HITA SCHEDULER –

TIMETABLE MANAGEMENT SYSTEM

MINI PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

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INTERNAL EXAMINER EXTERNAL EXAMINER

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ABSTRACT

A web application is application software that runs on a web server, unlike computer-based software programs that are run locally on the operating system (OS) of the device. A Web application is an application program that is stored on a remote server and delivered over the Internet through a browser interface.These web applications are easily accessed by the user through a web browser with an active network connection.Hita Scheduler- Timetable Management Application is a web based application that focuses on maintaining a school or college Timetable for during the working days.This application has been built using HTML(HyperText MarkUp Language),CSS(Cascading Style Sheets) and JavaScript.It allows user to add classes on a particular day by mentioning the subject name and number of students attending it along with the timings. Use of colors to distinguish the subjects for fast and easy structuring is used.BackUp of the timetable or restoring a default stage is possible in this application,which enables users to store their data locally in their computer for any future reference. This project can help working officials to maintain record of the schedule for a group,such as in schools,colleges and even in offices where a record of schedule for regular meetings may be needed.The application is easy to use and saves a lot of time.

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CHAPTER 1

1. Introduction

1.1 Problem Statement

1. To provide a reliable and easy to use software tool that helps an user to create a timetable for different classes in an Educational Institution.

2. To make it easier to save the data by backing up the timetable or reset it if required.

3. To provide a way to visually distinguish the different subjects using a range of colors.

4. To help an individual manage the schedule of an organization efficiently.

1.2 Objective

The project aims to design a simple web-based application which holds all the online essentials of managing Timetable throughout a week, which can be accessed with ease in a single application. The application to contain side bars of the essentials when clicked shows the required set up.

1.3 Project scope

The project aims for providing scope in almost all streams. The below are the various ways in which the web-application can be used for.

1. **Day-wise display of Timetable –** Timetable of the classes throughout the working days is displayed for each day separately.The display shows the timing of the class,subject name and number of students together.Any period with no classes is shown as blank to the user.

2. **Add/delete different period timings –** Under the Periods tab,user is allowed to add new timings (mention both start and end time) for a class or delete an old one.This change reflects on every day timetable.
3. **Save backup –** Current state of the timetable can be saved for backup.This is done by storing the information as a json file in the user's downloads.The downloaded file contains the details in display section as an array,again for every day separately.
4. **Restore/Reset Data** – Timetable can be restored to an older version that has been backed up earlier by choosing the particular file. Resetting the data will result in setting the default timetable.
5. **Visual Ease to distinguish Subjects –** There can be multiple subjects and it would be helpful to the user to distinguish them visually as done in this application using colors.This allows the user to instantly notice if same subject has been repeated or if any subject is missing.

CHAPTER 2

2. System Implementation

2.1 System Specifications

2.1.1 Software requirements

1.HTML (Hypertext markup Language)

- Hypertext Markup Language (HTML) is the set of markup symbols or codes inserted into a file intended for display on the Internet.
- The markup tells web browsers how to display a web page's words and images. HTML is the code that is used to structure a web page and its content.

2.CSS (Cascading Style Sheets)

- 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 designed to enable the separation of presentation and content, including layouts, colors and fonts. CSS is easier to maintain and update, provides greater consistency in design,has more formatting options and is lightweight code

3.JS (Java Script)

- JavaScript **(**JS**)** is a lightweight, interpreted, compiled programming language with first class functions. While it is most well-known as the scripting language for Web pages.
- JavaScript is a prototype based multi-paradigm, single-threaded, dynamic language, supporting object-oriented, imperative, and declarative (e.g. functional programming) styles.
- JavaScript is also used to dynamically create pages on the server that are sent fully formed to clients.

4.Text Editor - Visual Studio Code

- Visual Studio Code is a lightweight but powerful source code editor which runs on your desktop and is available for Windows, macOS and Linux.
- It comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages (such as C++, C#, Java, Python, PHP, Go) and runtimes (such as .NET and Unity)

2.1.2 Hardware requirements

1. OS: Windows 7
2. Hard disk : 40GB
3. RAM : 256 MB
4. Hard Drive: 64 GB
5. Processor: Pentium (R) Dual-core CPU

2.2 SOFTWARE DESCRIPTION

2.2.1 HTML

History of HTML

HTML was created by Sir Tim Berners-Lee in late 1991 but was not released officially, published in **1995** as HTML 2.0. HTML 4.01 was published in late 1999 and was a major version of HTML. HTML is a very evolving markup language and has evolved with various versions updating.

