

Image Healer

**A Project report submitted for the fulfillment of the requirement for the
Degree of Bachelor of Science in Information Technology**

Submitted by

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Madurai – 11.**

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DECLARATION



THE MADURA COLLEGE (Autonomous)
(Self-Financed Stream)
Re-Accredited with 'A' grade by NAAC
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DEPARTMENT OF INFORMATION TECHNOLOGY

CERTIFICATE

This is to certify that the Project work entitled “**Image Healer**” is a bonafide record work done by **M.VENKATESH, 2020ITC039** and submitted to the Department of Information Technology, The Madura College, Madurai, for the fulfillment of the requirement for the Degree of Bachelor of Science in Information Technology. The VIVA-VOCE examination held in the Department of Information Technology, The Madura College, Madurai on _____.

Project Guide

Internal Examiner

Coordinator

External Examiner

Controller of Examinations

ACKNOWLEDGEMENT

SYNOPSIS

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INTRODUCTION

PROBLEM DEFINITION

AND

DESCRIPTION

PROBLEM DEFINITION & DESCRIPTION

The problem that an image editing toolkit aims to solve is the need for an efficient and accessible means of modifying and enhancing digital images. With the increasing importance of visual content in various industries, there is a growing demand for software that makes it easy for people with a range of skill levels to produce high-quality images. The toolkit must provide a range of features that address common challenges in image editing, such as color correction, removing blemishes or distracting elements, and adjusting lighting and contrast. At the same time, it must also be intuitive and user-friendly, so that users can quickly and easily perform the tasks they need to produce the desired results.

DESCRIPTION

Image Cropping : This module allows the user to crop an image to a desired size.

Image Resizing : This module allows the user to resize an image to a specified size or aspect ratio.

Image Brightness and Contrast Adjustment: This module allows the user to adjust the brightness and contrast of an image to suit their preference.

Image Filters: This module allows the user to apply various filters to the image to enhance its appearance.

Image Compressor : This module allows the user to reduce the quality of the image.
For example, 2MB image to 500KB

Image To PDF : An image to PDF converter is a software tool that converts one or more image files (such as JPEG, PNG, BMP, or GIF) into a single PDF document. This conversion allows the images to be viewed, shared, or printed as a single file rather than multiple separate image files.

SYSTEM ENVIRONMENT

SYSTEM ENVIRONMENT

HARDWARE REQUIREMENT

➤ Processor type	Intel core 2 duo processor
➤ Mother Board	Intel 810E
➤ Monitor	19 inch TFT Monitor
➤ Keyboard	104 Keys
➤ Pointing Devices	3 Buttons Optical Wheel Buttons
➤ Hard Disk	250 GB
➤ RAM	1 GB

SOFTWARE REQUIREMENT

➤ Platform	Windows 10
➤ Front-End Tool	HTML, CSS, JAVASCRIPT
➤ Back-End Tool	PHP, MYSQL

HTML

The Hyper Text Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items.

Advantage of HTML

- HTML helps to build structure of a website and is a widely used Markup language.
- It is easy to learn.
- Every browser supports HTML Language.
- HTML is light weighted and fast to load.
- Storage of big files are allowed because of the application cache feature.
- Do not get to purchase any extra software because it's by default in every window.
- Loose syntax (although, being too flexible won't suit standards).
- HTML is simple to edit as being a plain text.

JAVASCRIPT

JavaScript often abbreviated JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. As of 2022, 98% of websites use JavaScript on the client side for web page behavior, often incorporating third-party libraries. All major web browsers have a dedicated JavaScript engine to execute the code on user's devices.

JavaScript is a high-level, often just-in-time compiled language that conforms to the ECMAScript standard. It has dynamic typing, prototype-based object-orientation, and first-class functions. It is multi-paradigm, supporting event-driven, functional, and imperative programming styles. It has application programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM).

JavaScript engines were originally used only in web browsers, but are now core components of some servers and a variety of applications. The most popular runtime system for this usage is Node.js.

