Final Exam

The final exam is associated with a webpage focused on astronomy. Your objective is to develop a JavaScript program that presents a star map featuring the constellations observable at either the current date and time or a map value provided by users. We have totally 24 unique image files containing sky maps, designated as final_sky0.png through final_sky23.png, each depicting a distinct rotation of the night sky. Follow the steps outlined below.

1. In final_home.html:
   - Add your name and the date to the files.
   - Create links to the "final_base.css" and "final_layout.css" style sheets.
   - Insert a script element to link the page to the final_mapper.js file. Make sure to defer the script loading until after the rest of the webpage has loaded.
   - Study the document's content and structure, and then save and close the file.

2. In final_mapper.js:
   - At the beginning of the file, include a statement to enforce strict mode for your JavaScript code.
   - Declare a variable and assign it a Date object representing the present day. Next, employ the toLocaleString() method to acquire the textual representation of this variable. Proceed to update the inner HTML content of the HTML element identified by the ID "timestamp" with the obtained textual value.
   - At the beginning, the map selection will be determined by the current day. You should determine the month and hour (in the 24-hour format) of the current time. The map number will be computed using the following formula:

     MapNumber = (2 * month + hour) % 24

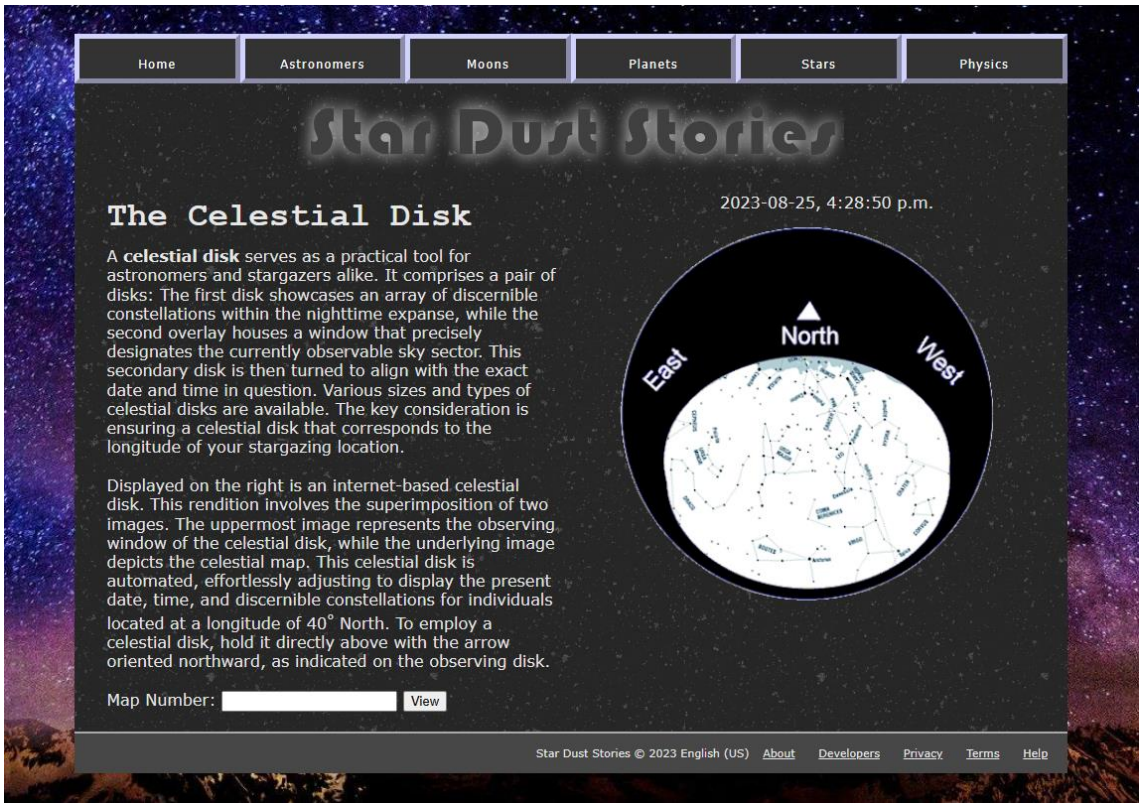
     For example, if the month is 8 and the hour is 16, then MapNumber = 8
     - Create an "img" element with the following attributes: id "map", a blank "alt" attribute, and a "src" set to the location of the image **"final_skyMapNumber.png"**, where "MapNumber" is the map number that you have just calculated.
     - Append the created img element to the container div that has id "mapContainer".
   - Your next step involves creating JavaScript to change the display of a map in response to user input within a designated text field.
     - Add an event listener for the "view" button. Once a user enters a number ranging from 0 to 23 and subsequently clicks the view button, the map will need to be updated. This process includes the creation of another img element, which is then added to the mapContainer div. It is important that the existed map img element must be removed before appending the new one.
     - You should also validate the numeric input provided by the users. If the users input a negative value or a number exceeding 23, it is necessary to present an alert dialog to notify them of the error.

3. Check the homepage using your web browser and confirm that it displays the present date and time, alongside the star map corresponding either to the current time or the map value entered by the user.