Features

- ✔ It is easy to learn and easy to use.
- ✔ It is platform-independent.

- ✔ Images, videos, and **audio** can be added to a web page.
- ✔ Hypertext can be added to text.
- ✔ It is a mark-up language.

Advantages

1.Consistency:

As websites will adopt the new HTML5 elements we will see more consistency in terms of HTML used to code a web page on one site compared to another and thus easy to construct a web.

2. Supports rich media elements:

HTML5 has an inbuilt capability to play audio and video and so we can bid goodbye to those plugin tags and be more innovative.

3. Offline Application Cache:

HTML5 offers an offline application cache facility which will load the page even if the user is temporarily offline. This feature will help the files to load much faster and reduces load on server.

2.2.2 CSS

History of CSS

CSS was first proposed by Hakon Wium Lie on October 10, 1994. Style sheets have existed in one form or another since the beginnings of Standard Generalized Markup Language (SGML) in the 1980s, and CSS was developed to provide style sheets for the web.

Features

1. Spacing, Alignment and positioning
2. User override of styles
3. Access to alternative content

4. Aural style sheets

Advantages

- ✔ Easier to maintain and update.
- ✔ Greater consistency in design.
- ✔ More formatting options.
- ✔ Lightweight code.
- ✔ Faster download times.
- ✔ Search engine optimization benefits.
- ✔ Ease of presenting different styles to different viewers.
- ✔ Greater accessibility.

2.2.3 JAVASCRIPT

History of JS

JavaScript was invented by Brendan Eich in 1995.It was developed for Netscape 2, and became the ECMA-262 standard in 1997.After Netscape handed JavaScript over to ECMA, the Mozilla foundation continued to develop JavaScript for the Firefox browser.

Features

- Simple Client-side Calculations.
- Greater Control.
- Platform Independent.
- Handling Dates and Time.
- Generating HTML Content.
- Detecting the User's Browser and OS.

Advantages

1. **Speed.** Client-side JavaScript is very fast because it can be run immediately within the client-side browser. Unless outside resources are required, JavaScript is unhindered by network calls to a backend server.
2. **Simplicity.** JavaScript is relatively simple to learn and implement.
3. **Popularity.** JavaScript is used everywhere on the web.
4. **Interoperability**. JavaScript plays nicely with other languages and can be used in a huge variety of applications.
5. **Server Load.** Being client-side reduces the demand on the website server.
   Gives the ability to create rich interfaces

CHAPTER 3

3. METHODOLOGY

3.1 BLOCK DIAGRAM

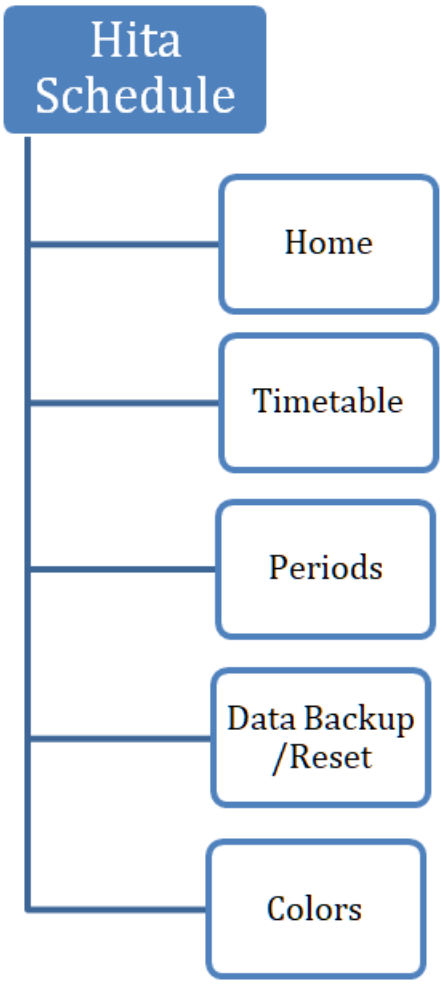

Fig: 1 Block diagram – Web application

3.2 FUNCTIONING AND METHODOLOGY

1. **HOME PAGE**

   Displays timetable of all five working days of a week.For each day,the subject and number of students for each subject enrolled for that particular time are displayed.

2. **TIMETABLE**

   This is an option under settings that allows user – usually a coordinator of an organization – to change the subject name or number of students enrolled.The changes will be reflected in the web application only when user chooses save option and reloads the page. All settings use load_data() function.

