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# A.P.O.D (Astronomy Picture of the Day) API

**College of Computing and Multimedia Studies**

**ITWM101 Semi-finals Exam: API**

Professor: Rodrigo Belleza Jr.

Submitted by: Christian Rosales

***A.P.O.D Archive:*** *https://apod.nasa.gov/apod/archivepixFull.html*

***Visit the published website here:*** *https://cpr03.github.io/ITWM101_SEMIFINALS_API_ROSALES/*

***GitHub Repository:*** *https://github.com/CPR03/ITWM101_SEMIFINALS_API_ROSALES*

# Table of Contents

# Section 1: A.P.O.D. API

NASA's Astronomy Picture of the Day API is one of its most popular open APIs. The API uniquely provides daily photos of astronomy pictures together with their title, date, and description. The APOD database has a total of **28 years** of photos dating from June 16, 1995, to the present.

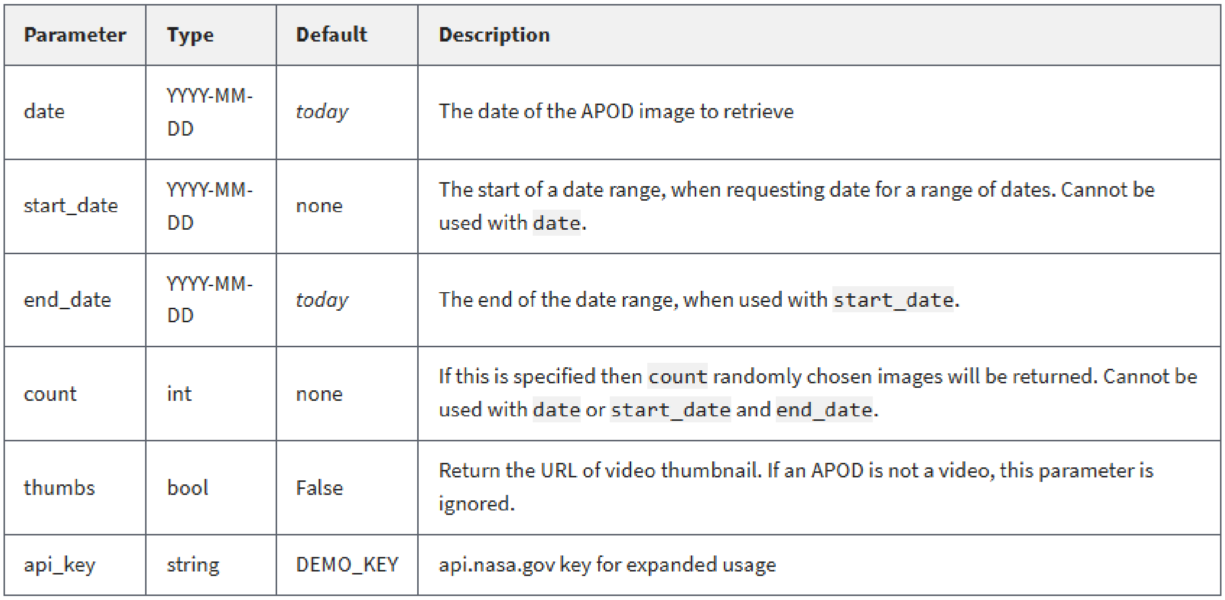
## I. How to use A.P.O.D?

Using A.P.O.D API is similar to other free APIs.

### HTTP Request:

GET https://api.nasa.gov/planetary/apod

### Query Parameters:



| Parameter | Type | Default | Description |
|---|---|---|---|
| date | YYYY-MM-DD | *today* | The date of the APOD image to retrieve |
| start_date | YYYY-MM-DD | none | The start of a date range, when requesting date for a range of dates. Cannot be used with `date`. |
| end_date | YYYY-MM-DD | *today* | The end of the date range, when used with `start_date`. |
| count | int | none | If this is specified then `count` randomly chosen images will be returned. Cannot be used with `date` or `start_date` and `end_date`. |
| thumbs | bool | False | Return the URL of video thumbnail. If an APOD is not a video, this parameter is ignored. |
| api_key | string | DEMO_KEY | api.nasa.gov key for expanded usage |

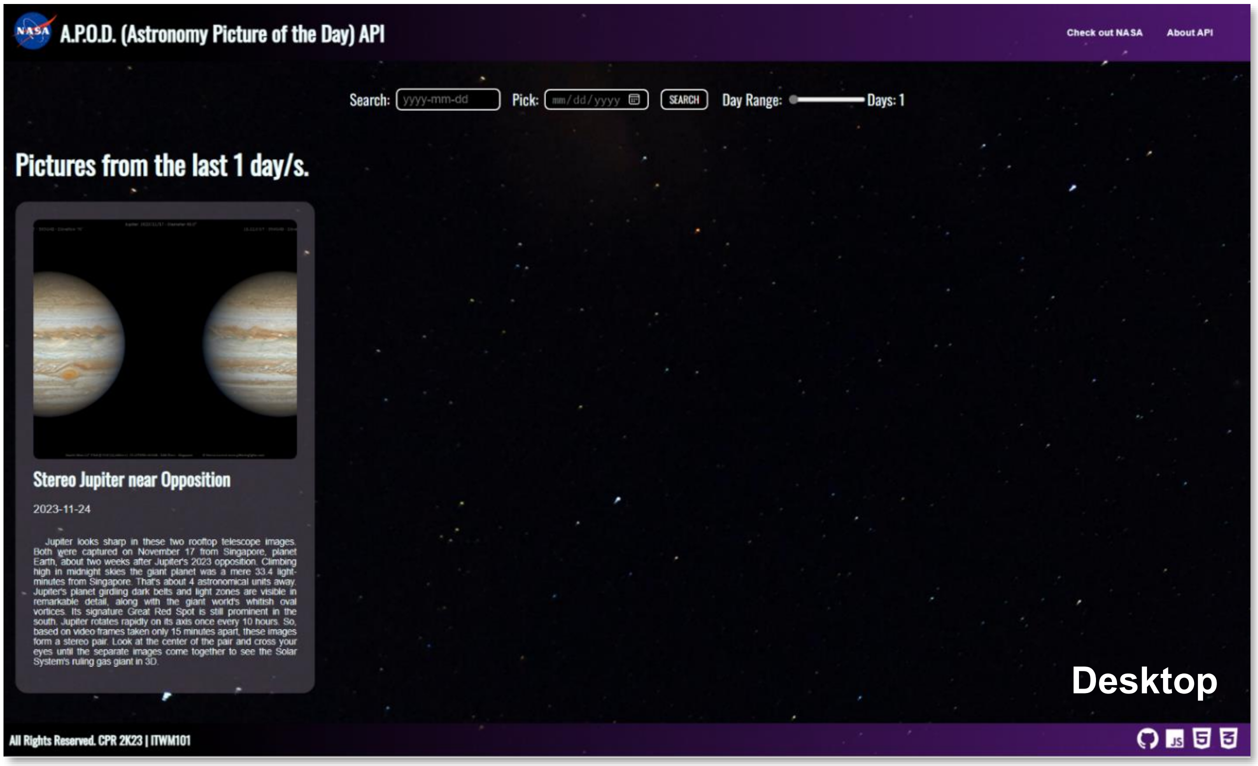
*View more at: https://api.nasa.gov/*

### Example query

*https://api.nasa.gov/planetary/apod?api_key=date*

# Section 2: A.P.O.D Implementation

## I. Landing Page & Responsiveness



Pictures from the last 1 day/s.

Stereo Jupiter near Opposition

2023-11-24

Jupiter looks sharp in these two rooftop telescope images. Both were captured on November 17 from Singapore, planet Earth, about two weeks after Jupiter's 2023 opposition. Climbing high in midnight skies the giant planet was a mere 33.4 light-minutes from Singapore. That's about 4 astronomical units away. Jupiter's planet girdling dark belts and light zones are visible in remarkable detail, along with the giant world's whitish oval vortices. Its signature Great Red Spot is still prominent in the south. Jupiter rotates rapidly on its axis once every 10 hours. So, based on video frames taken only 15 minutes apart, these images form a stereo pair. Look at the center of the pair and cross your eyes until the separate images come together to see the Solar System's ruling gas giant in 3D.

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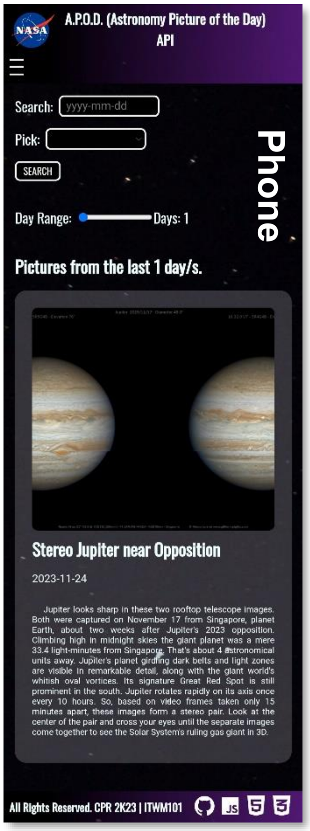

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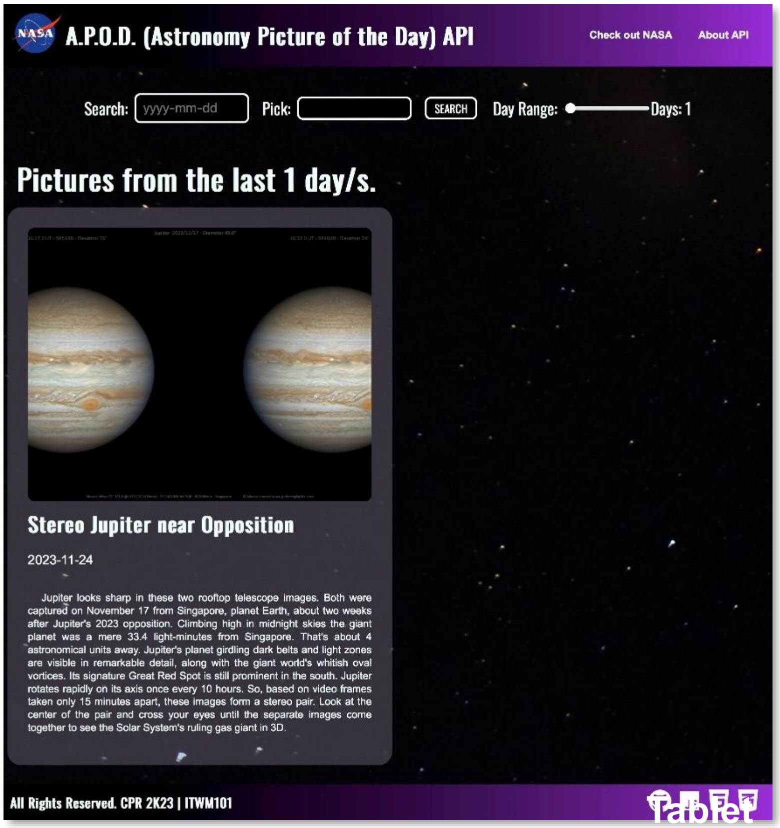

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The central concept was to use the API to call, search. and show hundreds of astronomical image collections from its database. The early version of the website could only display one (1) random date, but the goal was attained after extensive research.

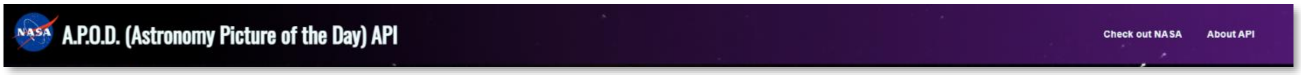
The website's development is challenging because it demands several tests, and the API only permits 1,000 requests per hour for each API key. (Yes, the A.P.O.D. requires an API key to work.)

The images from the previous page serves as the website's landing page. There are three photos, one for each of the three screen sizes (desktop, phone, and tablet). The website implements different HTML elements such as text input, date input, and button. Likewise, the JavaScript handles all the functionality. The website's design is built on an astronomical design to complement the API!

## II. Website Features & Elements

### Header

Includes images and texts as well as hyperlinks for the NASA and A.P.O.D API website.

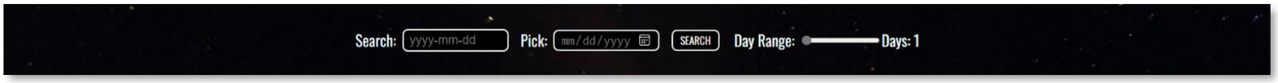


### Action Bar

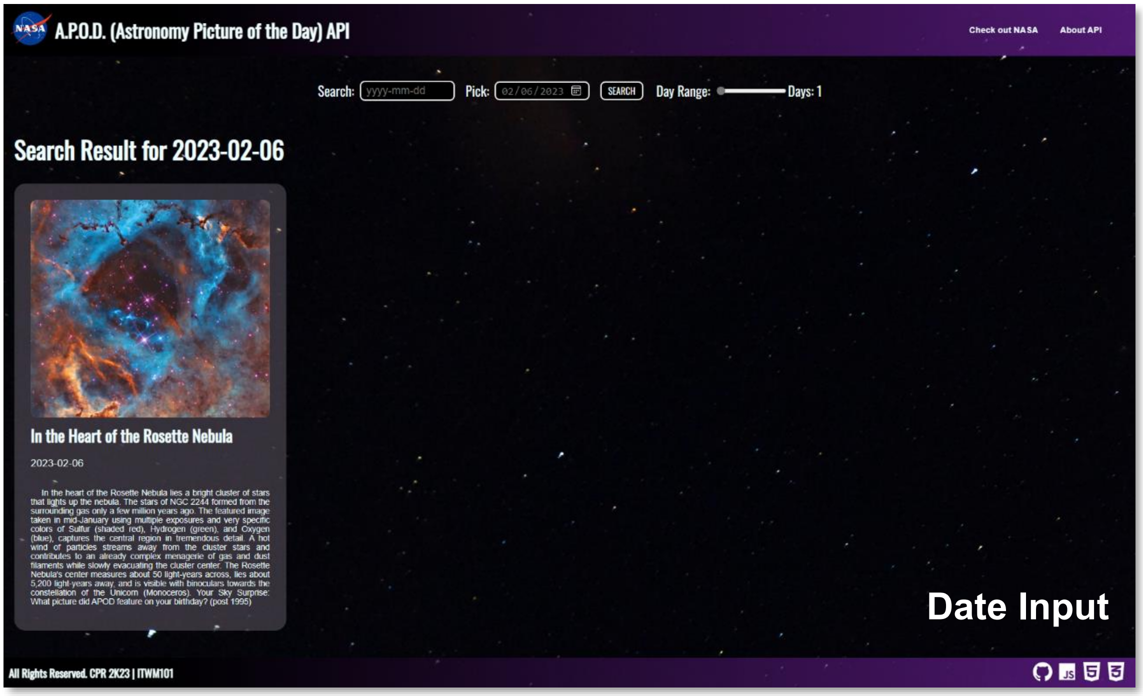
The action bar performs all the searching capabilities for the dates of astronomy images. It can search every date of images from the API. It includes text and date inputs and range slider.

1. Text Input Date
   - User can **input text** of the date. In the java script file, the text date input is automatically formatted and will only allow date inputs.
2. Date Input
   - Date input allows users to **“pick”** from a calendar UI. The date input is formatted to yyyy-mm-dd (default API date formant) from mm/dd/yyyy to enable to search from the API.
3. Range Slider
   - The slider, on the other hand, allows the user to **navigate** from yesterday (since the API may not be updated if today is selected) until the day the slider landed on (Max is 50 days to limit the API request).

Note: When using either text or date input, one will be temporarily disabled to avoid confusion when searching.