Advantage of Javascript

- Less server interaction – You can validate user input before sending the page off to the server. This saves server traffic, which means less load on your server.
- Immediate feedback to the visitors – They don't have to wait for a page reload to see if they have forgotten to enter something.
- Increased interactivity – You can create interfaces that react when the user hovers over them with a mouse or activates them via the keyboard.
- Richer interfaces – You can use JavaScript to include such items as drag-and-drop components and sliders to give a Rich Interface to your site visitors.

CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web pages to share formatting by specifying the relevant CSS in a separate “.css” file, which reduces complexity and repetition in the structural content; and enable the “.css” file to be cached to improve the page load speed between the pages that share the file and its formatting.

Advantage of CSS

- CSS saves a lot of time.
- It helps to make consistent and spontaneous changes.
- It improves the loading speed of the page.
- CSS has the ability to re-position.
- It has better device compatibility.

PHP

PHP is a general-purpose scripting language geared toward web development. It was originally created by Danish-Canadian programmer Rasmus Lerdorf in 1994. The PHP reference implementation is now produced by The PHP Group. PHP originally stood for Personal Home Page but it now stands for the recursive initialism PHP: Hypertext Preprocessor.

PHP code is usually processed on a web server by a PHP interpreter implemented as a module, a daemon or as a Common Gateway Interface (CGI) executable. On a web server, the result of the interpreted and executed PHP code – which may be any type of data, such as generated HTML or binary image data – would form the whole or part of an HTTP response. Various web template systems, web content management systems, and web frameworks exist which can be employed to orchestrate or facilitate the generation of that response. Additionally, PHP can be used for many programming tasks outside the web context, such as standalone graphical applications and robotic drone control. PHP code can also be directly executed from the command line.

Advantages of PHP

- Most important advantage of PHP is that it's open source and freed from cost. It are often downloaded anywhere and readily available to use for event of web applications.
- It is platform independent. PHP based applications can run on any OS like UNIX,Linux and windows, etc.
- Application can easily be loaded which are based on PHP and connected to database.
- It has less learning curve, because it is straightforward and straightforward to use. If aprivate knows C programming can easily work on PHP.
- It is more stable from a few years with assistance of providing continuous support tovarious versions.
- It helps in reusing an equivalent code and no got to write lengthy code andsophisticated structure for event of web applications.

SQL

Structured Query Language is a domain-specific language used in programming and designed for managing data held in a relational database management system (RDBMS), or for stream processing in a relational data stream management system (RDSMS). It is particularly useful in handling structured data, i.e. data incorporating relations among entities and variables. SQL offers two main advantages over older read–write APIs such as ISAM or VSAM. Firstly, it introduced the concept of accessing many records with one single command. Secondly, it eliminates the need to specify how to reach a record, e.g. with or without an index.

Originally based upon relational algebra and tuple relational calculus, SQL consists of many types of statements, which may be informally classed as sublanguages, commonly: a data query language (DQL), a data definition language (DDL), a data control language (DCL), and a data manipulation language (DML). The scope of SQL includes data query, data manipulation (insert, update and delete), data definition (schema creation and modification), and data access control. Although SQL is essentially a declarative language (4GL), it also includes procedural elements.

SQL was one of the first commercial languages to use Edgar F. Codd's relational model. The model was described in his influential 1970 paper, "A Relational Model of Data for Large Shared Data Banks". Despite not entirely adhering to the relational model as described by Codd, it became the most widely used database language.

Advantage of SQL

- **Faster Query Processing** – Large amount of data is retrieved quickly and efficiently. Operations like Insertion, deletion, manipulation of data is also done in almost no time.
- **No Coding Skills** – For data retrieval, large number of lines of code is not required.
- **Standardised Language** – Due to documentation and long establishment over years, it provides a uniform platform worldwide to all its users.
- **Portable** – It can be used in programs in PCs, server, laptops independent of any platform (Operating System, etc). Also, it can be embedded with other applications as per need/requirement/use.
- **Interactive Language** – Easy to learn and understand, answers to complex queries can be received in seconds.