4. Compress **ALL the HTML, CSS, JS, and images files** as a single **zip/rar** file and submit it to Canvas.

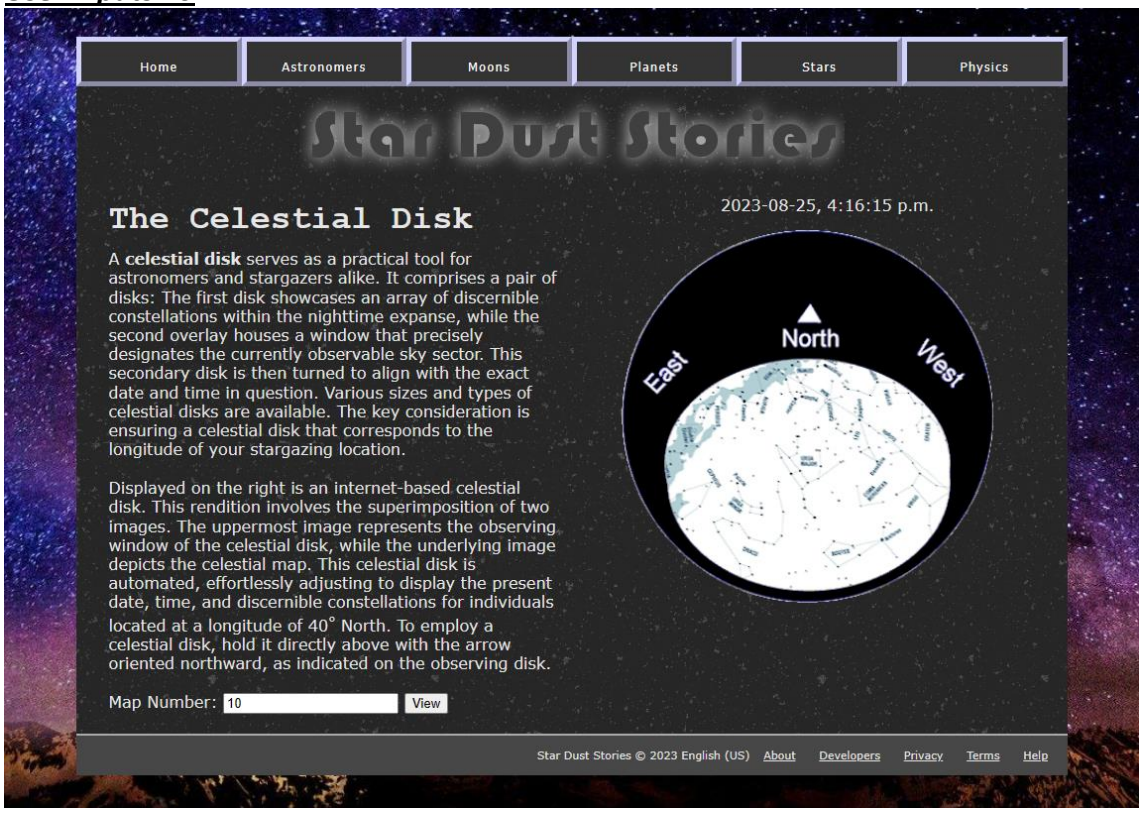
Result for your reference:

Default home page

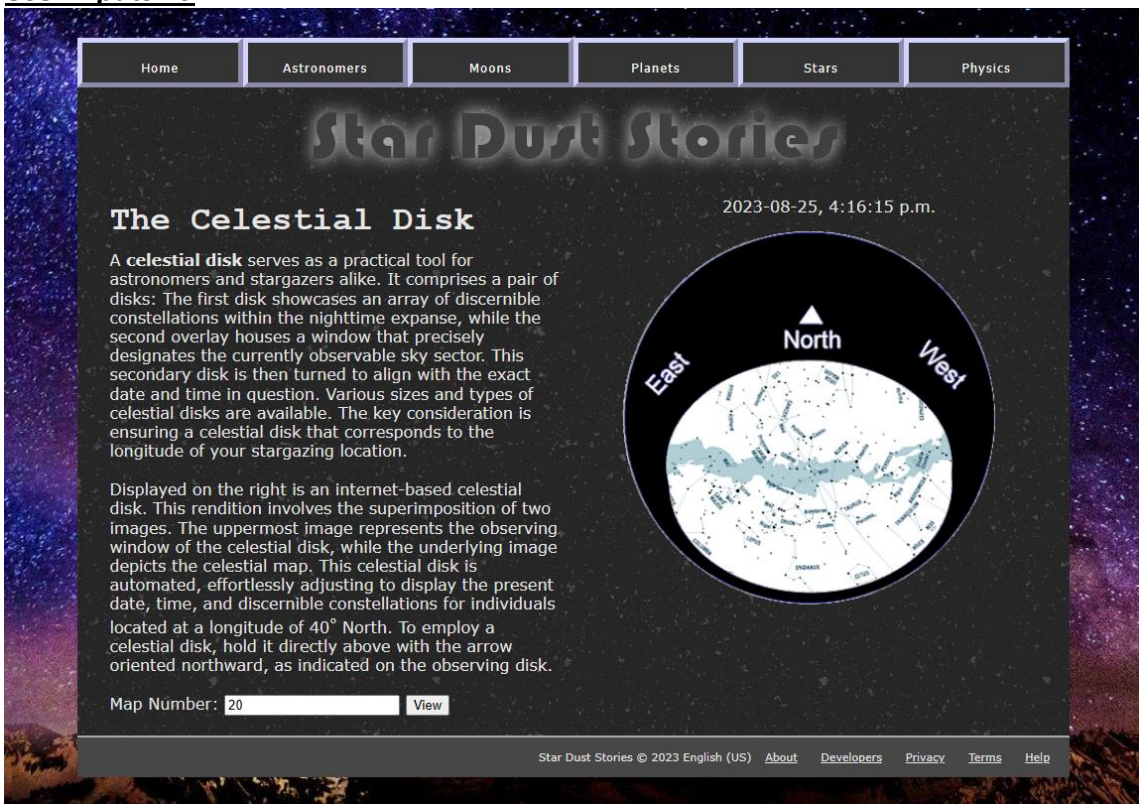


View maps by user inputs

User inputs 10



User inputs 20



Error if the users input an invalid map number value