## Search Sample (Date and Text Input)



Search: yyyy-mm-dd Pick: 02/06/2023 Days: 1

Search Result for 2023-02-06

In the Heart of the Rosette Nebula

2023-02-06

In the heart of the Rosette Nebula lies a bright cluster of stars that lights up the nebula. The stars of NGC 2244 formed from the surrounding gas only a few million years ago. The featured image taken in mid-January using multiple exposures and very specific colors of Sulfur (shaded red), Hydrogen (green), and Oxygen (blue), captures the central region in tremendous detail. A hot wind of particles streams away from the cluster stars and contributes to an already complex menagerie of gas and dust filaments while slowly evacuating the cluster center. The Rosette Nebula's center measures about 50 light-years across, lies about 5,200 light-years away, and is visible with binoculars towards the constellation of the Unicorn (Monoceros). Your Sky Surprise: What picture did APOD feature on your birthday? (post 1995)

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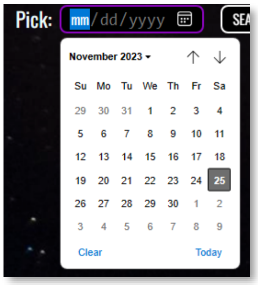
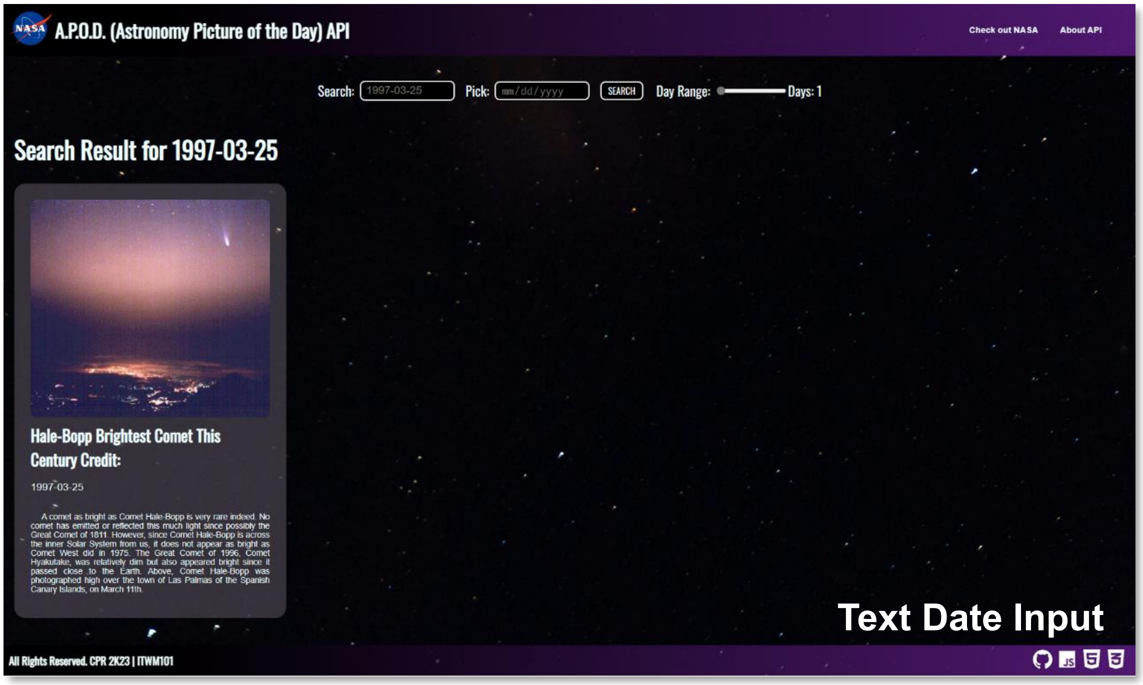
Date Input





Search: 1997-03-25 Pick: mm/dd/yyyy Days: 1

Search Result for 1997-03-25

Hale-Bopp Brightest Comet This Century Credit:

1997-03-25

A comet as bright as Comet Hale-Bopp is very rare indeed. No comet has emitted or reflected this much light since possibly the Great Comet of 1811. However, since Comet Hale-Bopp is across the inner Solar System from us, it does not appear as bright as Comet West did in 1975. The Great Comet of 1996, Comet Hyakutake, was relatively dim but also appeared bright since it passed close to the Earth. Above, Comet Hale-Bopp was photographed high over the town of Las Palmas of the Spanish Canary Islands, on March 11th.

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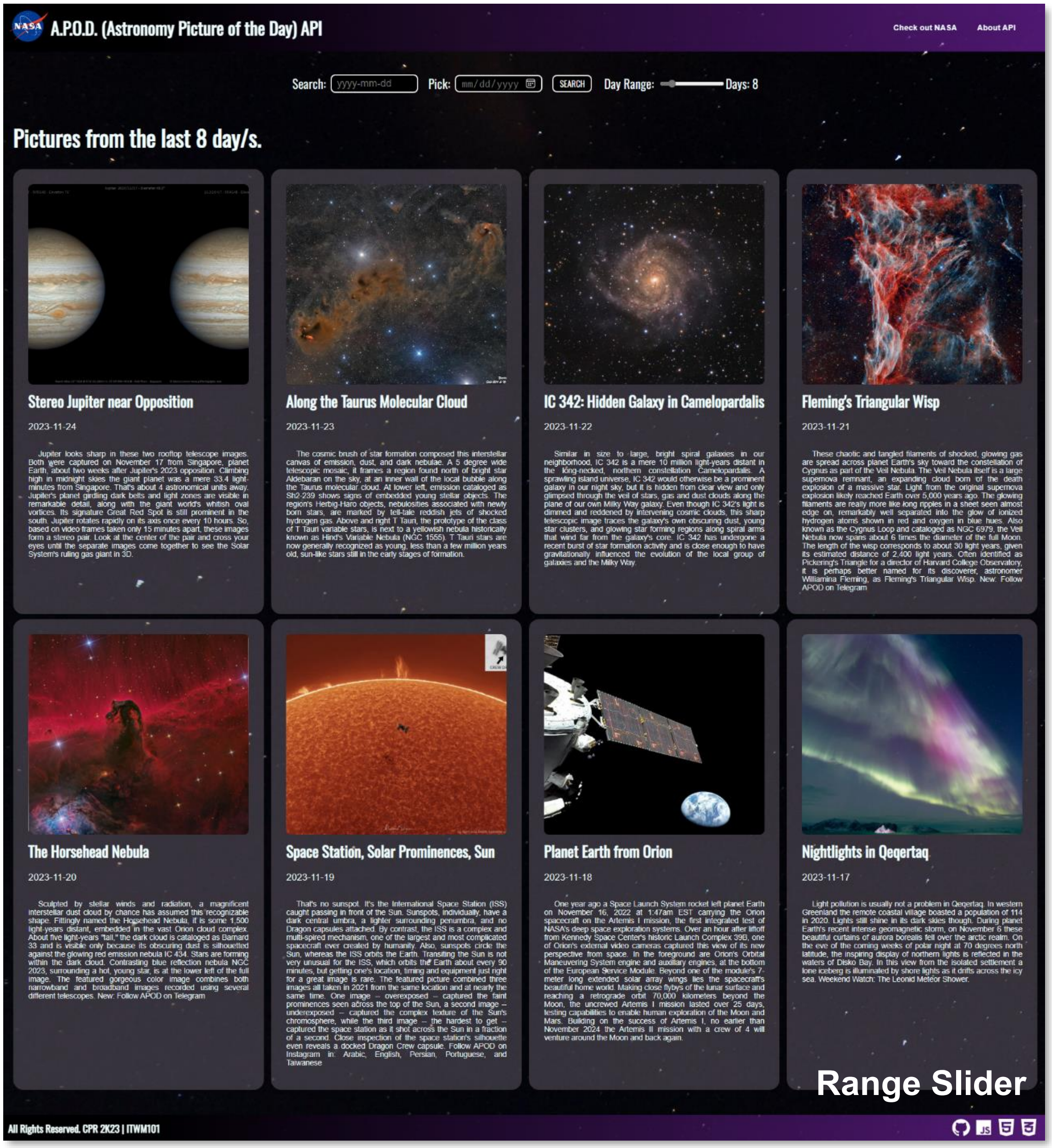
Text Date Input

## Search Sample (Range Slider)



Search: yyyy-mm-dd Pick: mm/dd/yyyy Day Range: Days: 8

Pictures from the last 8 day/s.

**Stereo Jupiter near Opposition**

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**Along the Taurus Molecular Cloud**

2023-11-23

The cosmic brush of star formation composed this interstellar canvas of emission, dust, and dark nebulae. A 5 degree wide telescopic mosaic, it frames a region found north of bright star Aldebaran on the sky, at an inner wall of the local bubble along the Taurus molecular cloud. At lower left, emission cataloged as Sh2-239 shows signs of embedded young stellar objects. The region's Herbig-Haro objects, nebulosities associated with newly born stars, are marked by tell-tale reddish jets of shocked hydrogen gas. Above and right T Tauri, the prototype of the class of T Tauri variable stars, is next to a yellowish nebula historically known as Hind's Variable Nebula (NGC 1555). T Tauri stars are now generally recognized as young, less than a few million years old, sun-like stars still in the early stages of formation.

**IC 342: Hidden Galaxy in Camelopardalis**

2023-11-22

Similar in size to large, bright spiral galaxies in our neighborhood, IC 342 is a mere 10 million light-years distant in the long-necked, northern constellation Camelopardalis. A sprawling island universe, IC 342 would otherwise be a prominent galaxy in our night sky, but it is hidden from clear view and only glimpsed through the veil of stars, gas and dust clouds along the plane of our own Milky Way galaxy. Even though IC 342's light is dimmed and reddened by intervening cosmic clouds, this sharp telescopic image traces the galaxy's own obscuring dust, young star clusters, and glowing star forming regions along spiral arms that wind far from the galaxy's core. IC 342 has undergone a recent burst of star formation activity and is close enough to have gravitationally influenced the evolution of the local group of galaxies and the Milky Way.

**Fleming's Triangular Wisp**

2023-11-21

These chaotic and tangled filaments of shocked, glowing gas are spread across planet Earth's sky toward the constellation of Cygnus as part of the Veil Nebula. The Veil Nebula itself is a large supernova remnant, an expanding cloud born of the death explosion of a massive star. Light from the original supernova explosion likely reached Earth over 5,000 years ago. The glowing filaments are really more like long ripples in a sheet seen almost edge on, remarkably well separated into the glow of ionized hydrogen atoms shown in red and oxygen in blue hues. Also known as the Cygnus Loop and cataloged as NGC 6979, the Veil Nebula now spans about 6 times the diameter of the full Moon. The length of the wisp corresponds to about 30 light years, given its estimated distance of 2,400 light years. Often identified as Pickering's Triangle for a director of Harvard College Observatory, it is perhaps better named for its discoverer, astronomer Williamina Fleming, as Fleming's Triangular Wisp. New: Follow APOD on Telegram

**The Horsehead Nebula**

2023-11-20

Sculpted by stellar winds and radiation, a magnificent interstellar dust cloud by chance has assumed this recognizable shape. Fittingly named the Horsehead Nebula, it is some 1,500 light-years distant, embedded in the vast Orion cloud complex. About five light-years "tall," the dark cloud is cataloged as Barnard 33 and is visible only because its obscuring dust is silhouetted against the glowing red emission nebula IC 434. Stars are forming within the dark cloud. Contrasting blue reflection nebula NGC 2023, surrounding a hot, young star, is at the lower left of the full image. The featured gorgeous color image combines both narrowband and broadband images recorded using several different telescopes. New: Follow APOD on Telegram

**Space Station, Solar Prominences, Sun**

2023-11-19

That's no sunspot. It's the International Space Station (ISS) caught passing in front of the Sun. Sunspots, individually, have a dark central umbra, a lighter surrounding penumbra, and no Dragon capsules attached. By contrast, the ISS is a complex and multi-spired mechanism, one of the largest and most complicated spacecraft ever created by humanity. Also, sunspots circle the Sun, whereas the ISS orbits the Earth. Transiting the Sun is not very unusual for the ISS, which orbits the Earth about every 90 minutes, but getting one's location, timing and equipment just right for a great image is rare. The featured picture combined three images all taken in 2021 from the same location and at nearly the same time. One image -- overexposed -- captured the faint prominences seen across the top of the Sun, a second image -- underexposed -- captured the complex texture of the Sun's chromosphere, while the third image -- the hardest to get -- captured the space station as it shot across the Sun in a fraction of a second. Close inspection of the space station's silhouette even reveals a docked Dragon Crew capsule. Follow APOD on Instagram in: Arabic, English, Persian, Portuguese, and Taiwanese

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**Nightlights in Qeqertaq**

2023-11-17

Light pollution is usually not a problem in Qeqertaq. In western Greenland the remote coastal village boasted a population of 114 in 2020. Lights still shine in its dark skies though. During planet Earth's recent intense geomagnetic storm, on November 6 these beautiful curtains of aurora borealis fell over the arctic realm. On the eve of the coming weeks of polar night at 70 degrees north latitude, the inspiring display of northern lights is reflected in the waters of Disko Bay. In this view from the isolated settlement a lone iceberg is illuminated by shore lights as it drifts across the icy sea. Weekend Watch: The Leonid Meteor Shower.

Range Slider

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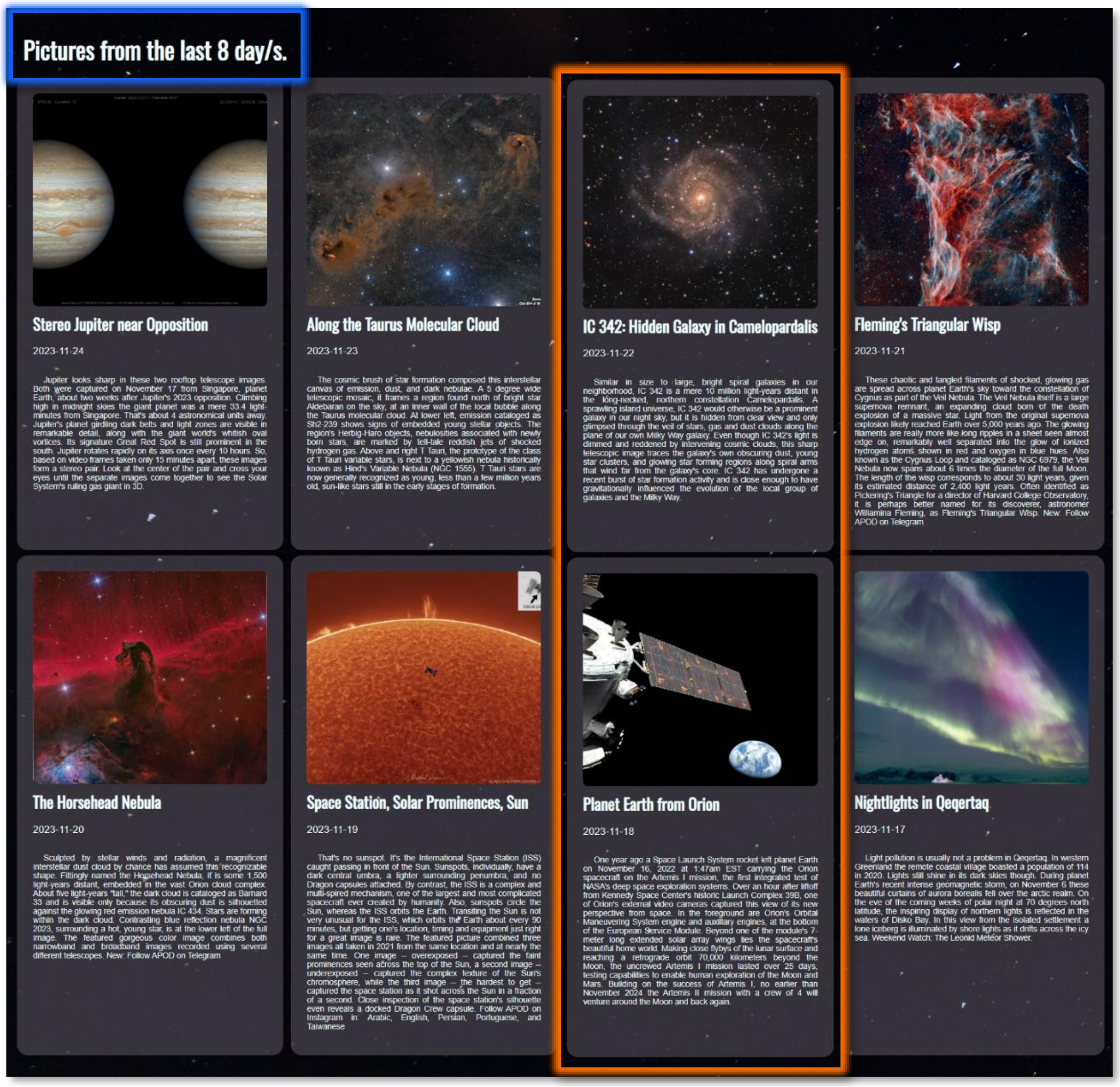
## Website Body

The body of the website displays the following:

1. Body Title
   - The body title (highlighted in blue) **updates** based on the search results/slider which is done through JavaScript.
2. A.P.O.D. Tile
   - A.P.O.D. tile (highlighted in orange) is the main data from the API. The content includes the **.title, .date, .explanation, and .url (image)** keys from the response of the get API. These elements are then added by creating html tags in the JavaScript and later designed by CSS.



