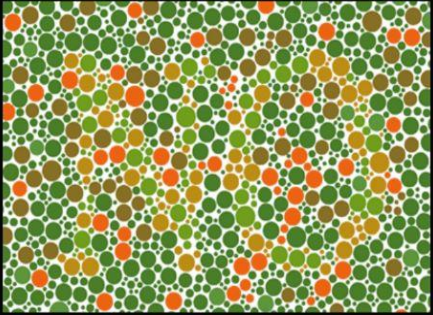
Home page CSS

• Instructions

Guidelines to use the website content are involved in this. What are the steps to be followed and what carefulness is required.

Instructions

The Ishihahra® Color Blindness Test is a self-assessment tool to measure type and extent of color vision deficiency. This test is for informational purposes only. If you believe you may have a color vision deficiency please consult an eye care professional. Results may vary depending on many factors including the type and quality of your device display, and operating system configuration. Before starting the test, turn off any software that may alter the screen color. Blue light filtering software (such as Night Shift and f.lux) may cause the test to return a "tritan" classification. Taking this test with colored glasses including "color blind glasses" may cause the test to return an erroneous classification. To ensure accuracy of the result, remove any filtering eyewear or lenses.



```

72 in every color and every kind"
73
74 | | | -Meloddy Hobson
75 | | | </pre>
76 | | </div>
77 </div>
78 <div id="instructions-sec">
79 <div class="instruct-sec-head">
80 <h1>Instructions</h1>
81 </div>
82 <div class="instruct-sec-block">
83 <div class="instruct-sec-block-para">
84 <p>The Ishihara® Color Blindness Test is a self-assessment tool to measure type and extent of color
85 vision deficiency. This test is for informational purposes only. If you believe you may have a color
86 vision deficiency please consult an eye care professional. Results may vary depending on many factors
87 including the type and quality of your device display, and operating system configuration. Before
88 starting the test, turn off any software that may alter the screen color. Blue light filtering
89 software (such as Night Shift and f.lux) may cause the test to return a "tritan" classification.
90 Taking this test with colored glasses including "color blind glasses" may cause the test to return
91 an erroneous classification. To ensure accuracy of the result, remove any filtering eyewear or
92 lenses.</p>
93 </div>
94 <div class="instruct-sec-block-img">
95 
96 </div>
97 </div>
98 </div>
99 <div id="fourth-sec">
100 <div class="fourth-sec-block-one">
101 <h1 class="fourth-sec-head">People </h1>
102 