3. **PERIODS**

   The number of periods in a day or the timings of each class can change over time.These changes can be done using this option in the application just like Timetable option.The periods entered here are reflected in the home page display for all days. Saving is done using createElement,getElementByID(),querySElectors,etc.

4. **DATA BACKUP/RESET**

   Current details of the saved timetable can be downloaded in different languages by the user as a json file.Further more,a default data can be set and used to reset the timetable if any fault is found and has to be checked. Restore uses FileReader(),alert and parsing json data.

5. **COLORS:**

   This helps in visually distinguishing the different subjects in the timetable.IndexOf(),push() and colors attribute are used here.

CHAPTER 4

4. Implementation and Results

4.1 Implementation

4.1.1 STANDARD COMMANDS USED

1. HTML

- **<html>-** This signals the point where text should start being interpreted as html code.
- **<head> -** Header of the memo which usually contains the title and the links.
- **<title> -** Allows the user to specify the document title of the browser window.
- **<body> -** This defines the beginning and the end of the bulk content of the document which usually consist of all the text, images and links**.**
- **<h1> -** Headers which have built in values for the text display. These are usually of 6 types.
- ** -** This division tag defines a division or a section in a HTML document which further helps in styling in CSS.
- **<p> -** The paragraph tag which should be placed for every paragraph**.**
- **<form> -** Used for creating a form for user input. This may contain text fields, check boxes, etc.
- **<footer> -** Defines the footer section of the document and typically contains authorship information, copyright and contact information.

2. CSS

- **Align-content –** Specifies the alignment of flexible container's items within the flex container.
- **Align items -** Specifies the default alignment for items within the flex container.
- **Background-colour -** Defines an element's background color.
- **Background-image -** Defines an element's background color.

- **Border -** Sets the width, style, and color for all four sides of an element's border.
- **Box-shadow -** Applies one or more drop-shadows to the element's box.
- **Flex -** Specifies the components of a flexible length.
- **Font- family –** Defines a list of fonts for element.
- **Justify-content -** Specifies how flex items are aligned along the main axis of the flex container after any flexible lengths and auto margins have been resolved.
- **Margin -** Sets the margin on all four sides of the element.
- **Padding -** Sets the padding on all four sides of the element.

4.2 RESULTS

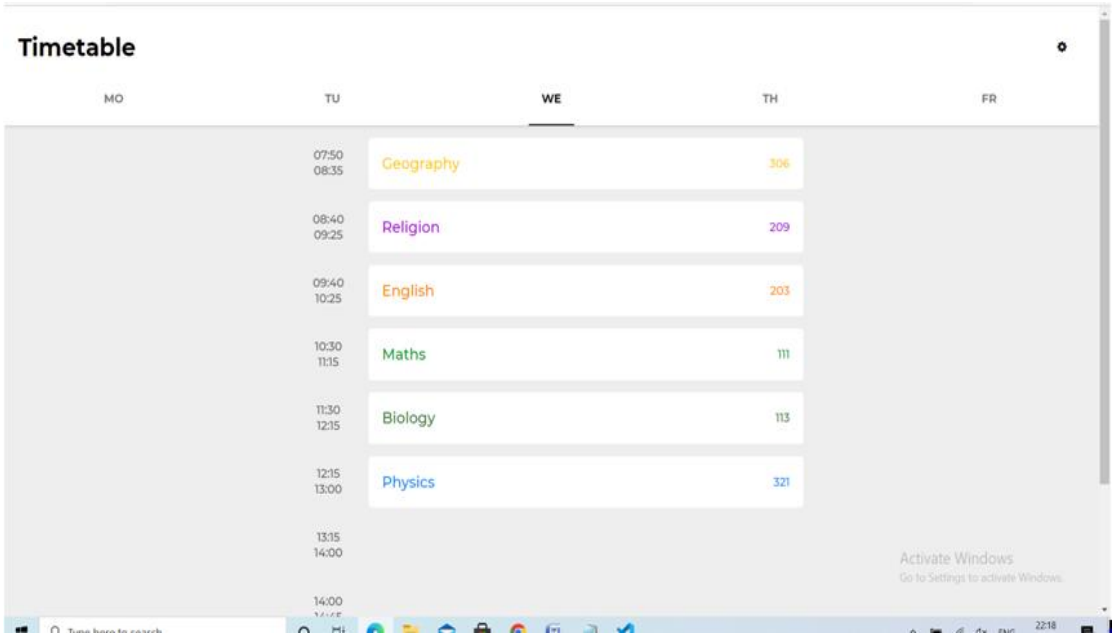

Fig 2 : Home page that displays Timetable.Day of the week can be chosen.