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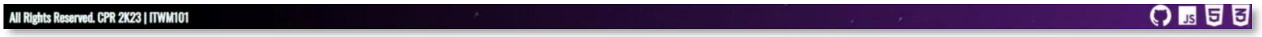
### Footer

The footer contains typical footer elements such as the “all rights reserved” tag. It also includes logos of the application that has been used for the development of the webpage.

*Note: The GitHub logo also serves as the hyperlink to the repository of the website!*



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# A.P.O.D. Tile

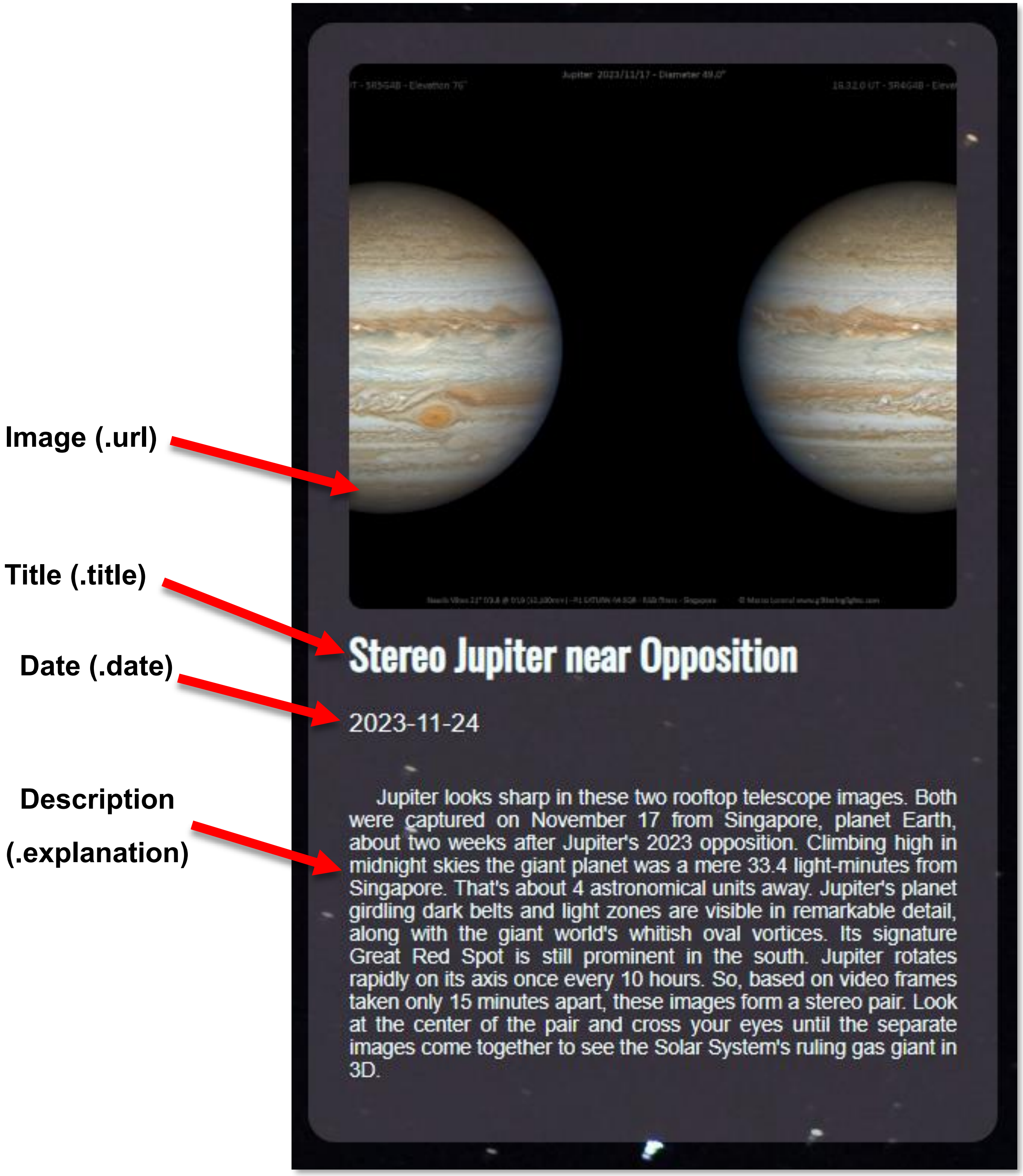

Image (.url)

Title (.title)

Date (.date)

Description (.explanation)

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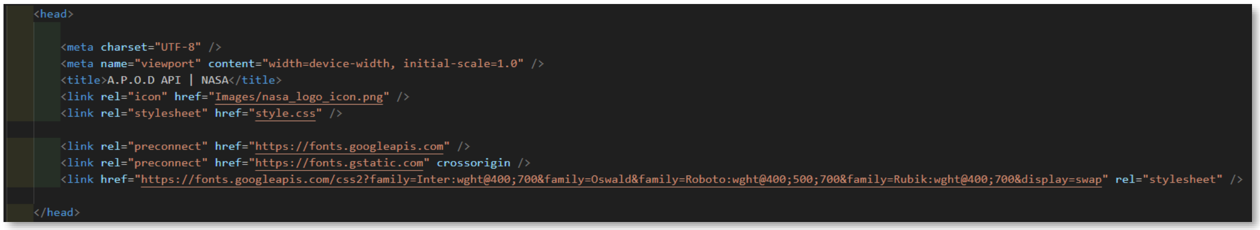
# SECTION 3: Webpage Code

## I. HTML Code

### Head

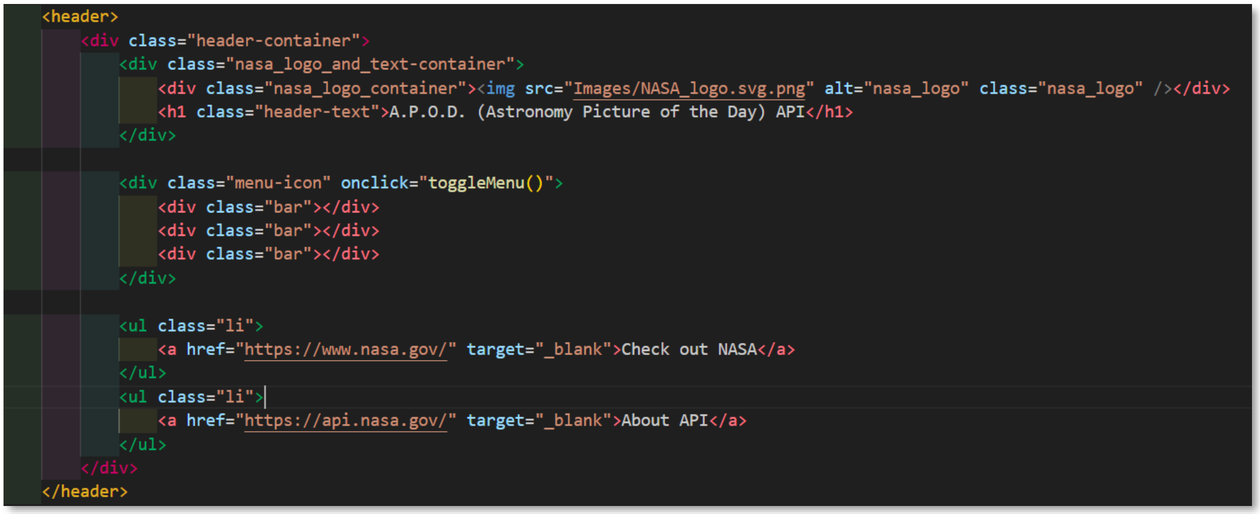


```html
<head>

    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>A.P.O.D API | NASA</title>
    <link rel="icon" href="Images/nasa_logo_icon.png" />
    <link rel="stylesheet" href="style.css" />

    <link rel="preconnect" href="https://fonts.googleapis.com" />
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
    <link href="https://fonts.googleapis.com/css2?family=Inter:wght@400;700&family=Oswald&family=Roboto:wght@400;500;700&family=Rubik:wght@400;700&display=swap" rel="stylesheet" />

</head>
```

The head contains the title of the webpage (A.P.O.D API | NASA), icon for the tab, the CSS file, and the imported custom font used ‘Oswald’ from google fonts.

### Body

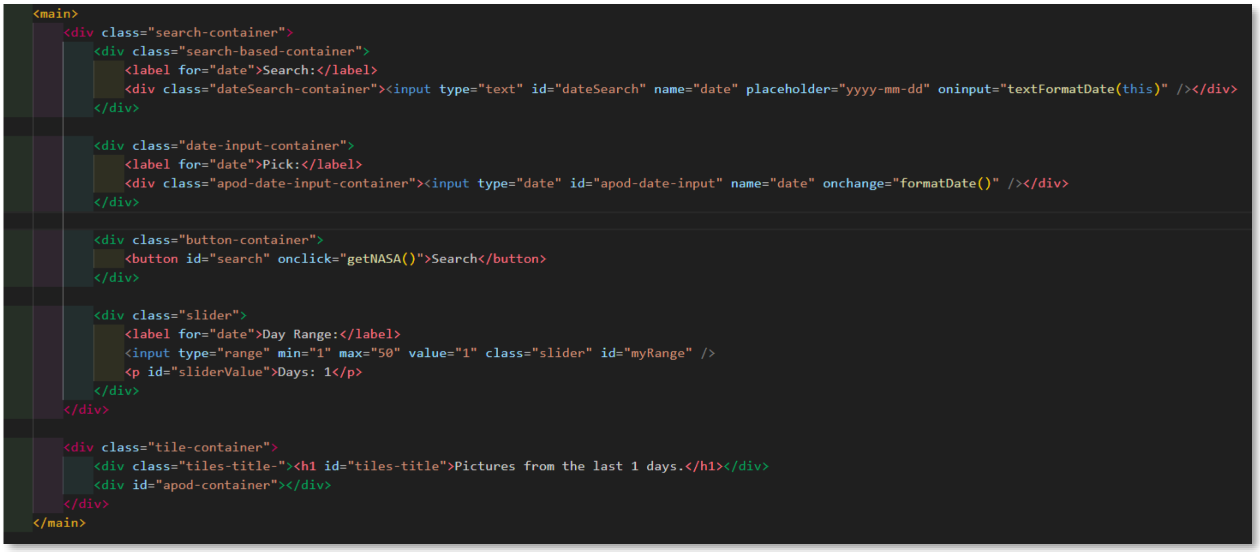
#### *I. Header*



```html
<header>
    <div class="header-container">
        <div class="nasa_logo_and_text-container">
            <div class="nasa_logo_container"><img src="Images/NASA_logo.svg.png" alt="nasa_logo" class="nasa_logo" /></div>
            <h1 class="header-text">A.P.O.D. (Astronomy Picture of the Day) API</h1>
        </div>

        <div class="menu-icon" onclick="toggleMenu()">
            <div class="bar"></div>
            <div class="bar"></div>
            <div class="bar"></div>
        </div>

        <ul class="li">
            <a href="https://www.nasa.gov/" target="_blank">Check out NASA</a>
        </ul>
        <ul class="li">
            <a href="https://api.nasa.gov/" target="_blank">About API</a>
        </ul>
    </div>
</header>
```

This is the HTML structure code for the header of the webpage that we have seen earlier. It contains the title and logo, the burger menu icon which displays when the screen size gets smaller, and the hyperlink for NASA webpage and the API.

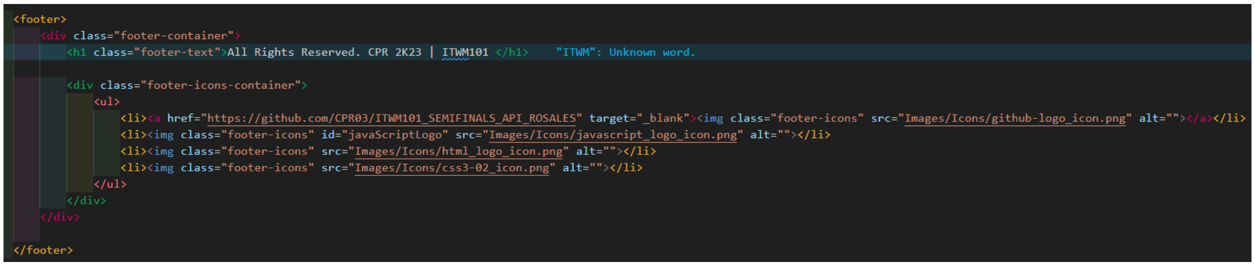
### II. Main



```html
<main>
    <div class="search-container">
        <div class="search-based-container">
            <label for="date">Search:</label>
            <div class="dateSearch-container"><input type="text" id="dateSearch" name="date" placeholder="yyyy-mm-dd" oninput="textFormatDate(this)" /></div>
        </div>

        <div class="date-input-container">
            <label for="date">Pick:</label>
            <div class="apod-date-input-container"><input type="date" id="apod-date-input" name="date" onchange="formatDate()" /></div>
        </div>

        <div class="button-container">
            <button id="search" onclick="getNASA()">Search</button>
        </div>

        <div class="slider">
            <label for="date">Day Range:</label>
            <input type="range" min="1" max="50" value="1" class="slider" id="myRange" />
            <p id="sliderValue">Days: 1</p>
        </div>
    </div>

    <div class="tile-container">
        <div class="tiles-title-"><h1 id="tiles-title">Pictures from the last 1 days.</h1></div>
        <div id="apod-container"></div>
    </div>
</main>
```

The HTML also includes the main tag holding the body of the webpage. It includes the action bar, and the tile container is the container for the images, dates, and description of retrieved data from the API.

### III. Footer

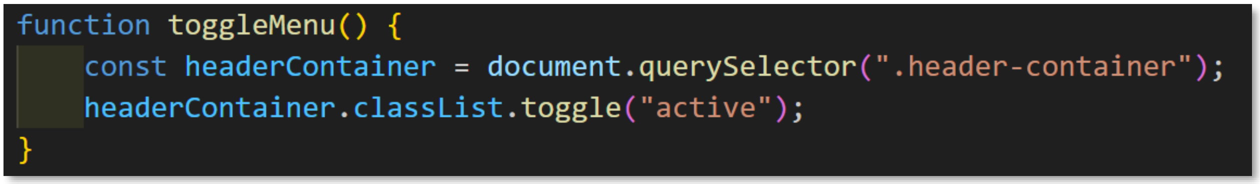


```html
<footer>
    <div class="footer-container">
        <h1 class="footer-text">All Rights Reserved. CPR 2K23 | ITWM101 </h1>    "ITWM": Unknown word.

        <div class="footer-icons-container">
            <ul>
                <li><a href="https://github.com/CPR03/ITWM101_SEMIFINALS_API_ROSALES" target="_blank"><img class="footer-icons" src="Images/Icons/github-logo_icon.png" alt=""></a></li>
                <li><img class="footer-icons" id="javaScriptLogo" src="Images/Icons/javascript_logo_icon.png" alt=""></li>
                <li><img class="footer-icons" src="Images/Icons/html_logo_icon.png" alt=""></li>
                <li><img class="footer-icons" src="Images/Icons/css3-02_icon.png" alt=""></li>
            </ul>
        </div>
    </div>

</footer>
```

The last part of the HTML structure is the footer tag handling the footer texts and icons.