SYSTEM ANALYSIS

SYSTEM ANALYSIS

System analysis in image editing tools involves a comprehensive review of the software's features, functions, and workflows to identify strengths and areas for improvement. The following are the steps involved in system analysis in image editing tools:

- **Requirements gathering:** The first step in system analysis is to gather requirements from users to understand their needs and expectations from the image editing tool. This can be done through surveys, interviews, or feedback forms.
- **Analysis of the existing system:** The next step is to analyze the existing image editing tool to understand its features, functions, and workflows. This includes evaluating the user interface, navigation, and feature set, as well as testing the tool's performance, stability, and reliability.
- **Identifying areas for improvement:** Based on the analysis of the existing system, the analyst will identify areas for improvement, such as adding new features or enhancing existing ones, improving the user interface, or optimizing the tool's performance.
- **Design and development:** After identifying the areas for improvement, the design and development team will create a plan to implement the changes and develop a prototype for testing.
- **Testing and evaluation:** Once the prototype is developed, it will be tested under various conditions to ensure that it functions correctly, meets user requirements, and addresses any issues identified during the analysis.
- **Implementation:** After testing and evaluation, the updated image editing tool will be deployed to users, and any necessary training or support will be provided to ensure a smooth transition.

Overall, system analysis in image editing tools is essential for identifying areas for improvement and ensuring that the software meets the needs and expectations of users. It can help to enhance the tool's functionality, usability, and performance and ultimately improve the user experience.

EXISTING SYSTEM

System analysis in an existing image editing tool involves a thorough review of the tool's current features, functions, and workflows to identify areas for improvement and make recommendations for enhancing its functionality, usability, and performance. The following steps outline the process of system analysis in an existing image editing tool:

- Review the user interface (UI) and navigation: The analyst will evaluate the tool's user interface and navigation to determine whether they are intuitive and easy to use. This includes examining the layout of the menus and toolbars, assessing the quality and usability of the tools, and identifying any issues that users may encounter when navigating the tool.
- Evaluate the feature set: The analyst will examine the existing features of the image editing tool and determine whether they meet the needs of the users. This includes assessing the quality and effectiveness of the tools for editing, such as filters, cropping, color adjustments, and effects.
- Test the software's performance and stability: The analyst will test the software's performance and stability under various conditions to determine whether it crashes or freezes frequently, and whether it can handle large image files without slowing down.
- Evaluate compatibility: The analyst will evaluate the tool's compatibility with different file types and operating systems to determine whether it can work seamlessly with other software that the users may be using.
- Identify areas for improvement: Based on the analysis, the analyst will identify areas for improvement, such as adding new features, enhancing existing features, improving the user interface or navigation, or optimizing the tool's performance.
- Create a report: The analyst will compile a report of their findings and recommendations, including potential solutions to any identified problems.
- Implement changes: The development team will then create a plan to implement the recommended changes and develop a prototype for testing.
- Test and evaluate the updated tool: The updated tool will be tested under various conditions to ensure that it functions correctly, meets user requirements, and addresses any issues identified during the analysis.
- Deploy the updated tool: The updated tool will be deployed to users, and any necessary training or support will be provided to ensure a smooth transition.

Overall, system analysis in an existing image editing tool is crucial for identifying areas for improvement and enhancing the software's functionality, usability, and performance. The process involves evaluating the user interface, feature set, performance, stability, and compatibility, and making recommendations based on the findings. The updated tool will ultimately provide users with a better experience and help them to achieve their image editing goals more efficiently.

PROPOSED SYSTEM

System analysis in a proposed image editing tool involves a thorough review of the intended features, functions, and workflows of the tool to ensure that it meets the needs and expectations of users. The following steps outline the process of system analysis in a proposed image editing tool:

- **Gather requirements:** The first step is to gather requirements from users to understand their needs and expectations from the image editing tool. This can be done through surveys, interviews, or feedback forms.
- **Develop a concept:** Based on the requirements gathered, the development team will develop a concept for the image editing tool, including its features, functions, and workflows.
- **Evaluate the concept:** The analyst will evaluate the concept of the image editing tool to determine whether it meets the needs of the users and addresses any identified issues.
- **Create a prototype:** Once the concept is evaluated and refined, the development team will create a prototype of the image editing tool.
- **Test the prototype:** The prototype will be tested under various conditions to ensure that it functions correctly, meets user requirements, and addresses any issues identified during testing.
- **Refine the prototype:** Based on the testing, the prototype will be refined to ensure that it meets the needs of users and addresses any issues identified.
- **Create a report:** The analyst will compile a report of their findings and recommendations, including potential solutions to any identified problems.
- **Implement changes:** The development team will then create a plan to implement the recommended changes and develop a final version of the image editing tool.