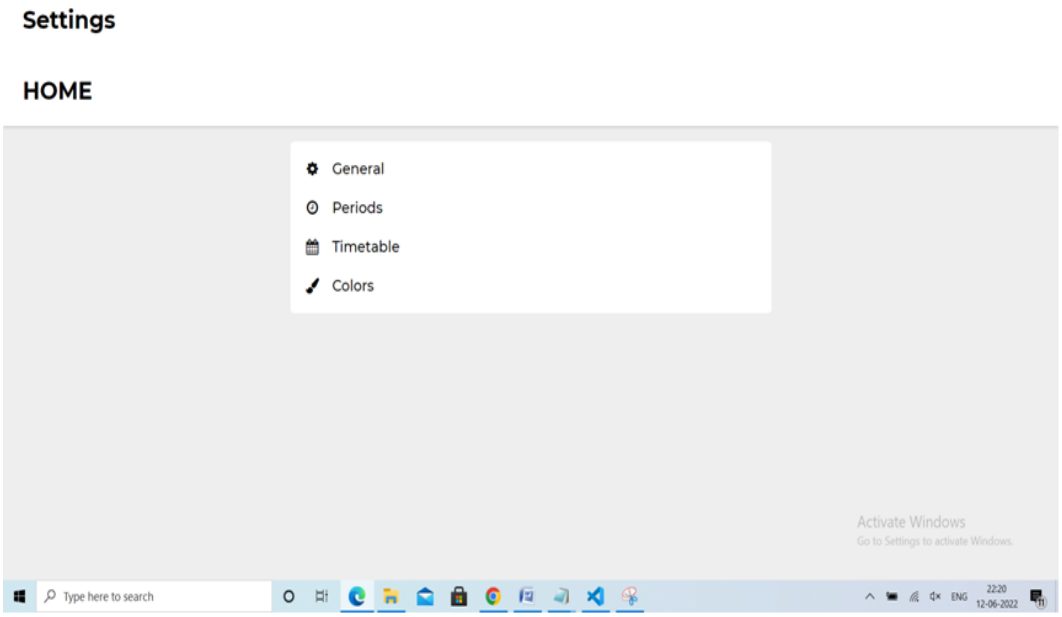

Fig 3 :Option tab from which any settings changes can be done.

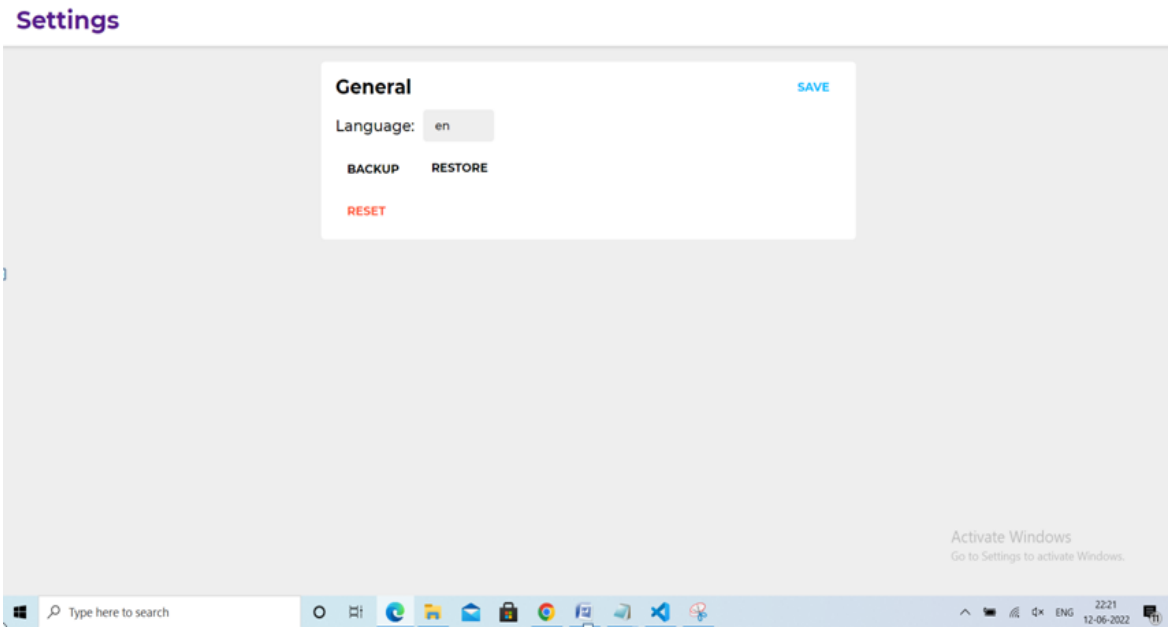

Fig 4: Settings page to backup / Restore/Reset the data. Language chosen is for json file to be downloaded when backup is done.