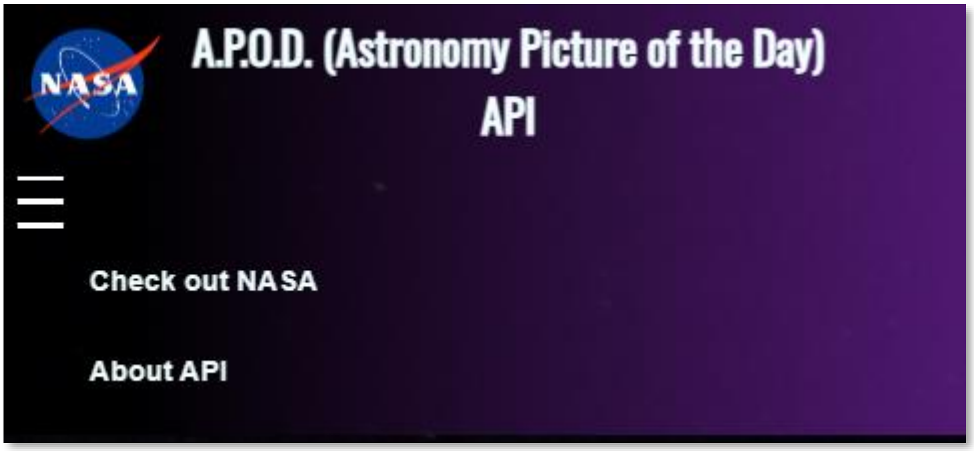
## II. JavaScript Functions & Code

### 1. toogleMenu()

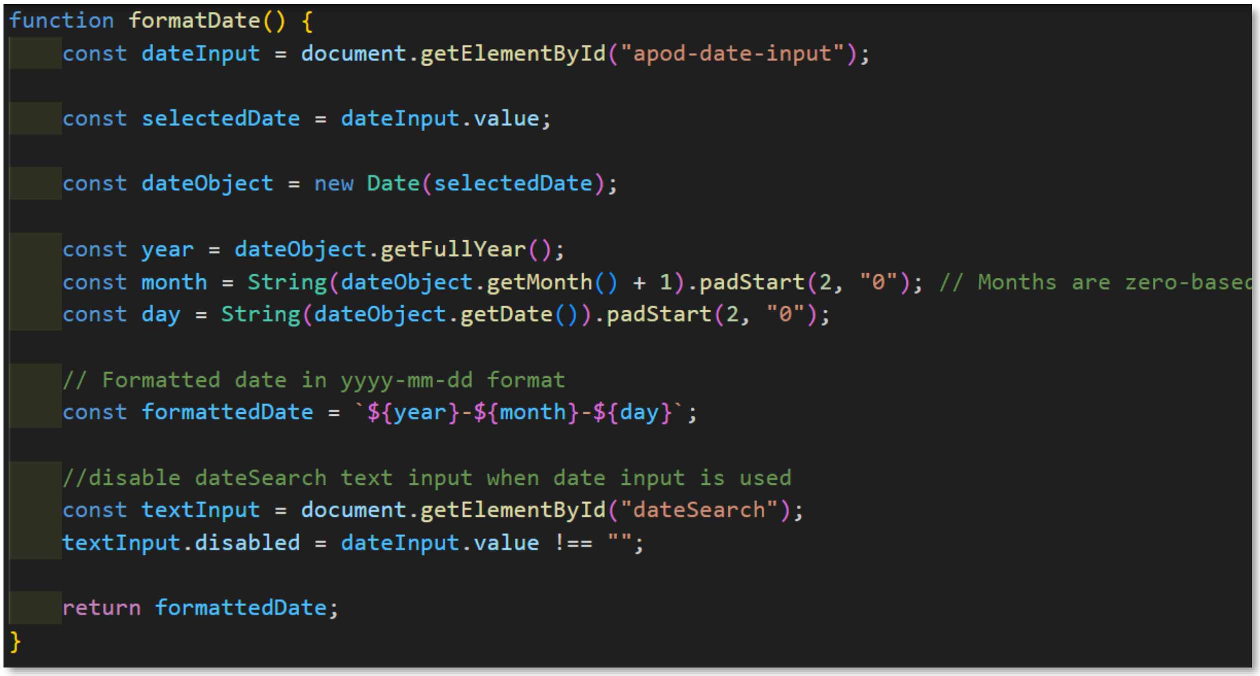


```
function toggleMenu() {
    const headerContainer = document.querySelector(".header-container");
    headerContainer.classList.toggle("active");
}
```

The toggleMenu() function is to be able to display the hyperlink (NASA and API webpage) in the header when the burger menu icon is pressed.



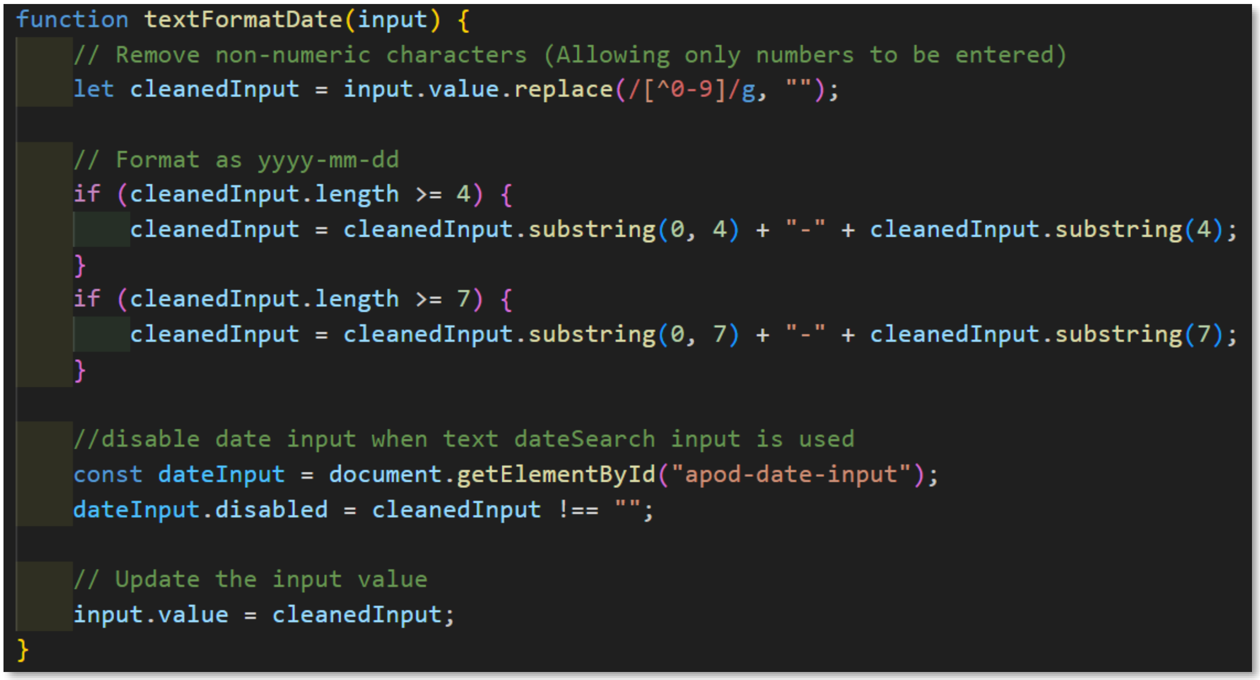
## 2. formatDate()



```
function formatDate() {
    const dateInput = document.getElementById("apod-date-input");

    const selectedDate = dateInput.value;

    const dateObject = new Date(selectedDate);

    const year = dateObject.getFullYear();
    const month = String(dateObject.getMonth() + 1).padStart(2, "0"); // Months are zero-based
    const day = String(dateObject.getDate()).padStart(2, "0");

    // Formatted date in yyyy-mm-dd format
    const formattedDate = `${year}-${month}-${day}`;

    //disable dateSearch text input when date input is used
    const textInput = document.getElementById("dateSearch");
    textInput.disabled = dateInput.value !== "";

    return formattedDate;
}
```

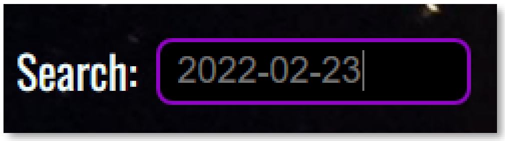
FormatDate() function reformat the date input. Since the default value of date inputs is mm/dd/yyyy and the API needs to be formatted as yyyy-mm-dd. Furthermore, the function includes the option to temporarily disable the text date input when the date input is being utilized. It will only be usable again if the user clears the date input and vice versa.

### 3. textFormatDate()



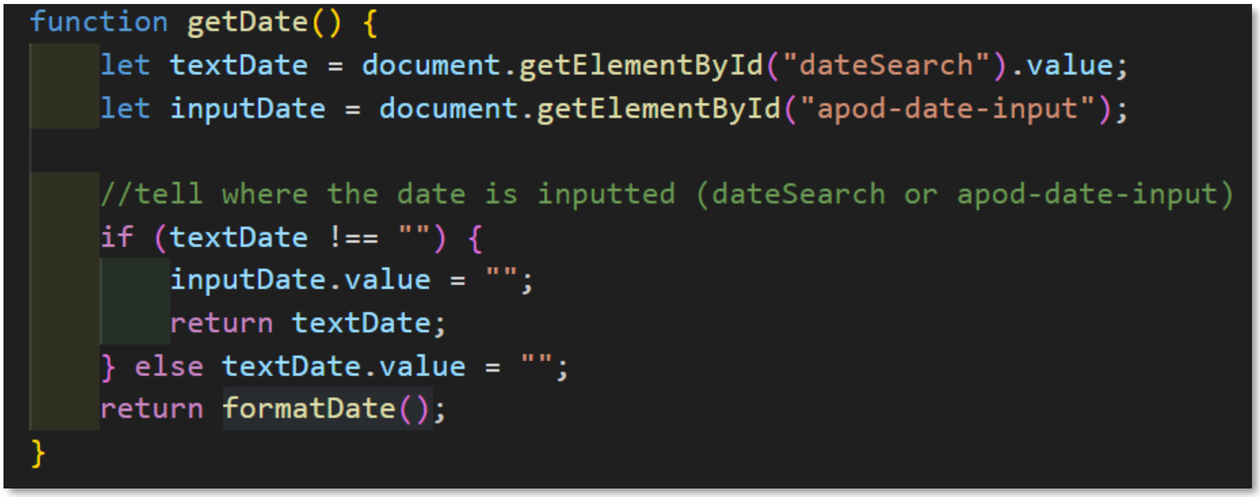
```
function textFormatDate(input) {
    // Remove non-numeric characters (Allowing only numbers to be entered)
    let cleanedInput = input.value.replace(/[^0-9]/g, "");

    // Format as yyyy-mm-dd
    if (cleanedInput.length >= 4) {
        cleanedInput = cleanedInput.substring(0, 4) + "-" + cleanedInput.substring(4);
    }
    if (cleanedInput.length >= 7) {
        cleanedInput = cleanedInput.substring(0, 7) + "-" + cleanedInput.substring(7);
    }

    //disable date input when text dateSearch input is used
    const dateInput = document.getElementById("apod-date-input");
    dateInput.disabled = cleanedInput !== "";

    // Update the input value
    input.value = cleanedInput;
}
```

The function textFormatDate() is similar to dateFormat(). However, the date will be formatted in real time. This means that when the user writes a date, dashes are automatically incorporated, and the data is formatted to yyyy-mm-dd. Non-numeric values will likewise be removed by the function.



Search: 2022-02-23

### 4. getDate()

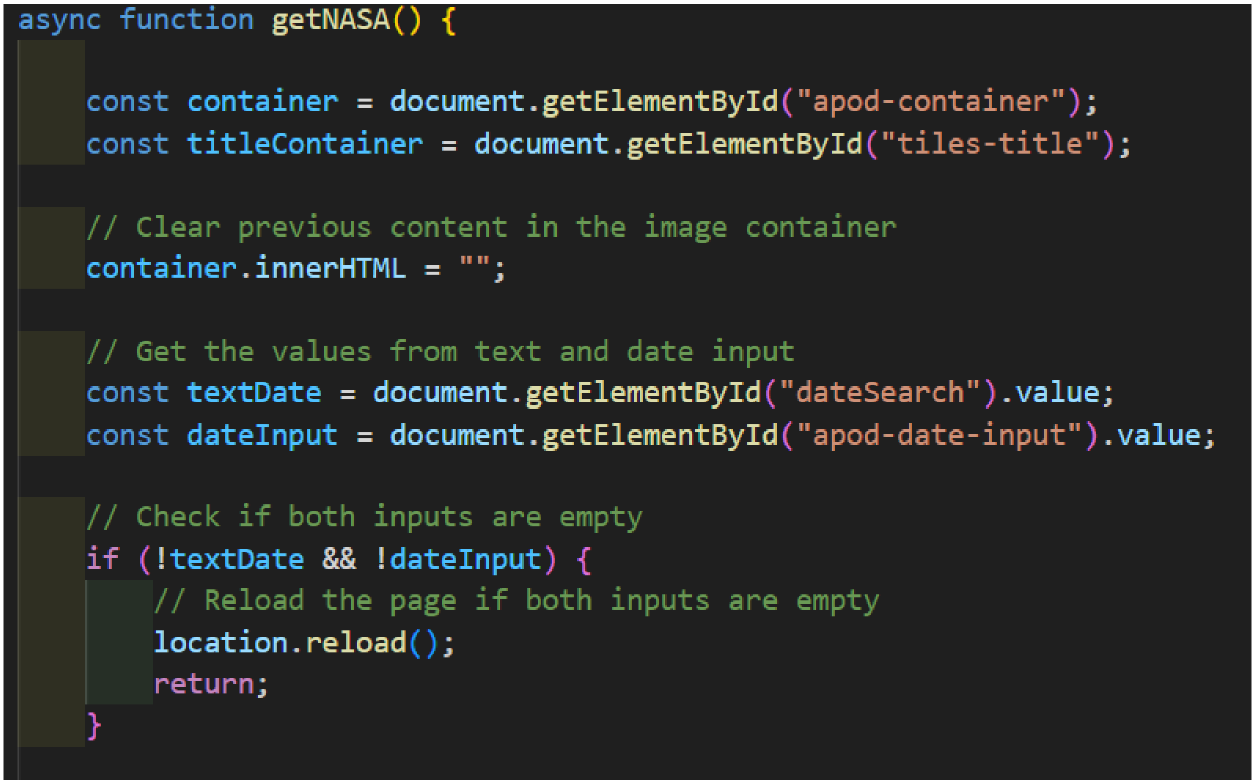


```
function getDate() {
    let textDate = document.getElementById("dateSearch").value;
    let inputDate = document.getElementById("apod-date-input");

    //tell where the date is inputted (dateSearch or apod-date-input)
    if (textDate !== "") {
        inputDate.value = "";
        return textDate;
    } else textDate.value = "";
    return formatDate();
}
```

After the date formatting is finished, the getDate() function will retrieve the return values and the date. If dateSearch is empty, the apod-date-input is utilized, then the formatDate() method is called to format the date input, and vice versa.