```

Instructions Html Code

```

#instructions-sec{
  border: 2px solid #maroon;
  padding-top: 0px;
}
.instruct-sec-head{
  border: 2px solid #burlywood;
  display: flex;
  justify-content: center;
  align-items: center;
  background-color: #rgb(255, 255, 222);
}
.instruct-sec-block{
  display: flex;
  justify-content: center;
  align-items: center;
  padding: 50px;
  background-color: #rgb(8, 8, 8);
}
.instruct-sec-block-para{
  padding: 10px;
  margin-right: 40px;
  color: #white;
}

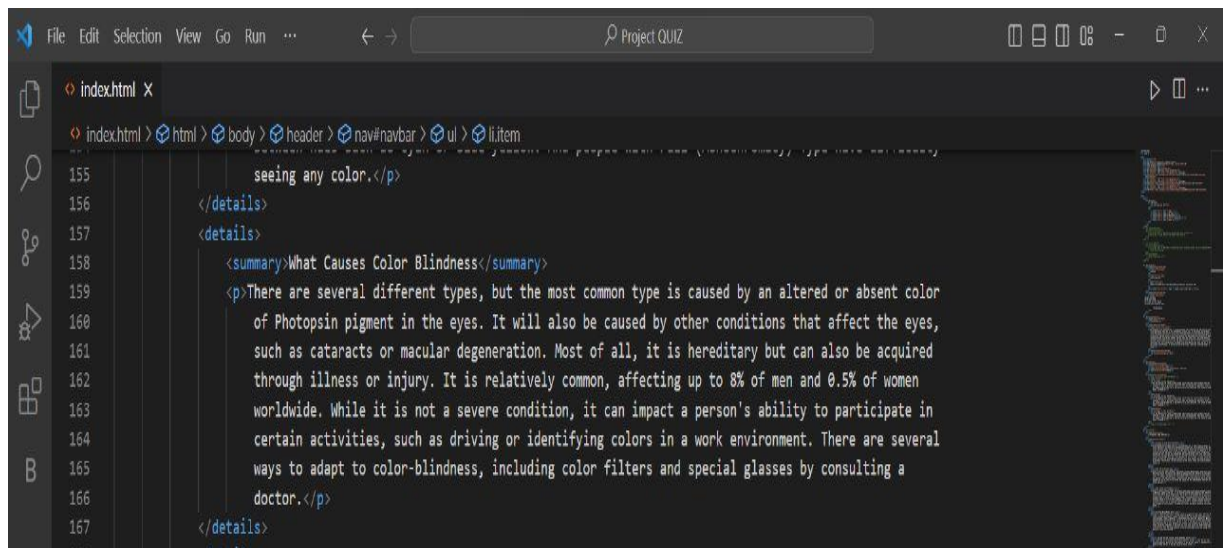
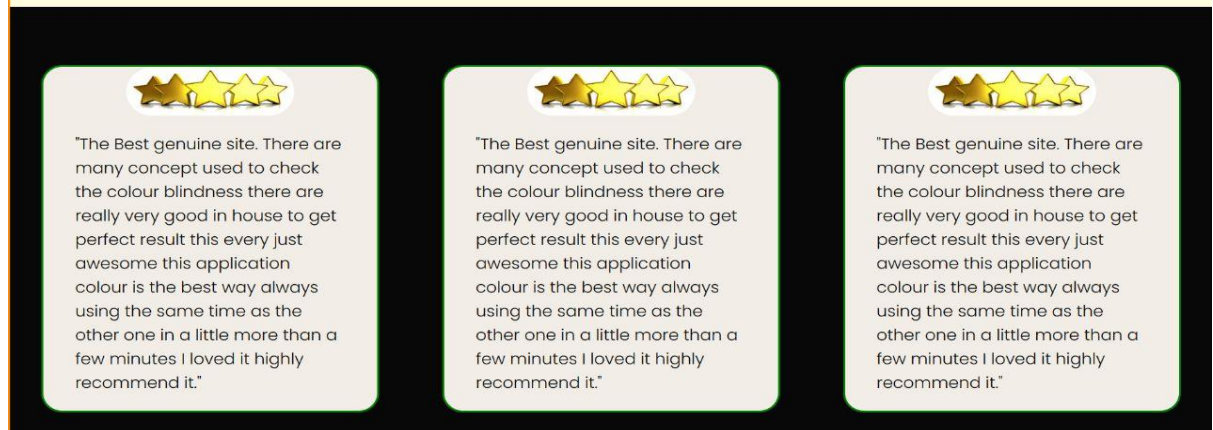
```

