CT30A2910 Introduction to Web Programming

Project – Weather forecast website

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Introduction to Web Programming
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1 DEFINITION

In the project "Weather Forecast Website," a user-friendly site is developed to provide free access to current weather conditions, along with a forecast for the upcoming week. The website features a graph displaying the current day's temperature in Celsius, Fahrenheit, and Kelvin. Additionally, there is a map that illustrates regional temperatures through color gradients, with a blue hue indicating areas of precipitation. Users can also view weather conditions for their own location and add favorite locations to the site. However, please note that while these favorites can be added, they cannot yet be saved to the user's device; they will only remain accessible for the duration of the session on the website.

2 TOOLS USED IN PROJECT

In this project, the tools utilized included Visual Studio Code, the Firefox browser, and my personal computer. Additionally, the development was done using JavaScript, HTML, and CSS to build the website's functionality and design.

3 FEATURE IMPLEMENTATION

All the implementation to get points from this project

Feature	Max points	Done
Well written PDF report	3	✓
Application is responsive and can be used on both desktop and mobile environment	4	✓
Application works on Firefox, Safari, Edge and Chrome	3	✓
The application has clear directory structure and everything is organized well	2	✓
All added together/what I think I derserve	**12**	

Feature	Max points	Done
User can search for locations	1	✓
User can use his/her location GPS-coordinates (Geolocation API)	2	✓
At least two data/forecast providers are used	3	✓
At least three data/forecast providers are used	2	✓
User sees the current weather at a specific location	1	✓
User sees the forecast for the next 24 hour, hourly based	3	✓
User sees the forecast for the next 7 days	3	✓
All the weather forecast elements uses icons (and numbers) for e.g. sunny and cloudy weathers	3	✓
The look and feel of the application reflects the current weather (e.g. it is blueish, when it is cold; reddish, when it is hot;, dark, when it is night...)	2	✓
User sees simultaneously two forecast in a graph, e.g. there is temperature forecast for the next 24 hours and there are two lines telling how the data sources are providing (a bit) different data	3	✓
User has the option to tag some locations as her favorites and thus access them from the favorites menu	2	✓
User has an option to switch between celsius and fahrenheit degrees and kelvins	2	✓
User views a map that displays temperature variations using colors and indicates areas of precipitation.	1	✓
All added together/what I think I derserve	**28**	

3.1 Feature explanation

- **User can search for locations.**
  The UI includes a search bar that allows the user to input a city or country name to find specific locations easily.

- **User can use his/her location GPS coordinates (Geolocation API).**
  The UI features a button that activates a function to retrieve the user's location based on their IP address.

- **At least two/three data/forecast providers are used.**
  The website integrates three forecast providers: OpenMeteo, OpenWeatherMap, and FreeWeatherAPI, to offer diverse weather data.

- **User sees the current weather at a specific location.**
  When the user accesses the website, they receive a short description of the current weather conditions for their selected location.

- **User sees the forecast for the next 24 hours, hourly based.**
  The UI displays a graph that shows the temperature forecast for the next 24 hours in hourly intervals.

- **User sees the forecast for the next 7 days.**
  The UI features a section divided into seven boxes, each representing the weather forecast for the next seven days, including the day the search is conducted. Each box displays the average temperature and a brief weather description.

- **All the weather forecast elements use icons (and numbers) for e.g., sunny and cloudy weather.**
  The UI incorporates icons alongside numerical data to visually represent weather conditions, such as sunny or cloudy.

- **The look and feel of the application reflect the current weather (e.g., it is bluish when it is cold; reddish when it is hot; dark when it is night…).**
  The UI adapts to current weather conditions by changing the background color

according to the time of day. Text colors also adjust based on temperature or precipitation, and imagery changes to depict rain, snow, or sunshine.

- **User sees simultaneously two forecasts in a graph, e.g., there is a temperature forecast for the next 24 hours, and there are two lines showing how the data sources provide (a bit) different data.**
  The graph includes temperature data from both OpenMeteo and OpenWeatherMap, with clearly labeled lines so the user can distinguish between the two sources.

- **User has the option to tag some locations as their favorites and thus access them from the favorites menu.**
  The UI provides a button to add the last searched location to favorites. However, please note that favorites are not saved on the user's device and will disappear after the session ends. This feature will be enhanced in the next update.

- **User has an option to switch between Celsius, Fahrenheit, and Kelvin.**
  The UI includes radio buttons that allow users to change the temperature unit, which updates automatically when weather data is retrieved.

- **User views a map that displays temperature variations using colors and indicates areas of precipitation.**
  The UI features a map that visually represents temperature variations through color coding and highlights areas of precipitation. The map automatically adjusts to center on the searched location.

4 USER MANUAL

Search feature

1. Declare on inpute box what city/country weather you want to see.
2. Pick the unit of temperature you want.
3. Press ’enter’ on keyboard or search button on UI.
4. Voilá it works.

See weather in own location

1. Click my location button.
2. Give browser permission to search location.
3. Voilá it works.

Favorites menu and use

1. Declare on input box what city/country you want to add to favorite.
2. Press add to favorites button.
3. Press favorites dropdown button.
4. See your favorite locations.
5. Click favorite location.
6. UI shows weather in this location.
7. Voilá it works.

5 DELCARATION OF AI USAGE

In this project ChatGPT was used for the proofreading of this document.