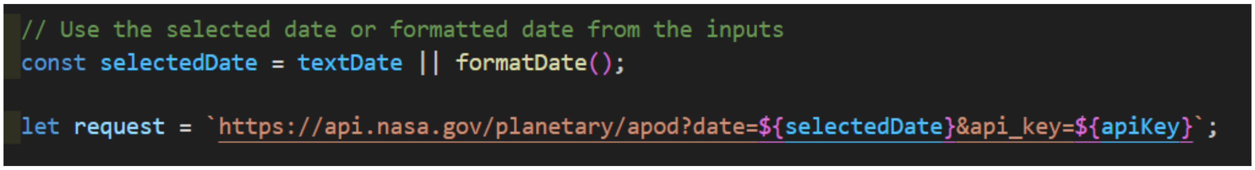
### 5. getNASA()

getDate() and getNASA() function connected. The getNASA() is the function for retrieving specific date and to do that it will need the value of getDate() function to search.



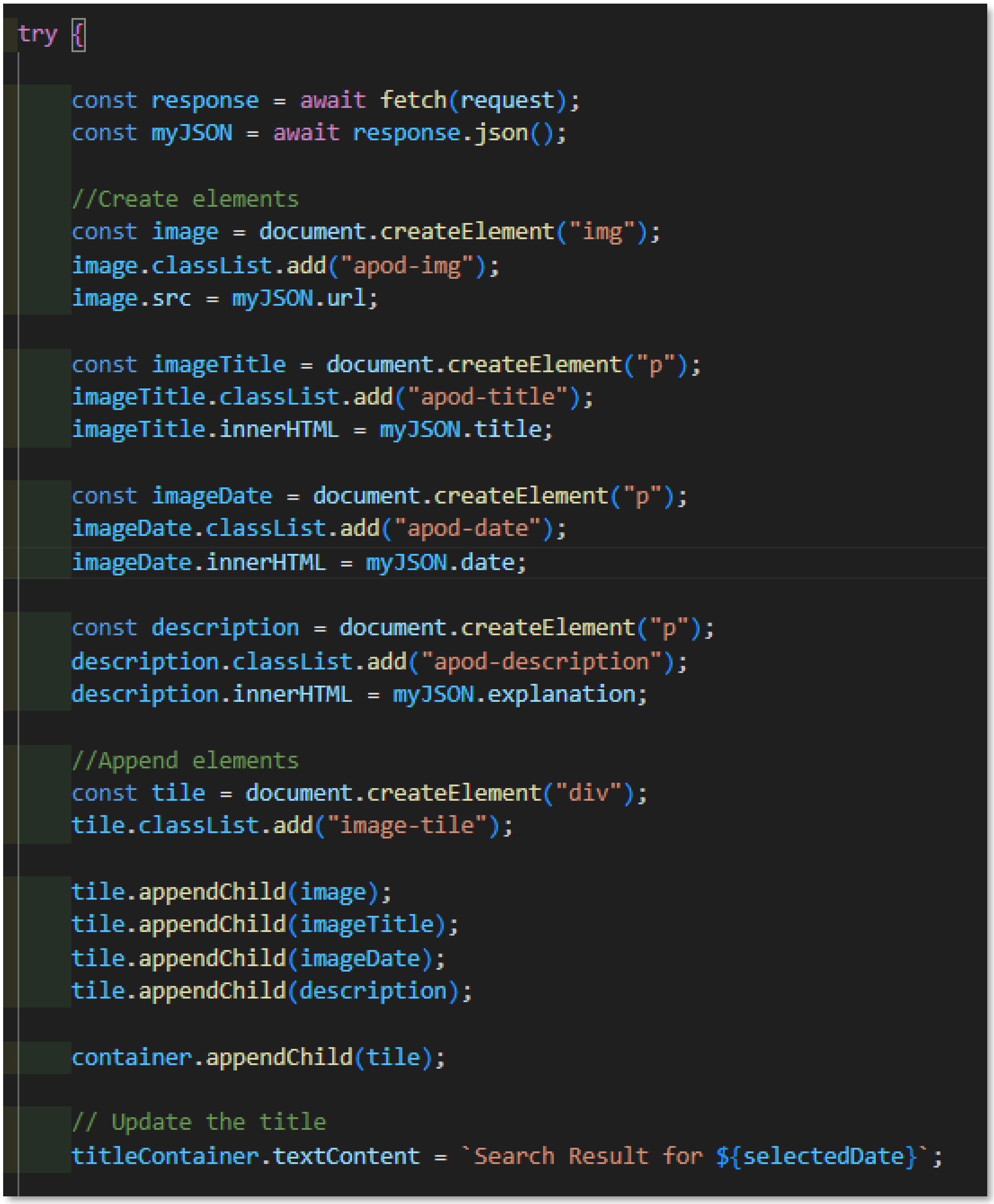
```
async function getNASA() {

    const container = document.getElementById("apod-container");
    const titleContainer = document.getElementById("tiles-title");

    // Clear previous content in the image container
    container.innerHTML = "";

    // Get the values from text and date input
    const textDate = document.getElementById("dateSearch").value;
    const dateInput = document.getElementById("apod-date-input").value;

    // Check if both inputs are empty
    if (!textDate && !dateInput) {
        // Reload the page if both inputs are empty
        location.reload();
        return;
    }
```

The image above shows the declaration of variables that will be used to append elements created later. The if statement in the code is very crucial. It will serve as a reloader. When the user pushes the search button and there are no dates in the text or date field, the HTML will reload and return to its default state.



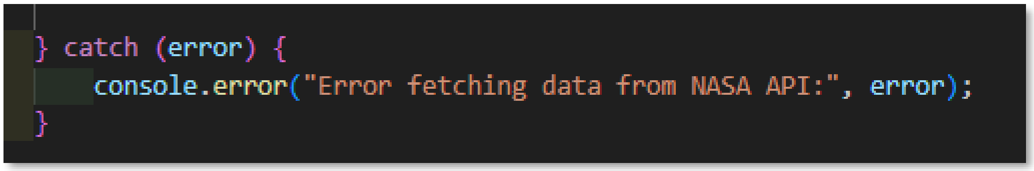
```
// Use the selected date or formatted date from the inputs
const selectedDate = textDate || formatDate();

let request = `https://api.nasa.gov/planetary/apod?date=${selectedDate}&api_key=${apiKey}`;
```

The request variable in this code handles the URL to be requested to the API, while the selectedDate variable stores the date entered by the user. It's worth noting that it also includes "apiKey," which is a variable containing the API key.



```
try {

    const response = await fetch(request);
    const myJSON = await response.json();

    //Create elements
    const image = document.createElement("img");
    image.classList.add("apod-img");
    image.src = myJSON.url;

    const imageTitle = document.createElement("p");
    imageTitle.classList.add("apod-title");
    imageTitle.innerHTML = myJSON.title;

    const imageDate = document.createElement("p");
    imageDate.classList.add("apod-date");
    imageDate.innerHTML = myJSON.date;

    const description = document.createElement("p");
    description.classList.add("apod-description");
    description.innerHTML = myJSON.explanation;

    //Append elements
    const tile = document.createElement("div");
    tile.classList.add("image-tile");

    tile.appendChild(image);
    tile.appendChild(imageTitle);
    tile.appendChild(imageDate);
    tile.appendChild(description);

    container.appendChild(tile);

    // Update the title
    titleContainer.textContent = `Search Result for ${selectedDate}`;
```

This code will then make advantage of the request variable. This is the primary request/fetch approach. Because the getNASA() function is in asynchronous mode, it will also wait for the values returned by the API before executing the code below it. The code following the retrieve creates the image-tile, which contains the image, title, date, and description. These variables will be appended to the container variable that we previously discussed.

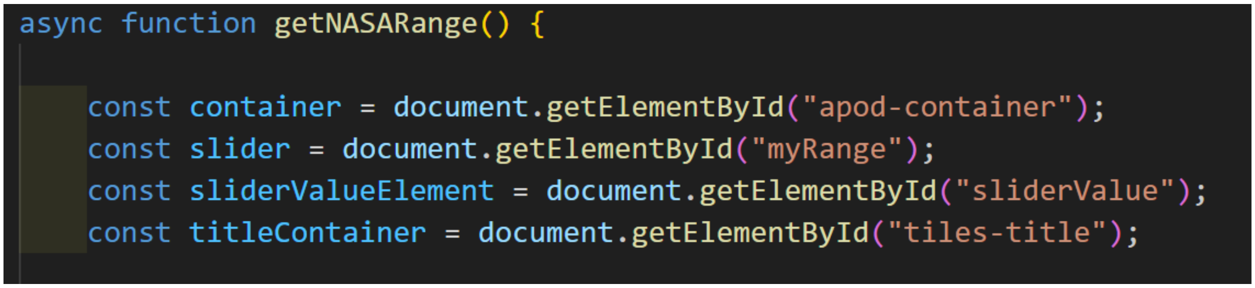


```
} catch (error) {
    console.error("Error fetching data from NASA API:", error);
}
```

Finally, to complete the code, when the fetch/try did not succeed it will print an error message to the console.

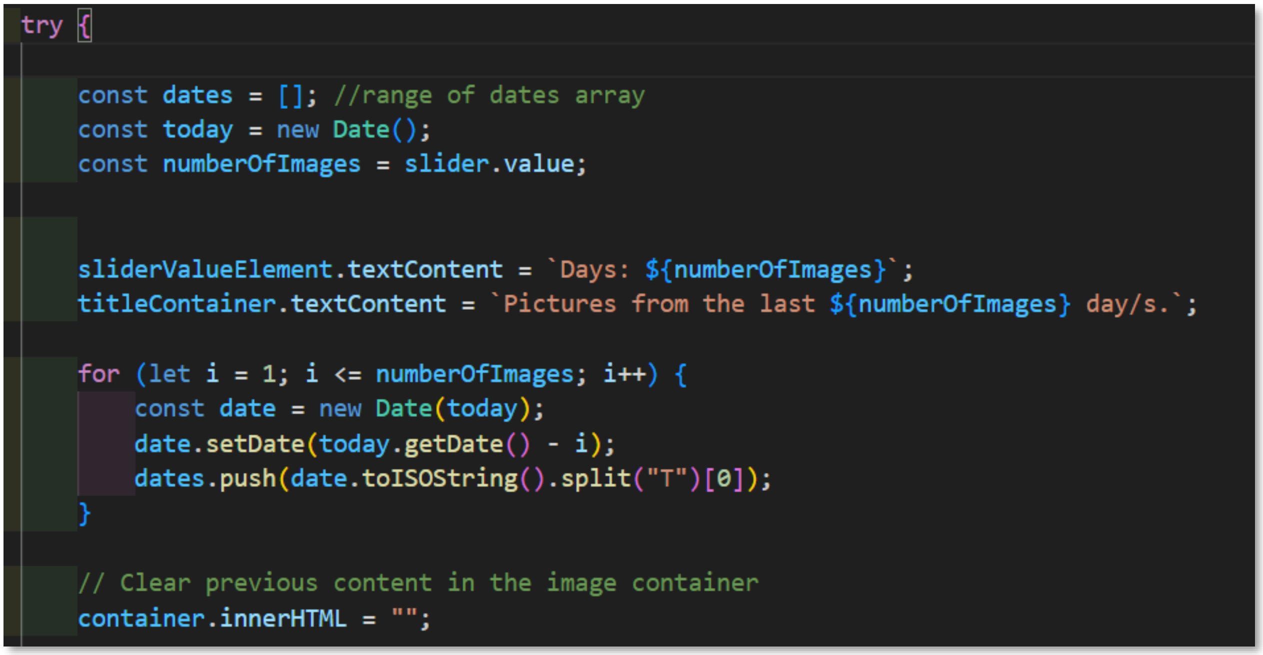
### 6. getNASARange()

On the other hand getNASARange() function allows user to use the slider in the webpage and display multiple dates from yesterday's date (as the API might not been updated yet if the current date was used).



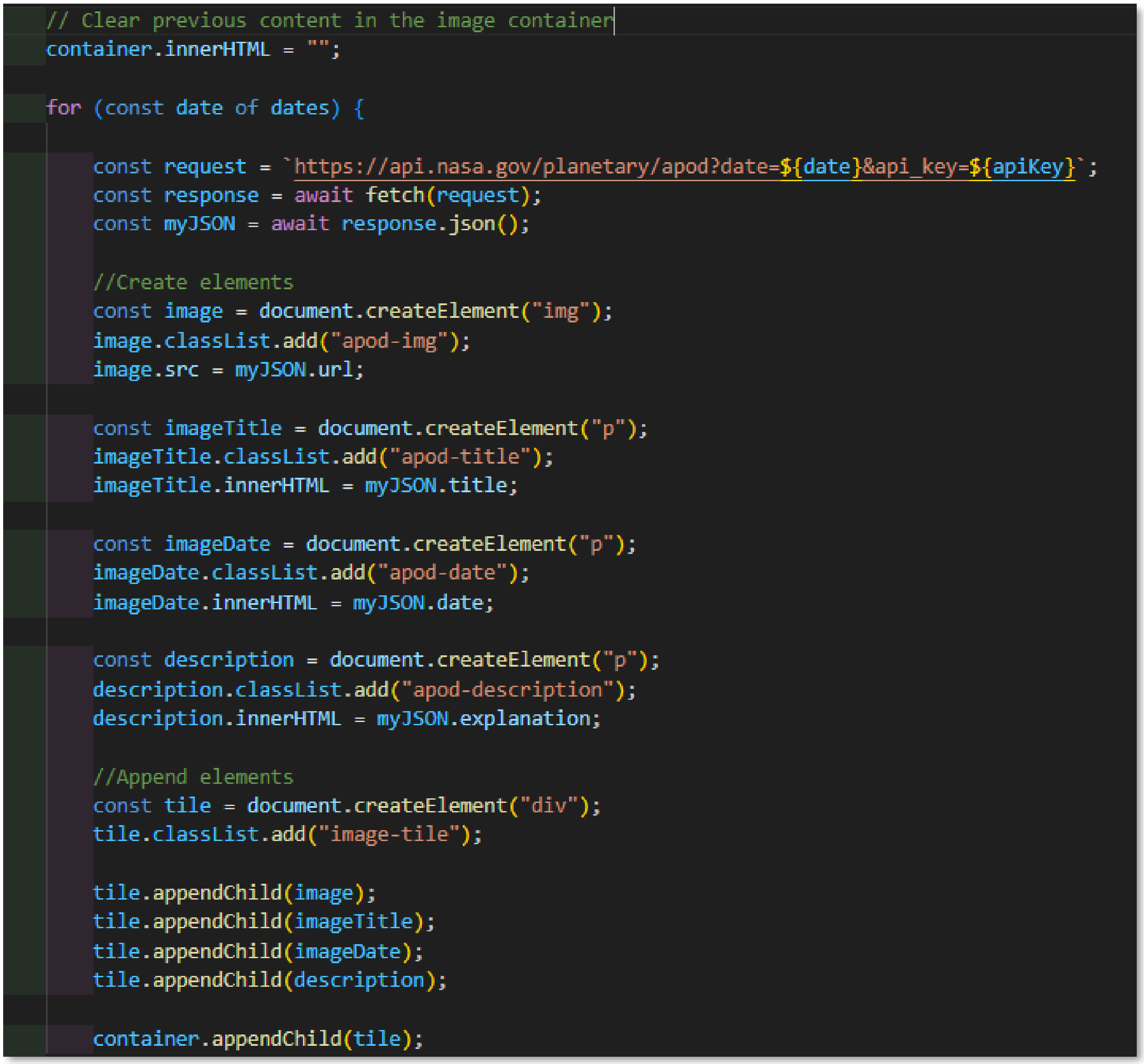
```
async function getNASARange() {

    const container = document.getElementById("apod-container");
    const slider = document.getElementById("myRange");
    const sliderValueElement = document.getElementById("sliderValue");
    const titleContainer = document.getElementById("tiles-title");
```

As usual, the first code of the function is all the variables that we will need to execute the feature. It contains the container, slider, sliderValue, and titleContainer.