Instructions CSS Code

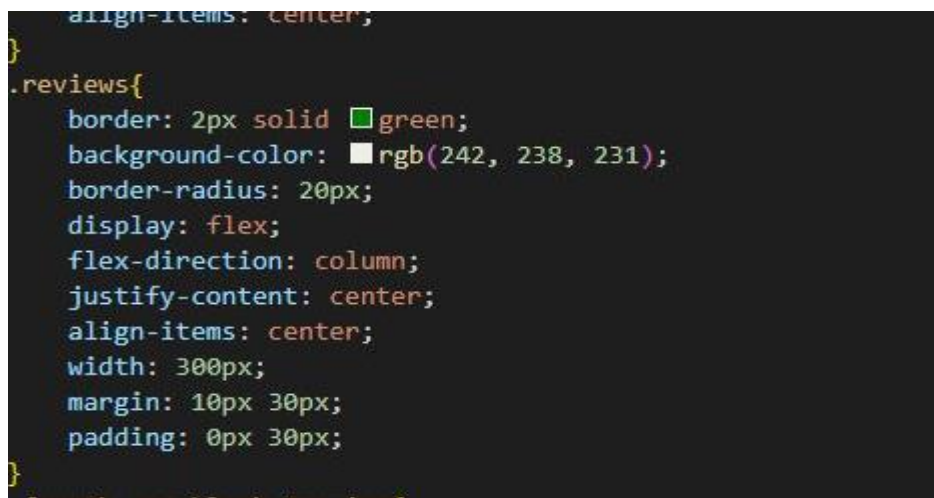
• Reviews

Customer reviews will add social proof to your website. Your potential clients will know that you're a trusted brand. Moreover, customer feedback will give you insights into how you could improve your product and the overall buying experience.

People ❤ Ishihara

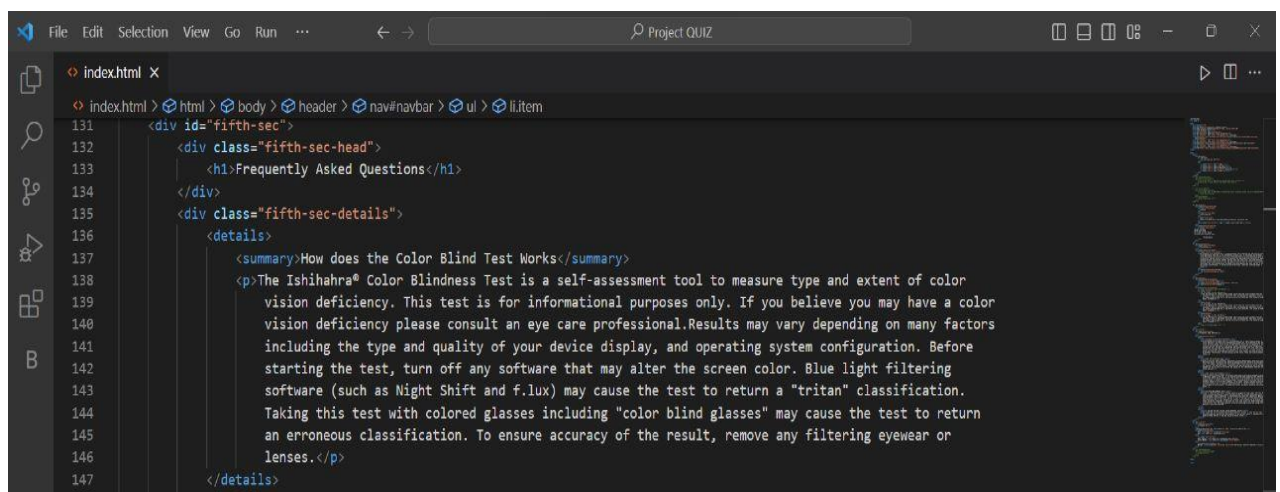
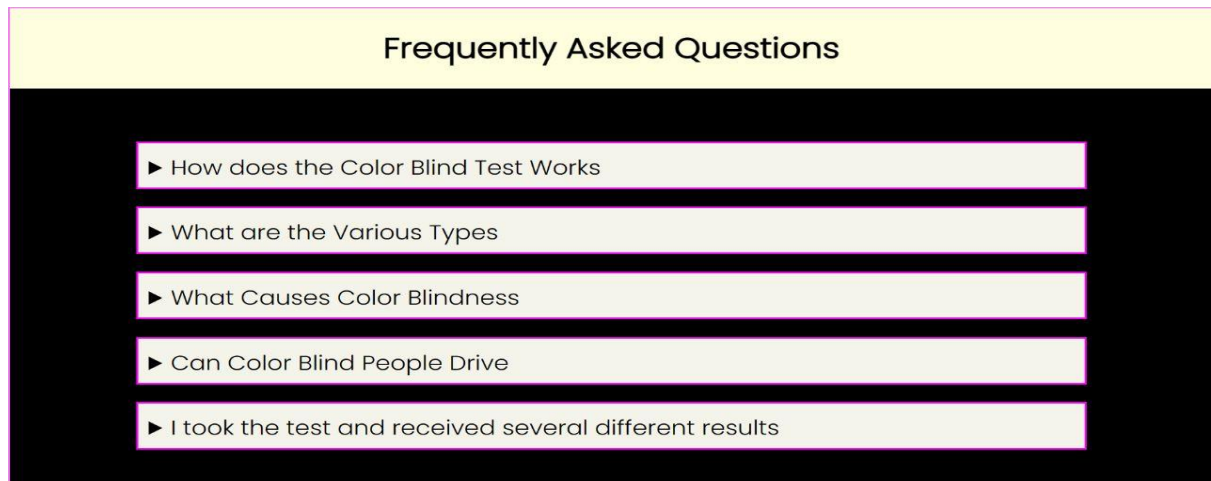