- Test and evaluate the final version: The final version of the image editing tool will be tested under various conditions to ensure that it functions correctly, meets user requirements, and addresses any issues identified during testing.
- Deploy the tool: The final version of the image editing tool will be deployed to users, and any necessary training or support will be provided to ensure a smooth transition.

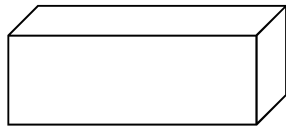
Overall, system analysis in a proposed image editing tool is crucial for ensuring that the tool meets the needs and expectations of users. The process involves developing a concept, creating a prototype, testing and refining the prototype, creating a final version, and deploying the tool to users. The final version of the tool will provide users with a better experience and help them to achieve their image editing goals more efficiently.

SYSTEM DESIGN

SYSTEM DESIGN

DATA FLOW DIAGRAM

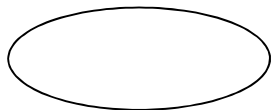
- Data Flow Diagram (DFD) is a design tool constructed to show how data within the system. It is designed from the data which is collected during data collection phase. DFD is otherwise called as “BUBBLE CHART”
- There are four symbols used in DFD. They are Rectangle, Open Rectangle, Circle, Arrow
- Each one has its own meaning



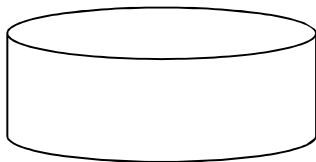
Source and destination



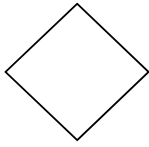
Data Flow



Process



Data Storage



Checking



Forms

CODING

HEIGHT ,WIDTH & COMPRESSOR

hw_changer.html

```
<html>
  <head>
    <title>Image Resize</title>
    <link rel="stylesheet" href="Tsksty.css">
    <script src="resz.js" defer></script>
  </head>
  <body>
    <div class="wrapper">
      <div class="upload-box">
        <input type="file" accept="image/*" hidden>
        
        <p>Browse file to Upload</p>
      </div>
      <div class="content">
        <div class="row sizes">
          <div class="column width">
            <label>Width</label>
            <input type="number">
          </div>
          <div class="column height">
            <label>Height</label>
            <input type="number">
          </div>
        </div>
        <div class="row checkboxes">
          <div class="column ratio">
            <input type="checkbox" id="ratio" checked>
```

```
        <label for="">Lock Aspect Ratio</label>
    </div>
    <div class="column quality">
        <input type="checkbox" id="quality">
        <label for="">Reduce quality</label>
    </div>
</div>
<button class="download-btn">Download Image</button>
</div>
</div>
</body>
</html>
```