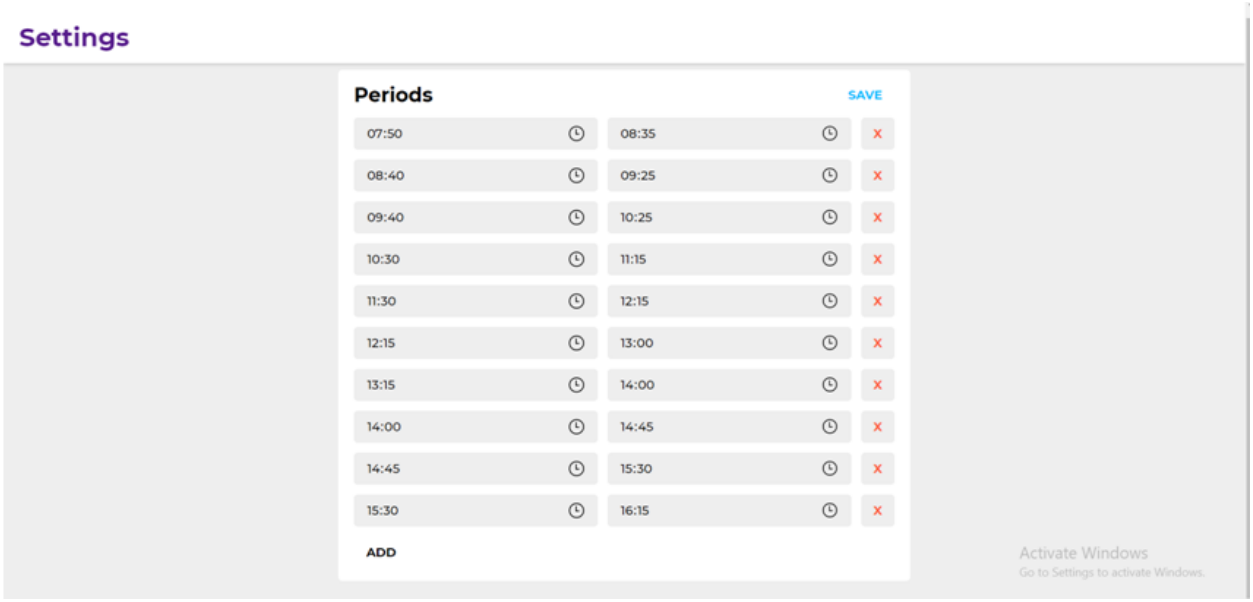

Fig 5: Settings page to add or delete Periods:timings of a class for each day.This is common to all five days.