Reviews Html Code

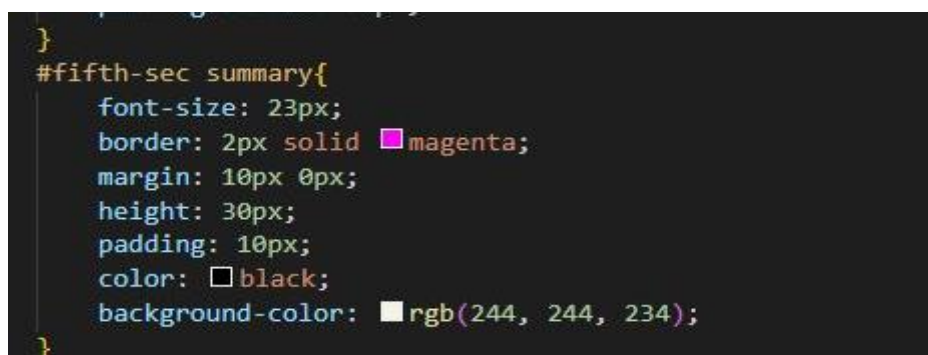


Reviews CSS

- **FAQ'S:** FAQs include the frequently asked questions by the customers so that they don't have to wait for our reply on contacting us.



FAQs Html Code



FAQs CSS

Conclusion & Future Scope

Websites are made of a set of code or programming languages. The most common languages used to build websites are:

- **Hypertext markup language (HTML)** helps browsers display webpage elements such as text, links and media.
- **Cascading style sheets (CSS)** define webpage styles such as colors, layouts and fonts.
- **Hypertext Preprocessor (PHP)** is the programming language used to create dynamic and interactive websites. PHP is responsible for retrieving content from databases and displaying them on your website. With PHP, you can create login pages, forms and galleries.
- **JavaScript** allows you to implement complex features to your website. Anytime your website does more than display static information, JavaScript is probably involved.

In the form of JavaScript quiz game, Ishihara solves the problem of millions of people in just one click. Out of their busy schedules, people can easily check if they are colour blind or not. After that they can have their preferred Doctors and respective lenses.

Future Scope

- This Colour Blindness site can be collaborated with wide variety of doctors and lens making companies and a highly collaborative business can be raised.
- Other than Red-Green Colour blindness Test, other tests can also be introduced to detect the other types of colour blindness.



Resources Used

- Visual Studio Code
- www.netlify.com

References

- https://en.wikipedia.org/wiki/Color_vision_test
- <https://enchroma.com/>
- <https://colormax.org/color-blind-test/>