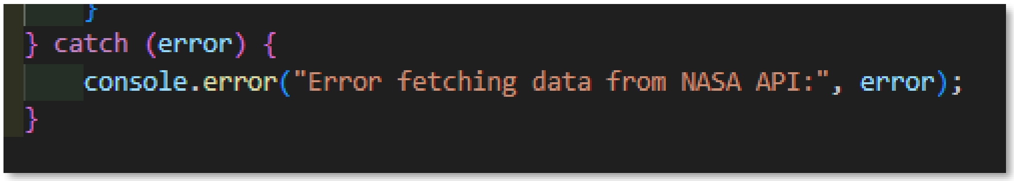
```
try {

    const dates = []; //range of dates array
    const today = new Date();
    const numberOfImages = slider.value;


    sliderValueElement.textContent = `Days: ${numberOfImages}`;
    titleContainer.textContent = `Pictures from the last ${numberOfImages} day/s.`;

    for (let i = 1; i <= numberOfImages; i++) {
        const date = new Date(today);
        date.setDate(today.getDate() - i);
        dates.push(date.toISOString().split("T")[0]);
    }

    // Clear previous content in the image container
    container.innerHTML = "";
```

An array is declared in this code. It will save the dates' values. The for loop that follows will take the slider value and format it to the relevant date. The sliderValueElement value is then updated in real time based on the slider value. Similarly, alter the body title to show the number of days.



```
// Clear previous content in the image container
container.innerHTML = "";

for (const date of dates) {

    const request = `https://api.nasa.gov/planetary/apod?date=${date}&api_key=${apiKey}`;
    const response = await fetch(request);
    const myJSON = await response.json();

    //Create elements
    const image = document.createElement("img");
    image.classList.add("apod-img");
    image.src = myJSON.url;

    const imageTitle = document.createElement("p");
    imageTitle.classList.add("apod-title");
    imageTitle.innerHTML = myJSON.title;

    const imageDate = document.createElement("p");
    imageDate.classList.add("apod-date");
    imageDate.innerHTML = myJSON.date;

    const description = document.createElement("p");
    description.classList.add("apod-description");
    description.innerHTML = myJSON.explanation;

    //Append elements
    const tile = document.createElement("div");
    tile.classList.add("image-tile");

    tile.appendChild(image);
    tile.appendChild(imageTitle);
    tile.appendChild(imageDate);
    tile.appendChild(description);

    container.appendChild(tile);
```

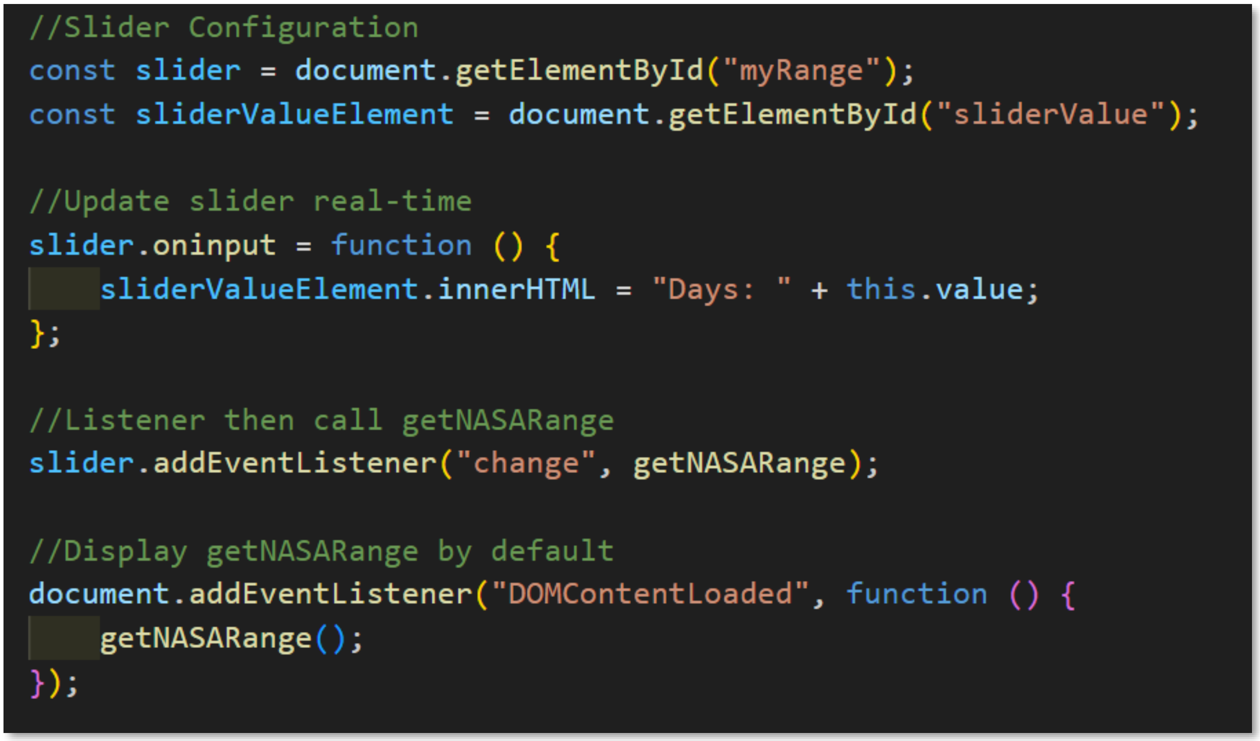
Now that we have the dates, we will display each in the array using the for loop again. Similar to getNASA() function it will create HTML elements and append each to the container.



```
    }
} catch (error) {
    console.error("Error fetching data from NASA API:", error);
}
```

If there is, try there is a catch. If the API does not respond or there is a problem, the catch will display an error message on the console. The most typical problem is when the API key is blocked because it exceeds the request limit of 1000.

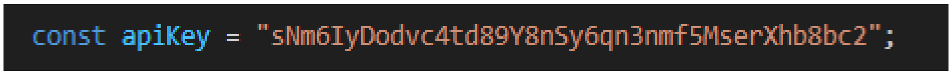
### 7. getNASARange()



```
//Slider Configuration
const slider = document.getElementById("myRange");
const sliderValueElement = document.getElementById("sliderValue");

//Update slider real-time
slider.oninput = function () {
    sliderValueElement.innerHTML = "Days: " + this.value;
};

//Listener then call getNASARange
slider.addEventListener("change", getNASARange);

//Display getNASARange by default
document.addEventListener("DOMContentLoaded", function () {
    getNASARange();
});
```

The final section of the JavaScript code is getting the slider value and using getNASARange() when it changes. Similarly, the default function to use is getNASARange(). When the HTML is opened for the first time, this method is called.

### 8. API Key

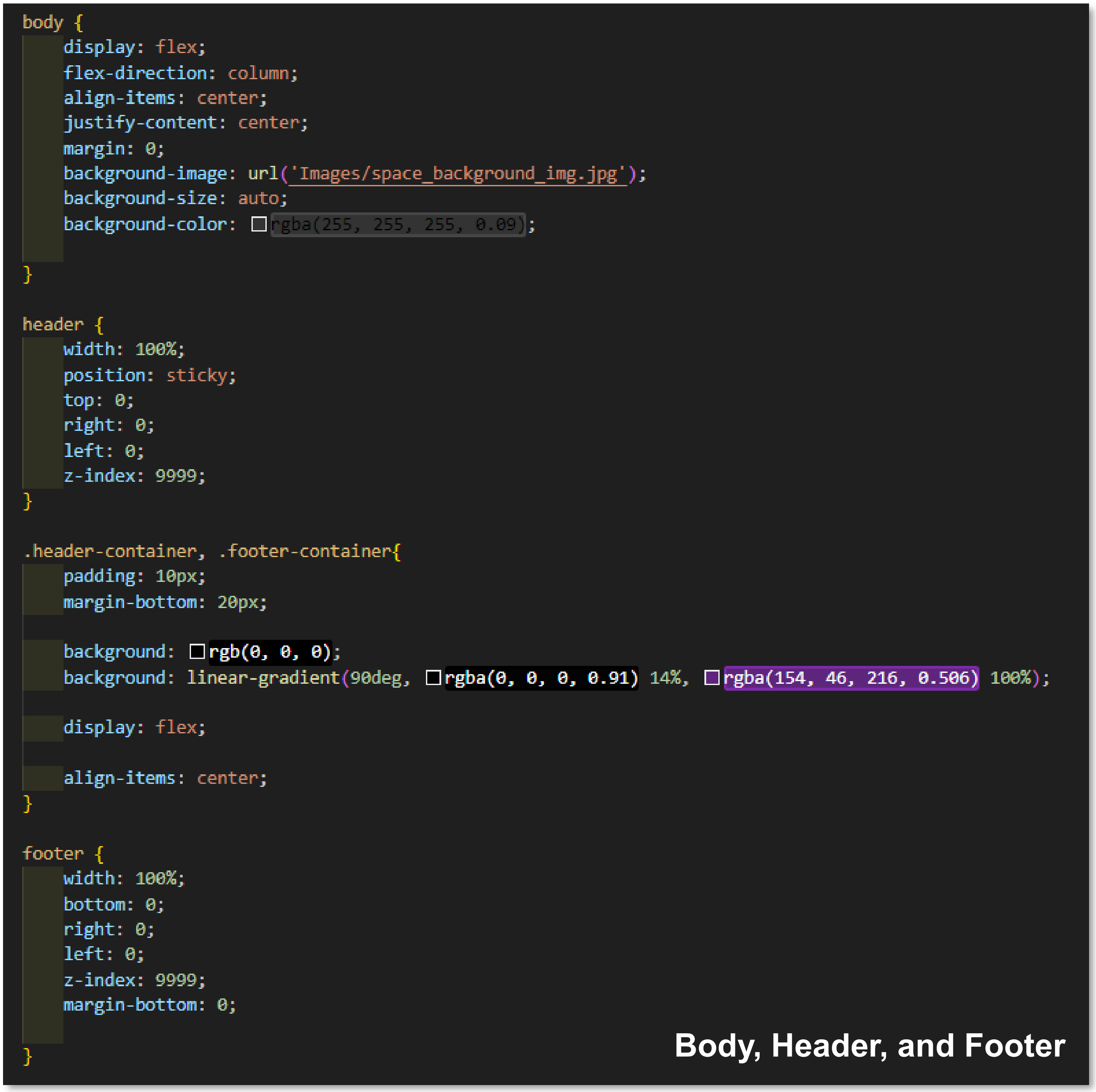


```
const apiKey = "sNm6IyDodvc4td89Y8nSy6qn3nmf5MserXhb8bc2";
```

This is the variable that handles the API key. I have two API keys for the API. In case the other one gets blocked; I can use the other key.

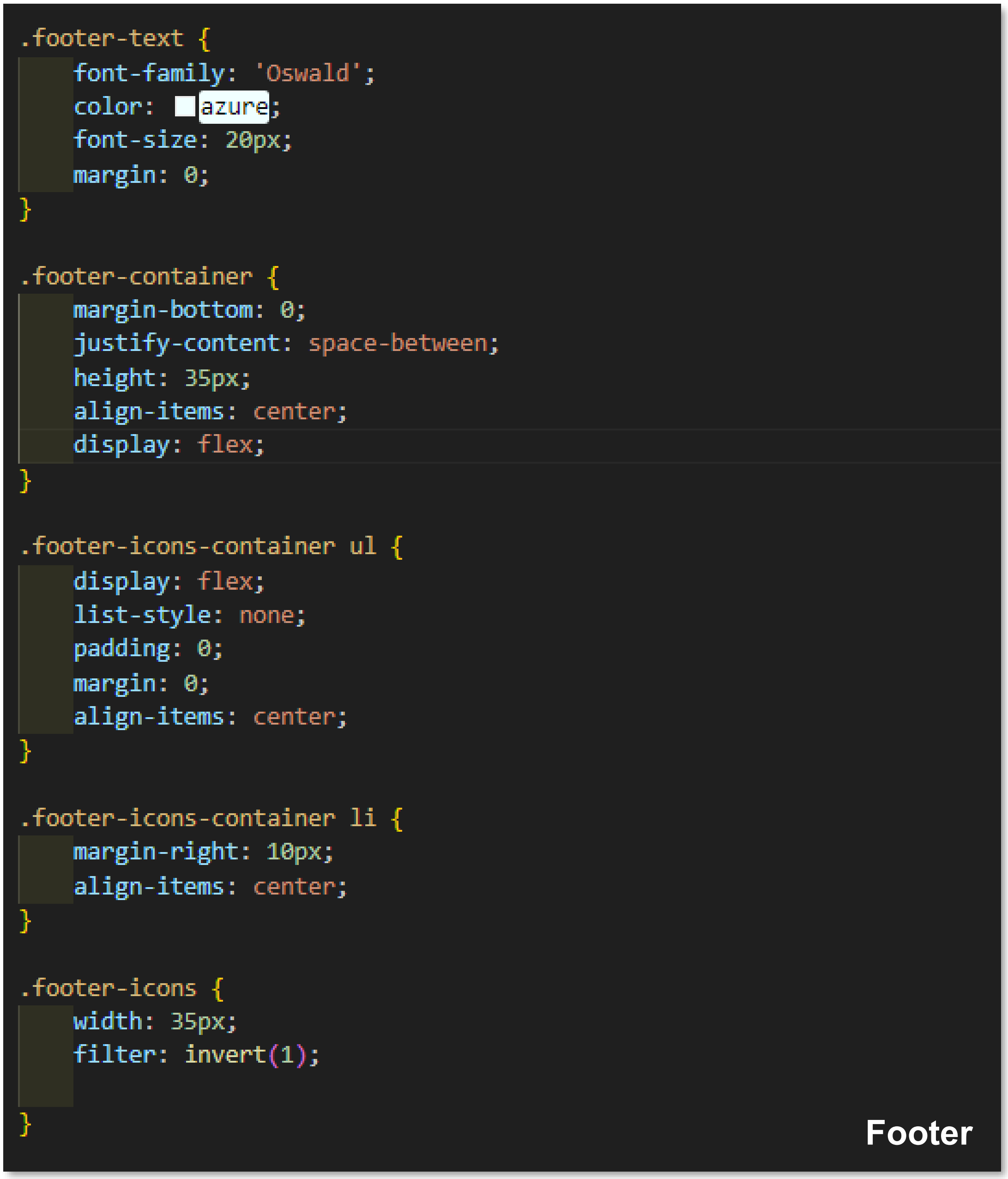
## III. CSS Code

In this section, it will showcase the how the webpage is designed.