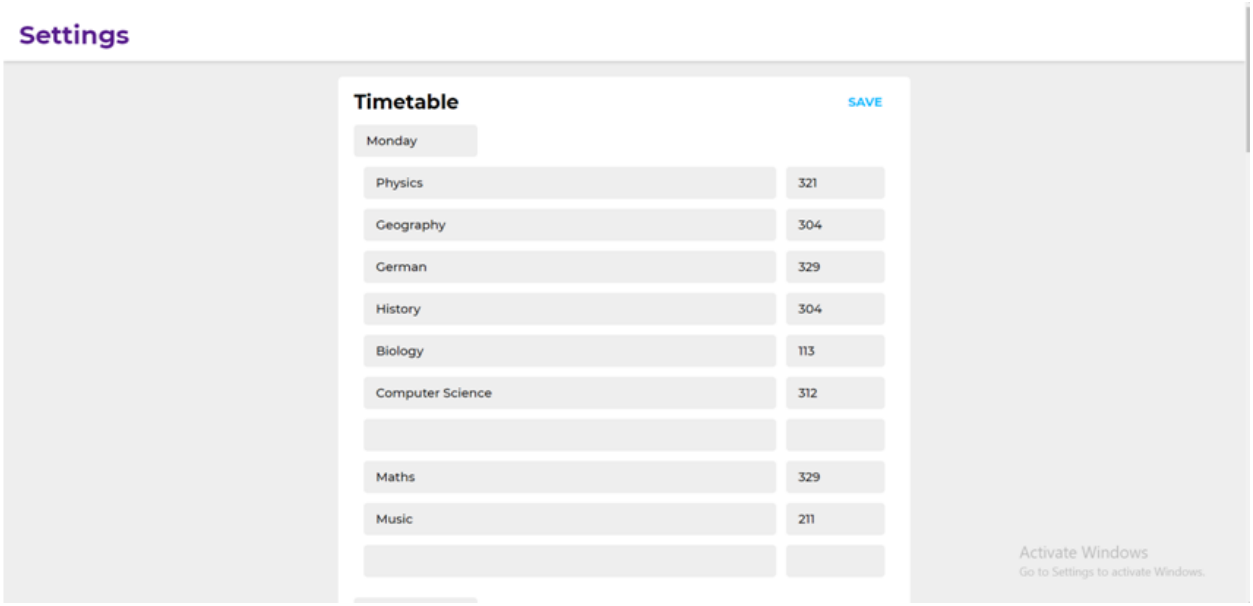

Fig 6:Settings Page to edit class details-subject name and number of students for each day separately.Timing of the class is based on which period (row) subject is entered.

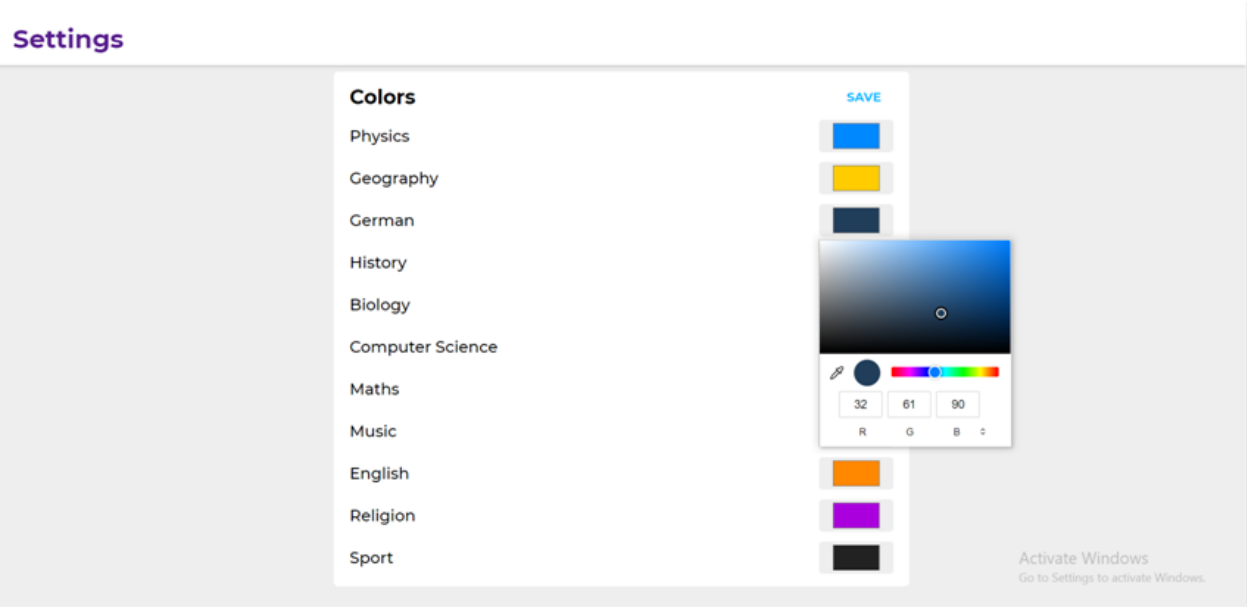

Fig 7:Settings page to change Color effects on each subject.