Tsksty.css

```
* {
    margin: 0;
    padding: 0;
    box-sizing: border-box;
    font-family: 'Franklin Gothic Medium', 'Arial Narrow', Arial, sans-serif;
}

body {
    display: flex;
    align-items: center;
    justify-content: center;
    min-height: 100vh;
    background: #8c48b9;
}

.wrapper {
    width: 450px;
    height: 288px;
```

```
background: #fff;
padding: 30px;
border-radius: 9px;
transition: height 0.2s ease;
}
.wrapper.active{
  height: 537px;
}
```

```
.wrapper .upload-box{
  height: 225px;
  display: flex;
  cursor: pointer;
  align-items: center;
  border-radius: 5px;
  border: 2px dashed #afafaf;
  justify-content: center;
  flex-direction: column;
}
```

```
.wrapper.active .upload-box {
  border: none;
}
```

```
.upload-box p {
  font-size: 1.06rem;
  margin-top: 20px;
}
```

```
.wrapper.active .upload-box p {
  display: none;
}
```

```
.wrapper.active .upload-box img {  
    width: 100%;  
    height: 100%;  
    object-fit: cover;  
    border-radius: 5px;  
}  
  
.wrapper .content{  
    opacity: 0;  
    margin-top: 28px;  
    pointer-events: none;  
}  
  
.wrapper.active .content{  
    opacity: 1;  
    pointer-events: auto;  
    transition: opacity 0.5s 0.05s ease;  
}  
  
.content .row {  
    display: flex;  
    justify-content: space-between;  
}  
  
.content .row .column {  
    width: calc(100% / 2 - 15px);  
}  
  
.row .column label {  
    font-size: 1.06rem;  
}  
  
.sizes .column input {  
    width: 100%;  
    height: 49px;  
    outline: none;
```



```
margin-top: 7px;
padding: 0 15px;
font-size: 1.06rem;
border-radius: 4px;
border: 1px solid #aaa;
}
```

```
.sizes .column input:focus {
padding: 0 14px;
border: 2px solid #8c48b9;
}
```

```
.content .checkboxes {
margin-top: 20px;
}
```

```
.checkboxes .column {
display: flex;
align-items: center;
}
```

```
.checkboxes .column input {
width: 17px;
height: 17px;
margin-right: 9px;
accent-color: #8c48b9;
}
```

```
.content .download-btn {
width: 100%;
padding: 15px 0;
margin: 30px 0 10px;
color: #fff;
```

```
outline: none;
border: none;
background: #8c48b9;
border-radius: 5px;
font-size: 1.06rem;
cursor: pointer;
text-transform: uppercase;
}
```

resz.js

```
const uploadBox=document.querySelector(".upload-box"),
previewImg=uploadBox.querySelector("img"),
fileInput=uploadBox.querySelector("input"),
widthInput=document.querySelector(".width input"),
heightInput=document.querySelector(".height input"),
ratioInput=document.querySelector(".ratio input"),
qualityInput=document.querySelector(".quality input"),
downloadBtn=document.querySelector(".download-btn");

let ogImageRatio;

const loadFile=(e)=>{
  const file=e.target.files[0]; //getting first user selected image
  if(!file) return; //return if user hasn't selected any file
  previewImg.src = URL.createObjectURL(file); //passing selected file url to
  preview img src
  previewImg.addEventListener("load",()=>{
    widthInput.value=previewImg.naturalWidth;
    heightInput.value=previewImg.naturalHeight;
    ogImageRatio= previewImg.naturalWidth / previewImg.naturalHeight ;
    document.querySelector(".wrapper").classList.add("active");
  });
};
```

```
}
```

```
widthInput.addEventListener("keyup",()=> {  
    //getting height according to the ratio checkbox status  
  
    const height=ratioInput.checked ? widthInput.value /  
        ogImageRatio:heightInput.value;  
  
    heightInput.value=Math.floor(height);  
});
```

```
heightInput.addEventListener("keyup",()=> {  
    //getting width according to the ratio checkbox status  
  
    const width=ratioInput.checked ? heightInput.value *  
        ogImageRatio:widthInput.value;  
  
    widthInput.value=Math.floor(width);  
});
```

```
const resizeAndDownload = () => {  
    console.log("downloaded");  
    const canvas = document.createElement("canvas");  
    const a = document.createElement("a");  
    const ctx = canvas.getContext("2d");  
  
    //if quality checkbox is checked, pass 0.7 to imgQuality else pass 1.0  
    //1.0 is 100% quality where 0.7 is 70% of total. you can pass from 0.1 - 1.0  
  
    const imgQuality = qualityInput.checked ? 0.7 : 1.0;  
    //setting canvas height and width according to the input values  
    canvas.width = widthInput.value;  
    canvas.height = heightInput.value;
```

```
//drawing user selected image onto the canvas
ctx.drawImage(previewImg, 0 , 0, canvas.width,canvas.height);

//passin canvas data url as href value of <a> element
a.href =canvas.toDataURL("image/jpeg",imgQuality);
a.download=new Date().getTime(); // passing current time as download
value
a.click();// clicking <a> element so the file download
}

downloadBtn.addEventListener("click", resizeAndDownload);

fileInput.addEventListener("change",loadFile);

uploadBox.addEventListener("click",()=>fileInput.click());
```