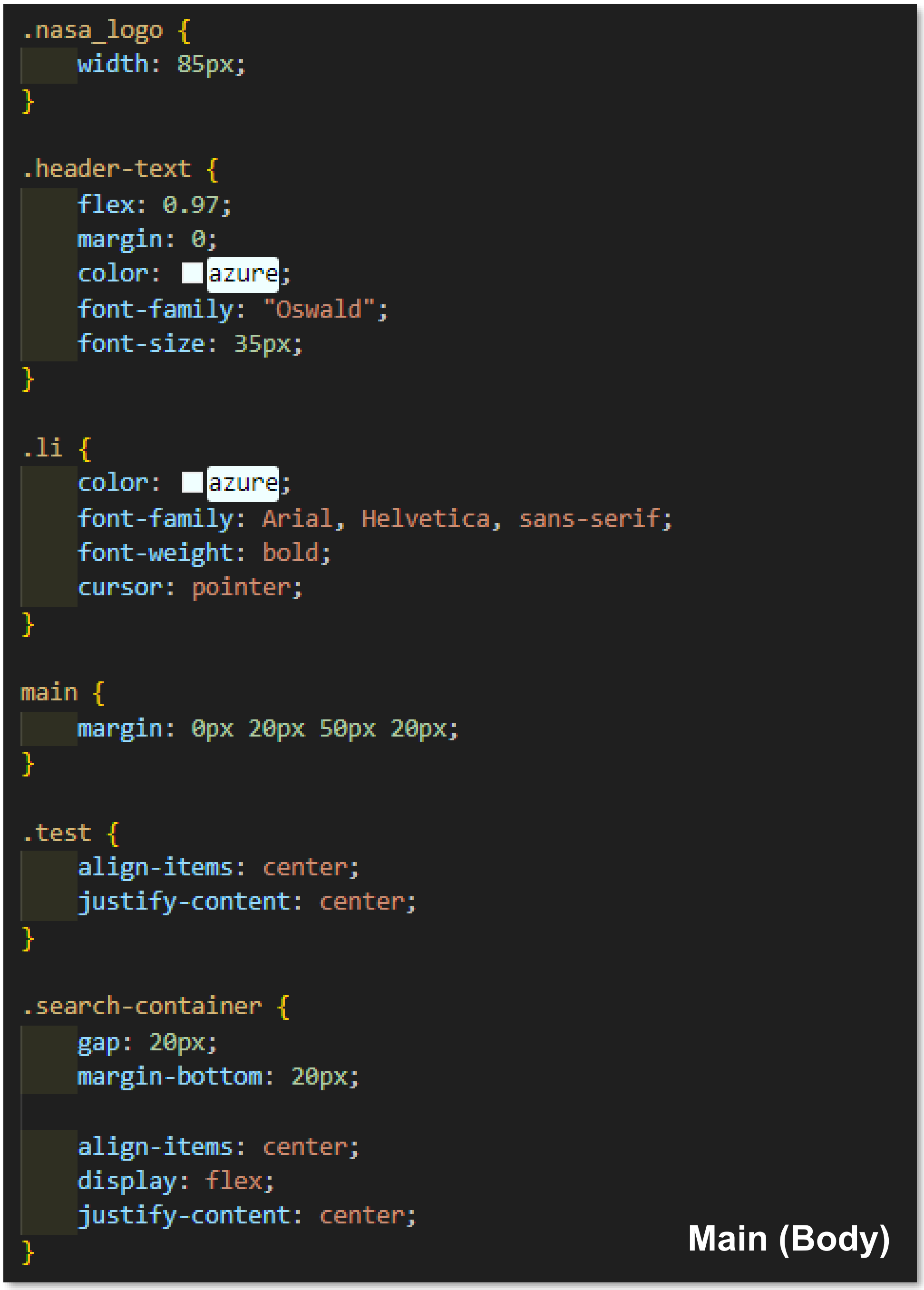
```
body {
    display: flex;
    flex-direction: column;
    align-items: center;
    justify-content: center;
    margin: 0;
    background-image: url('Images/space_background_img.jpg');
    background-size: auto;
    background-color: □rgba(255, 255, 255, 0.09);

}

header {
    width: 100%;
    position: sticky;
    top: 0;
    right: 0;
    left: 0;
    z-index: 9999;
}

.header-container, .footer-container{
    padding: 10px;
    margin-bottom: 20px;

    background: □rgb(0, 0, 0);
    background: linear-gradient(90deg, □rgba(0, 0, 0, 0.91) 14%, □rgba(154, 46, 216, 0.506) 100%);

    display: flex;

    align-items: center;
}

footer {
    width: 100%;
    bottom: 0;
    right: 0;
    left: 0;
    z-index: 9999;
    margin-bottom: 0;

}
```

Body, Header, and Footer



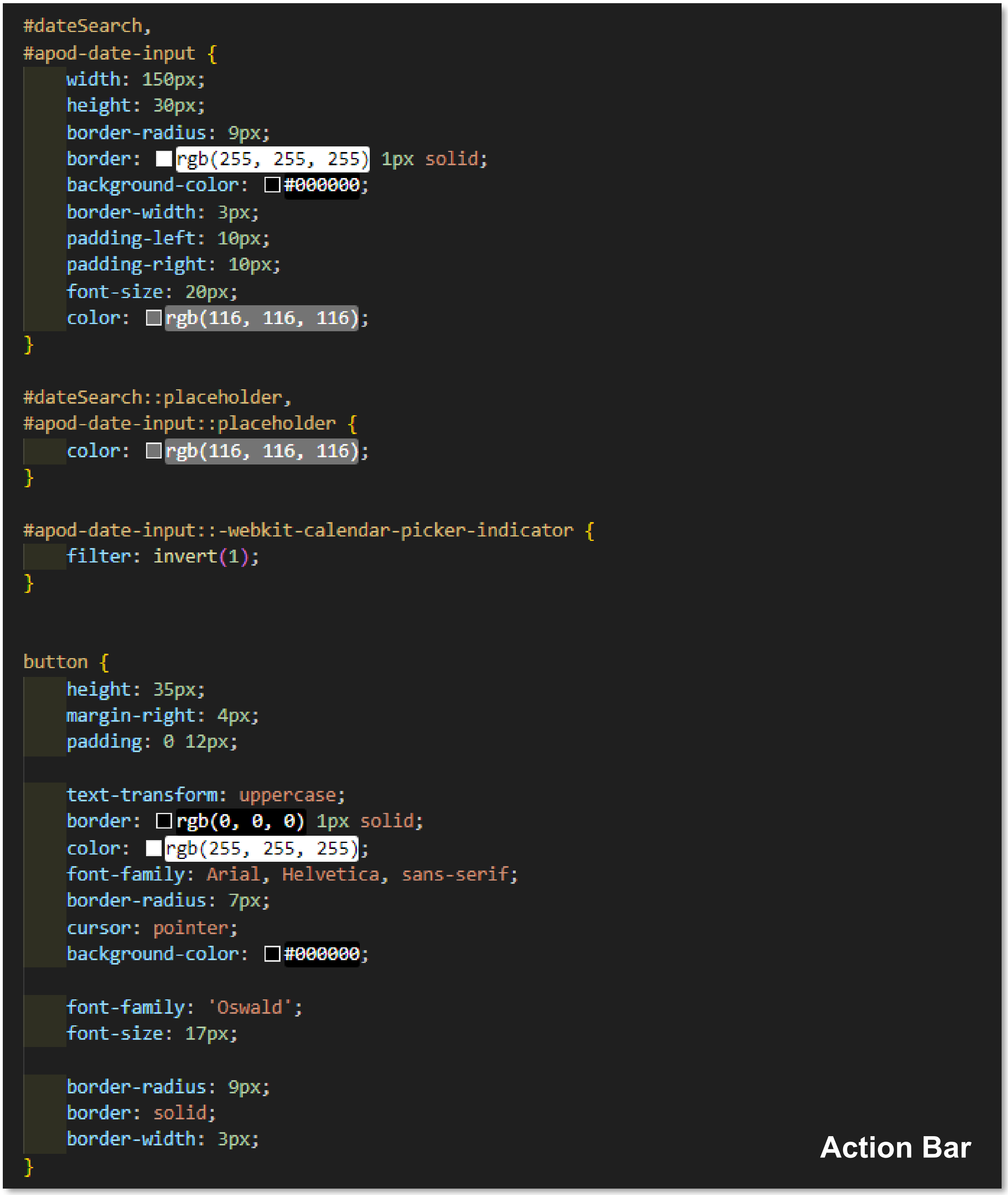
```css
.footer-text {
    font-family: 'Oswald';
    color: □azure;
    font-size: 20px;
    margin: 0;
}

.footer-container {
    margin-bottom: 0;
    justify-content: space-between;
    height: 35px;
    align-items: center;
    display: flex;
}

.footer-icons-container ul {
    display: flex;
    list-style: none;
    padding: 0;
    margin: 0;
    align-items: center;
}

.footer-icons-container li {
    margin-right: 10px;
    align-items: center;
}

.footer-icons {
    width: 35px;
    filter: invert(1);

}
```

Footer



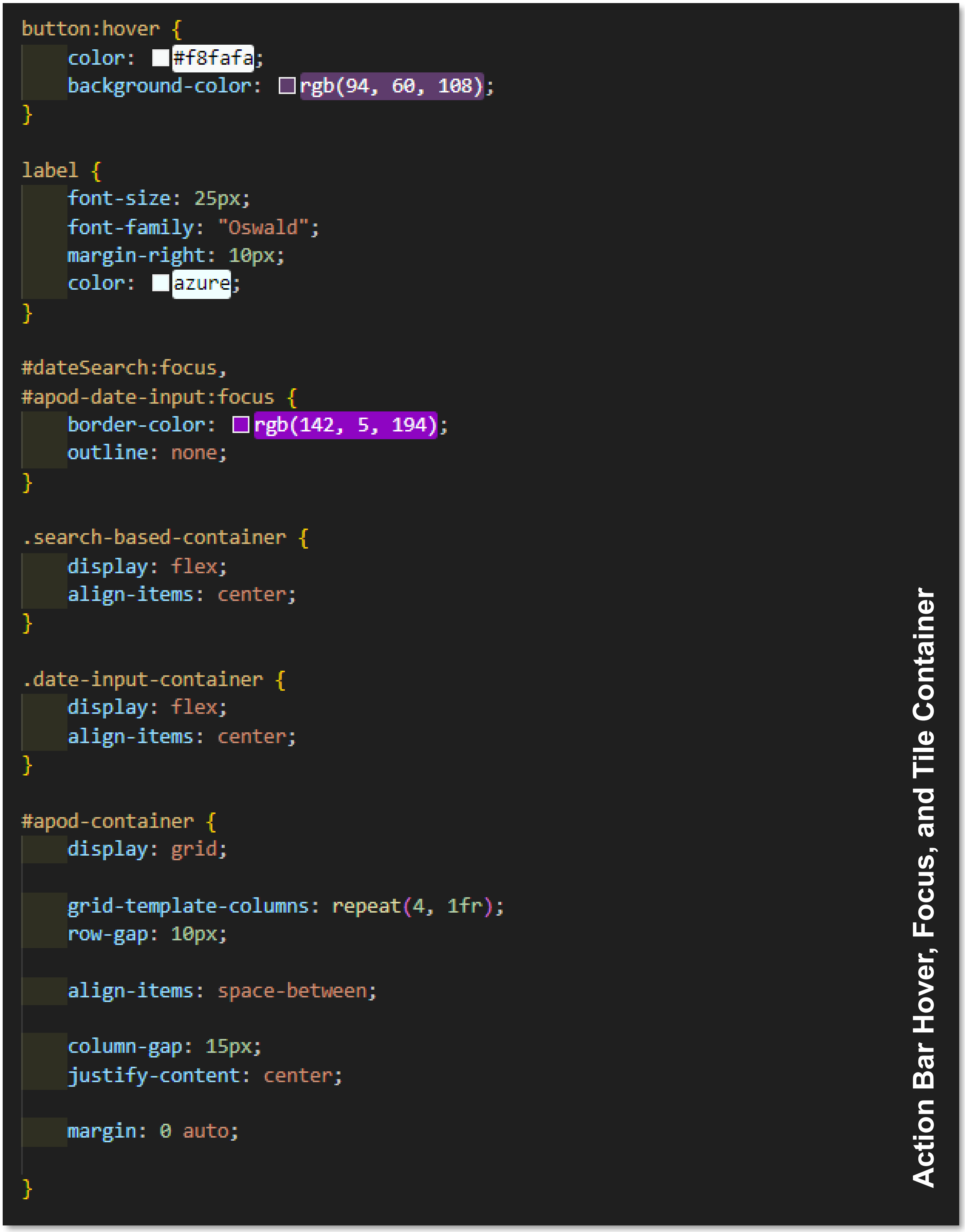
```
.nasa_logo {
    width: 85px;
}

.header-text {
    flex: 0.97;
    margin: 0;
    color: azure;
    font-family: "Oswald";
    font-size: 35px;
}

.li {
    color: azure;
    font-family: Arial, Helvetica, sans-serif;
    font-weight: bold;
    cursor: pointer;
}

main {
    margin: 0px 20px 50px 20px;
}

.test {
    align-items: center;
    justify-content: center;
}

.search-container {
    gap: 20px;
    margin-bottom: 20px;

    align-items: center;
    display: flex;
    justify-content: center;
}
```

Main (Body)



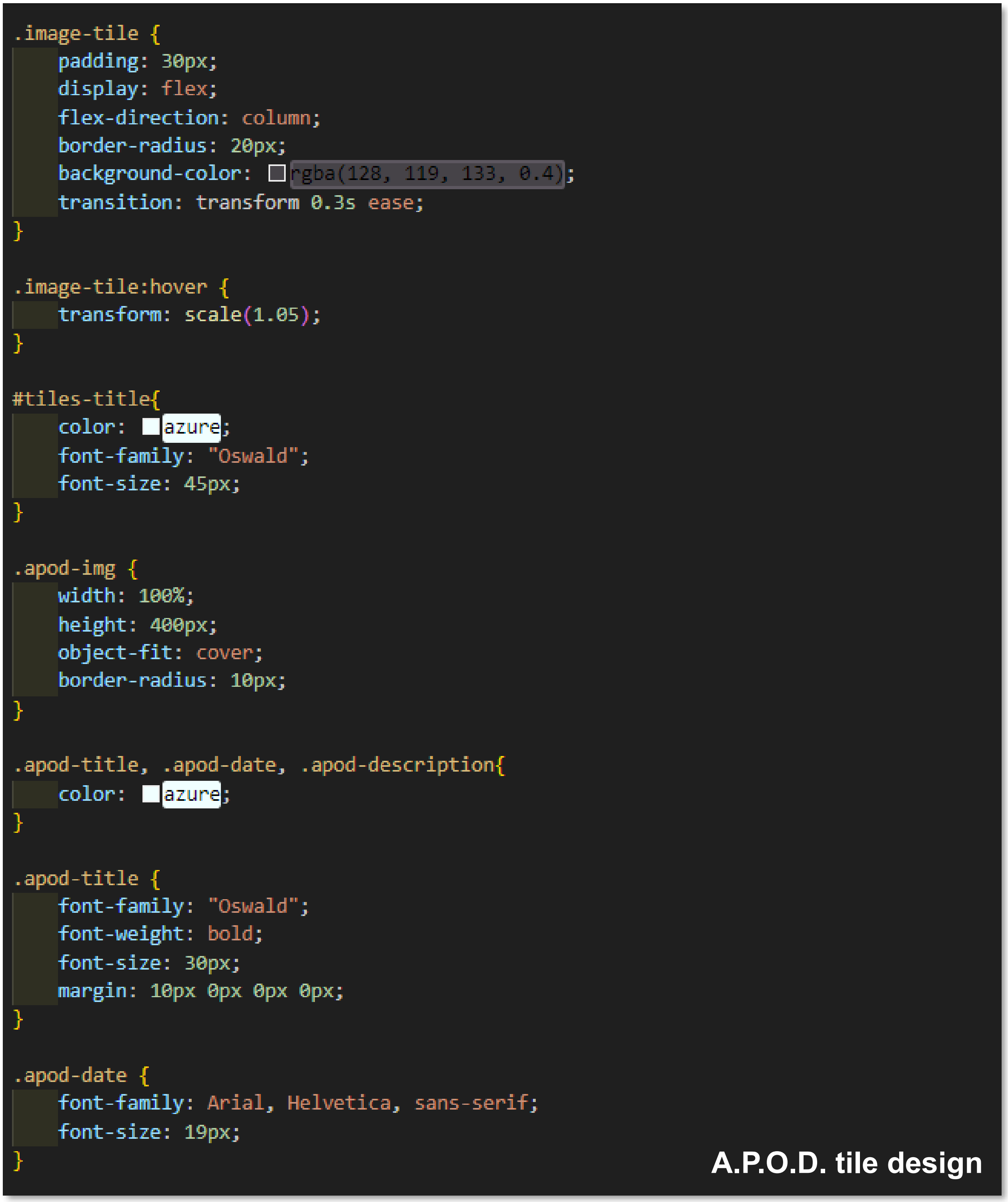
```css
#dateSearch,
#apod-date-input {
    width: 150px;
    height: 30px;
    border-radius: 9px;
    border: rgb(255, 255, 255) 1px solid;
    background-color: #000000;
    border-width: 3px;
    padding-left: 10px;
    padding-right: 10px;
    font-size: 20px;
    color: rgb(116, 116, 116);
}

#dateSearch::placeholder,
#apod-date-input::placeholder {
    color: rgb(116, 116, 116);
}

#apod-date-input::-webkit-calendar-picker-indicator {
    filter: invert(1);
}


button {
    height: 35px;
    margin-right: 4px;
    padding: 0 12px;

    text-transform: uppercase;
    border: rgb(0, 0, 0) 1px solid;
    color: rgb(255, 255, 255);
    font-family: Arial, Helvetica, sans-serif;
    border-radius: 7px;
    cursor: pointer;
    background-color: #000000;

    font-family: 'Oswald';
    font-size: 17px;

    border-radius: 9px;
    border: solid;
    border-width: 3px;
}
```