CHAPTER 5

5. CODE SNIPPET

Index.html

```
<!doctype html>

<html lang="en">
  <head>
    <meta charset="UTF-8"/>
    <meta name="viewport" content="width=device-width, initial-scale=1"/>
    <title data-translator-key="timetable">Timetable</title>
    <link rel="stylesheet" type="text/css" href="index.css"/>
    <link rel="stylesheet" type="text/css" href="general.css"/>
    <link rel="stylesheet" type="text/css" href="fontello/css/fontello.css"/>
    <script src="configuration.js"></script>
    <script src="translator.js"></script>
    <script src="script.js"></script>

    <link rel="manifest" href="manifest.json"/>
    <meta name="theme-color" content="#FFFFFF"/>
    <link rel="apple-touch-icon" href="icon.png">
  </head>


  <body>
    <div id="collapsing_header">
      <h1 data-translator-key="timetable">Timetable</h1>
      <a href="settings.html"><button class="icon-settings"></button></a>
    </div>

    <header></header>

    <div id="timetable">
      <div id="periods_container"></div>

      <div id="subjects_container"></div>
    </div>
  </body>
</html>
```

Settings.html

```
<body>
    <header >
      <a href="settings.html"><h1 data-translator-key="settings"></h1></a>
      <a href="index.html"><h1 >HOME</h1></a>
    </header>
    <div id="settings_container">
```

```
        <div class="settings_group">
            <a href="general_settings.html" data-translator-key="general"
class="icon-settings">
                General
            </a>

            <a href="periods_settings.html" data-translator-key="periods"
class="icon-periods">
                Periods
            </a>

            <a href="timetable_settings.html" data-translator-key="timetable"
class="icon-timetable">
                Timetable
            </a>

            <a href="color_settings.html" data-translator-key="colors" class="icon-
colors">
                Colors
            </a>
        </div>
    </div>
  </body>
```

generalSettings,js

```
window.onload = function() {
  config.load_data();
  translator.translate_ui();

  show_options();
  setup_backup_button();

  var input = document.getElementById("restore_file_input");
  input.addEventListener("change", function() {
    restore();
  });
};

function show_options() {
  var language_input = document.querySelector("[name='language_input']");
  language_input.value = config.data.language;
}

function setup_backup_button() {
  var data_string = JSON.stringify(config.data);
  var data_uri = "data:application/json; charset=utf-8," +
encodeURIComponent(data_string);

  var file_name = "timetable_data_backup.json";
```

```
    var link_element =
document.getElementById("backup_button").parentElement;
    link_element.setAttribute("href", data_uri);
    link_element.setAttribute("download", file_name);
}


function restore() {
    var input = document.getElementById("restore_file_input");
    var file = input.files[0];
    var x = 0;

    var reader = new FileReader();

    reader.onload = function(e) {
        try {
            var content = e.target.result;
            var content_json = JSON.parse(content);

            config.data = content_json;
            config.save_data(config.data);

            alert("Settings have been restored. Changes will take effect after page
refresh.");
        }

        catch(e) {
            alert("There has been an error restoring your data.");
        }
    }

    reader.readAsText(file);
}

function reset() {
    if (confirm(translator.translate("reset_confirm"))) {
        config.reset_data();
    }
}




function save() {
    var language_input_value =
document.querySelector("[name='language_input']").value;
```

```
    config.data.language = language_input_value;

    config.save_data(config.data);
    alert("General settings have been saved. Changes will take effect after page
refresh.");
}
```

periodsSettings.js

```
window.onload = function() {
    config.load_data();
    translator.translate_ui();

    show_options();
};



function show_options() {
    show_periods_options();



    function show_periods_options() {
        var periods_settings_group =
document.getElementById("periods_settings_group");
        var add_input_group_button = document.createElement("button");

        add_input_group_button.innerText = translator.translate("add");
        add_input_group_button.onclick = function() {
            add_input_group("", "");
        };

        periods_settings_group.append(add_input_group_button);

        for (period of config.data.periods) {
            add_input_group(period.start, period.end);
        }

        function add_input_group(start, end) {
            var periods_input_groups_container =
document.getElementById("periods_input_groups_container");

            periods_input_groups_container.innerHTML +=
                "<div class='input_group'>" +
                    `<input type='time' value='${start}'/>` +
                    `<input type='time' value='${end}'/>` +
                    "<button class='negative'
onclick='this.parentElement.remove();'>X</button>" +
```

```
            "</div>";
        }
    }
}



function save() {
    var periods_settings_input_groups =
document.querySelectorAll("#periods_input_groups_container > .input_group");
    var new_periods = [];

    for (input_group of periods_settings_input_groups) {
        var inputs = input_group.getElementsByTagName("input");
        var period = {};

        period.start = inputs[0].value;
        period.end = inputs[1].value;
        new_periods.push(period);
    }

    config.data.periods = new_periods;

    config.save_data(config.data);
    alert("Periods settings have been saved. Changes will take effect after page
refresh.");
}
```

timetableSettings.js

```
window.onload = function() {
    config.load_data();
    translator.translate_ui();

    show_options();
};



function show_options() {
    show_timetable_options();

    function show_timetable_options() {
        var timetable_settings_group =
document.getElementById("timetable_settings_group");

        for (day_object of config.data.timetable) {
```

```
            timetable_settings_group.innerHTML +=
                "<div class='input_group'>" +
                    `<input name='day_name_input' value='${day_object.day}'/>` +
                "</div>";


            var schedule_inputs_container = document.createElement("div");
            schedule_inputs_container.classList.add("schedule_inputs_container");


            for (var i = 0; i < config.data.periods.length; i++) {
                try {
                    add_period_input_group(day_object.schedule[i].subject,
day_object.schedule[i].room);
                }
                catch (TypeError) {
                    add_period_input_group("", "");
                }
            }

            timetable_settings_group.append(schedule_inputs_container);
        }


        function add_period_input_group(subject, room) {
            schedule_inputs_container.innerHTML +=
                "<div class='input_group'>" +
                    `<input value='${subject}'/>` +
                    `<input value='${room}'/>` +
                "</div>";
        }
    }
}

function save() {
    var day_name_inputs = document.querySelectorAll("#timetable_settings_group
[name='day_name_input']");
    var schedule_input_group_containers =
document.querySelectorAll("#timetable_settings_group >
.schedule_inputs_container");

    if (day_name_inputs.length != schedule_input_group_containers.length) {
        alert("Error saving timetable settings");
        return false;
    }


    var new_timetable = [];
```

```
    for (var i = 0; i < day_name_inputs.length; i++) {
        var schedule_input_groups =
schedule_input_group_containers[i].getElementsByClassName("input_group");

        var new_timetable_day = {
            day: day_name_inputs[i].value,
            schedule: []
        }

        for (input_group of schedule_input_groups) {
            var subject = input_group.children[0].value;
            var room = input_group.children[1].value;

            new_timetable_day.schedule.push({
                "subject": subject,
                "room": room,
            });
        }

        new_timetable.push(new_timetable_day);
    }

    config.data.timetable = new_timetable;
    config.save_data(config.data);
    alert("Timetable settings have been saved. Changes will take effect after page
refresh.");
}
```

colorSettings.js

```
window.onload = function() {
    config.load_data();
    translator.translate_ui();

    show_options();
};



function show_options() {
    show_color_options();

    function show_color_options() {
        var color_settings_group =
document.getElementById("color_settings_group");
        var color_input_groups_container =
document.getElementById("color_input_groups_container");
```

```
        var subjects_list = [];

        for (day of config.data.timetable) {
            for (period of day.schedule) {
                if (subjects_list.indexOf(period.subject) < 0 && period.subject != "") {
                    subjects_list.push(period.subject);
                }
            }
        }

        for (subject of subjects_list) {
            var color = config.data.colors[subject];

            color_input_groups_container.innerHTML +=
                "<div class='input_group'>" +
                    `<label>${subject}</label>` +
                    `<input type='color' value='${typeof(color) == "undefined" ? "#000"
: color}'`+
                "</div>";
        }
    }
}


function save() {
    var color_settings_input_groups =
document.querySelectorAll("#color_input_groups_container > .input_group");
    var new_colors = {};

    for (input_group of color_settings_input_groups) {
        var label = input_group.getElementsByTagName("label")[0];
        var input = input_group.getElementsByTagName("input")[0];

        new_colors[label.innerText] = input.value;
    }

    config.data.colors = new_colors;

    config.save_data(config.data);
    alert("Color settings have been saved. Changes will take effect after page
refresh.");
}
```

CHAPTER 6

6. Conclusion / Future enhancement

6.1 Conclusion

This project dealt with designing and developing a web based application which can easily be accessed by any common man from anywhere. This highlights the everyday mobile applications under a single roof and hence providing the best use and thus increasing the user satisfaction in online management systems.

6.2Future Enhancement

- **Add more details** –such as teacher details,subject curriculum to be covered in each period,number of classes completed till a time.
- **Share Timetable with others** – directly from the application to teachers and students
- **Data Insights** – A simple demonstration of the class strength using charts for analysis.

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4	Learn javascript –Tamil Hacks	https://www.youtube.com/watch?v=cnDhKzlfDgA
5	Freecodecamp	https://forum.freecodecamp.org/t/move-image-to-the-right-side/163034/4
6	HTML colour codes	https://htmlcolorcodes.com/
7	Css tricks	https://css-tricks.com/forums/topic/problem-with-background-image-resolved/