Action Bar



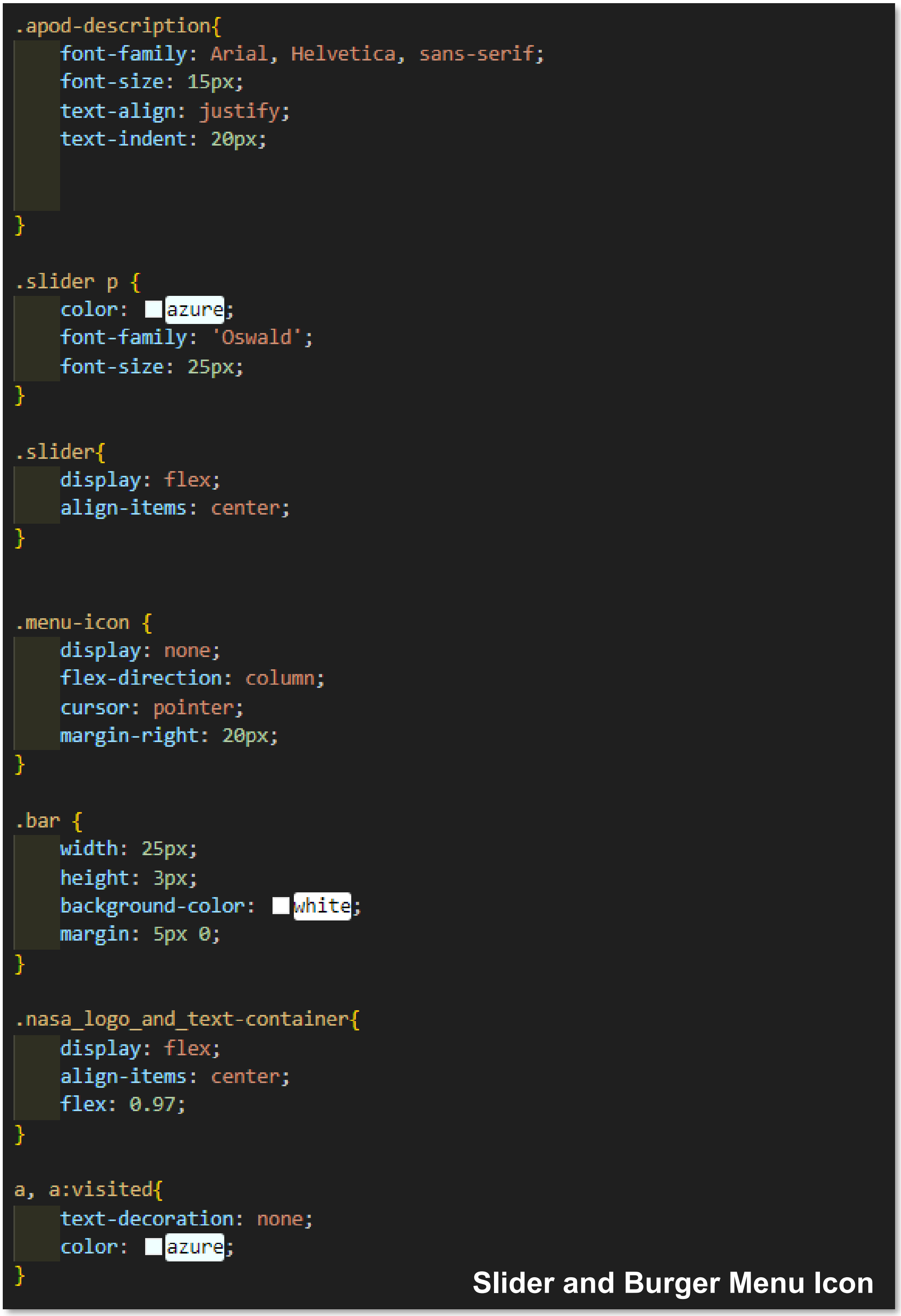
```
button:hover {
    color: #f8fafa;
    background-color: rgb(94, 60, 108);
}

label {
    font-size: 25px;
    font-family: "Oswald";
    margin-right: 10px;
    color: azure;
}

#dateSearch:focus,
#apod-date-input:focus {
    border-color: rgb(142, 5, 194);
    outline: none;
}

.search-based-container {
    display: flex;
    align-items: center;
}

.date-input-container {
    display: flex;
    align-items: center;
}

#apod-container {
    display: grid;

    grid-template-columns: repeat(4, 1fr);
    row-gap: 10px;

    align-items: space-between;

    column-gap: 15px;
    justify-content: center;

    margin: 0 auto;

}
```

Action Bar Hover, Focus, and Tile Container



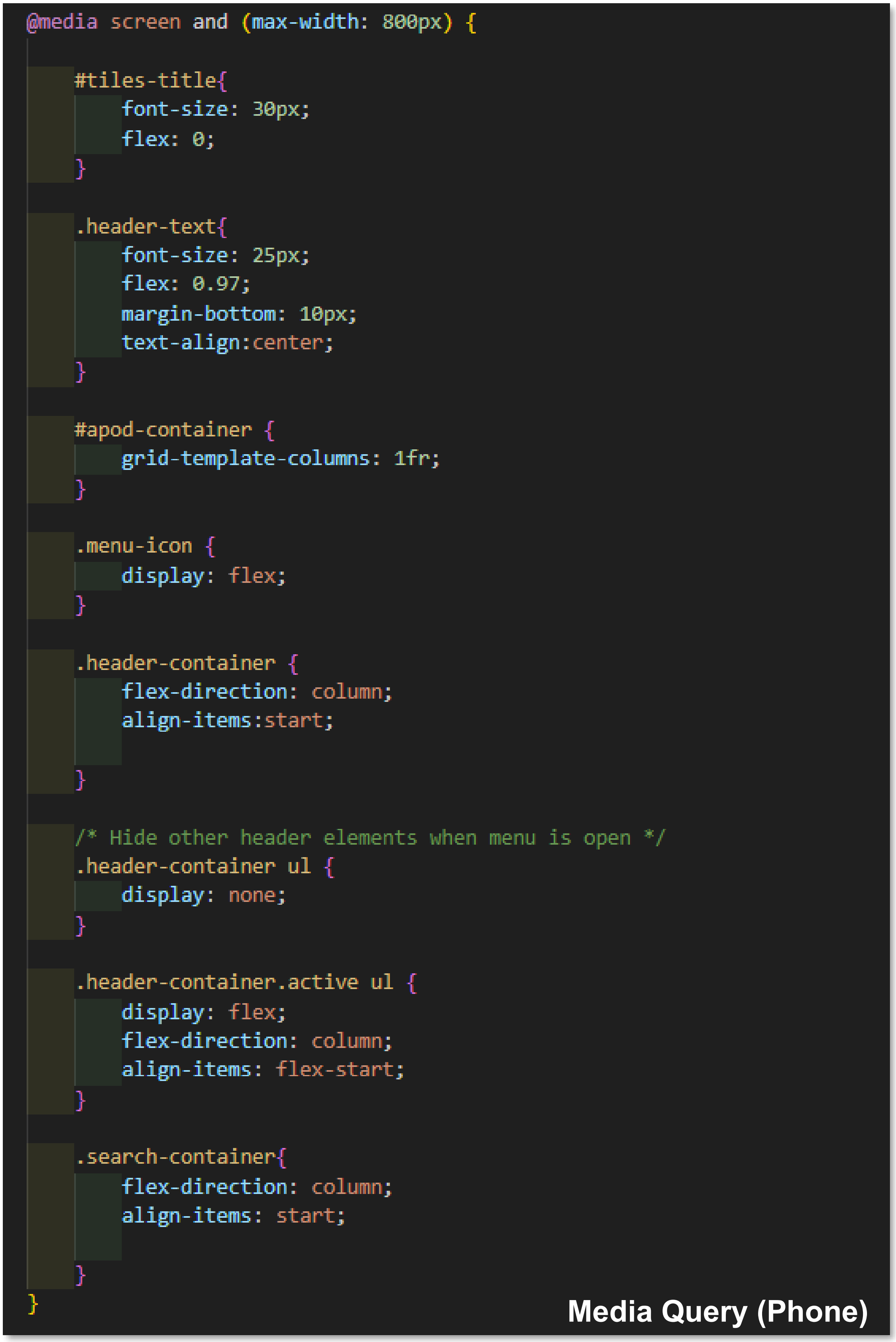
```css
.image-tile {
    padding: 30px;
    display: flex;
    flex-direction: column;
    border-radius: 20px;
    background-color: rgba(128, 119, 133, 0.4);
    transition: transform 0.3s ease;
}

.image-tile:hover {
    transform: scale(1.05);
}

#tiles-title{
    color: azure;
    font-family: "Oswald";
    font-size: 45px;
}

.apod-img {
    width: 100%;
    height: 400px;
    object-fit: cover;
    border-radius: 10px;
}

.apod-title, .apod-date, .apod-description{
    color: azure;
}

.apod-title {
    font-family: "Oswald";
    font-weight: bold;
    font-size: 30px;
    margin: 10px 0px 0px 0px;
}

.apod-date {
    font-family: Arial, Helvetica, sans-serif;
    font-size: 19px;
}
```

A.P.O.D. tile design



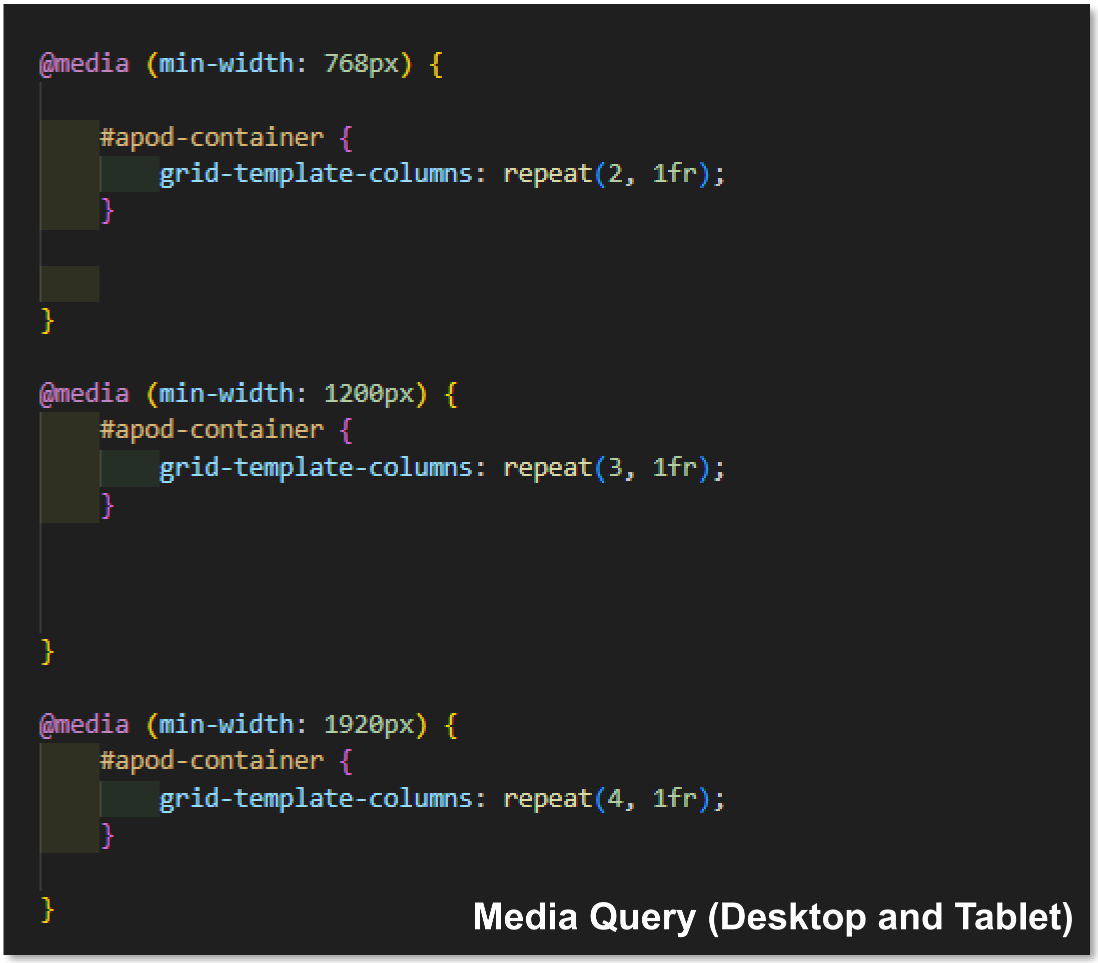
```
.apod-description{
    font-family: Arial, Helvetica, sans-serif;
    font-size: 15px;
    text-align: justify;
    text-indent: 20px;


}

.slider p {
    color: □azure;
    font-family: 'Oswald';
    font-size: 25px;
}

.slider{
    display: flex;
    align-items: center;
}


.menu-icon {
    display: none;
    flex-direction: column;
    cursor: pointer;
    margin-right: 20px;
}

.bar {
    width: 25px;
    height: 3px;
    background-color: □white;
    margin: 5px 0;
}

.nasa_logo_and_text-container{
    display: flex;
    align-items: center;
    flex: 0.97;
}

a, a:visited{
    text-decoration: none;
    color: □azure;
}
```

**Slider and Burger Menu Icon**



```
@media screen and (max-width: 800px) {

    #tiles-title{
        font-size: 30px;
        flex: 0;
    }

    .header-text{
        font-size: 25px;
        flex: 0.97;
        margin-bottom: 10px;
        text-align:center;
    }

    #apod-container {
        grid-template-columns: 1fr;
    }

    .menu-icon {
        display: flex;
    }

    .header-container {
        flex-direction: column;
        align-items:start;

    }

    /* Hide other header elements when menu is open */
    .header-container ul {
        display: none;
    }

    .header-container.active ul {
        display: flex;
        flex-direction: column;
        align-items: flex-start;
    }

    .search-container{
        flex-direction: column;
        align-items: start;

    }
}
```

Media Query (Phone)



```
@media (min-width: 768px) {

    #apod-container {
        grid-template-columns: repeat(2, 1fr);
    }


}

@media (min-width: 1200px) {
    #apod-container {
        grid-template-columns: repeat(3, 1fr);
    }



}

@media (min-width: 1920px) {
    #apod-container {
        grid-template-columns: repeat(4, 1fr);
    }

}
```

**Media Query (Desktop and Tablet)**

Good thing to notice is the header is in sticky position, which means it will stay at the top of the page even if the user scrolls down. Similarly, the default display of the burger menu icon is none, and it will only be visible when the screen size is smaller (phone). Furthermore, as the user interacts with the action bar, the color changes (dateSearch:focus and apod-date-input:focus). Additionally, as the user hovers over the image tile, it will scale (image-tile:hover).

Thank you. CPR2K23.