Frontend Programming

And

IT Agile Development

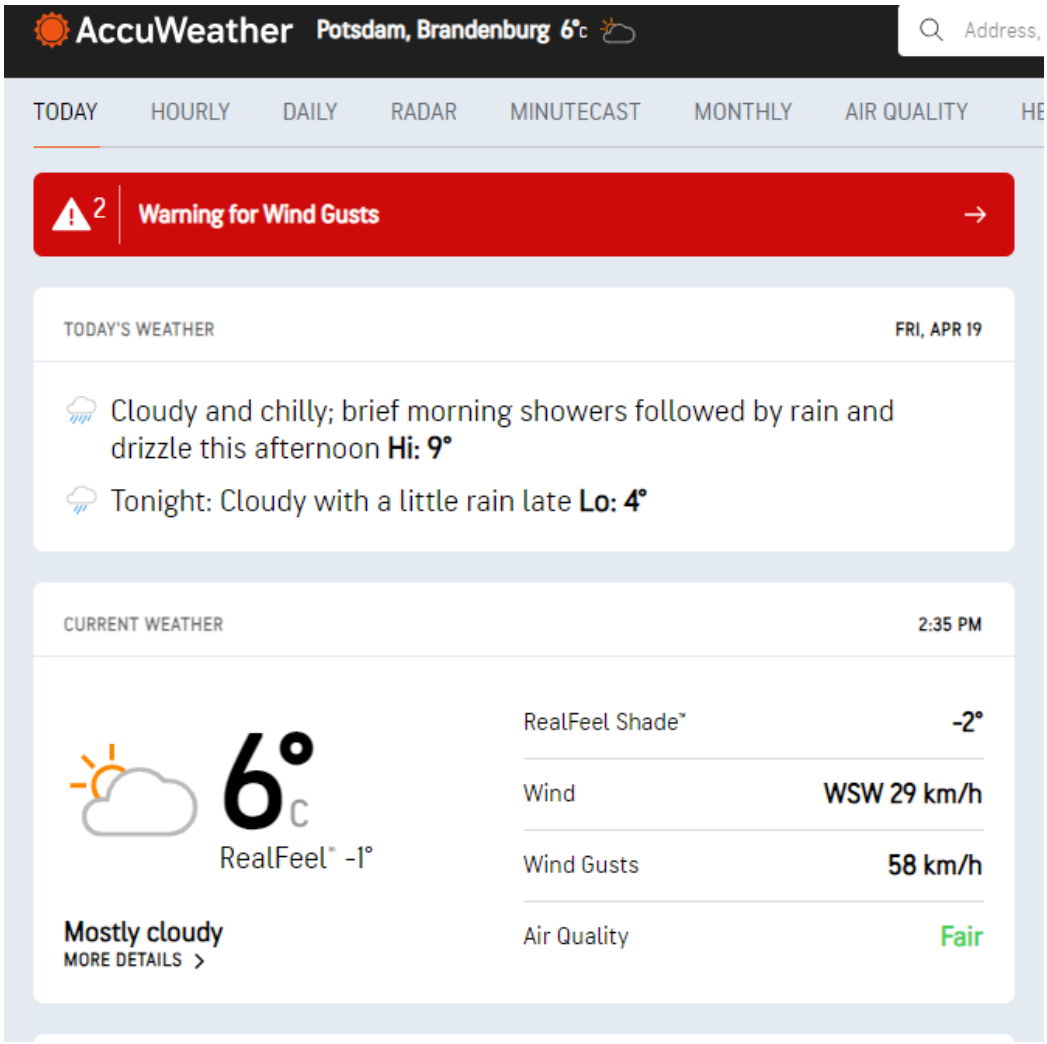
Final exam project and presentation

Your final project for the Frontend Programming and IT Agile Development Modules involves programming a Mobile Native app (Part 1 for both courses) and designing an interactive responsive landing page (Website) for Part 2 of the Frontend Programming course only.

The mobile native app must be programmed and installed on Android mobile devices, or it can also function on an Android Emulator. Additionally, the app must be compatible with both Apple and Android devices, depending on the available computer and mobile phone.

The website can be published on any free hosting service available, or on your local machine. A list of free hosting websites can be found at the following link: https://www.techradar.com/web-hosting/best-free-web-hosting /.

Both the landing page and the Mobile App will display the current weather conditions, related to the user's current location, city, date, and time. For an example of the Weather Page, you can visit the following link: https://www.accuweather.com/en/de/potsdam/14467/weather-forecast/167904



1- Weather App Requirements

The weather native app must work on the iOS simulator, Android Emulator using Android Studio, or it can be presented during the final exam presentation on an Android physical device. The app must be programmed using Flutter only; other programming languages will not be accepted.

The app must display the current temperature and weather condition (such as Sunny, Partially Cloudy, Showers, Rain, Snow, etc.). The city name can be determined automatically from the GPS locator in the mobile device, or it can be

provided by the users. Weather information will be collected using the OpenWeatherMap API: https://openweathermap.org/api

Users must be able to open the weather landing page from the weather app to view, for example, weather forecasts for the next few days.

If the group decides to propose their own idea, please select a simple app design and functionality in order to ensure a working app at the exam. The functionality of the app is more important than the design.

Your implemenation can be divided into 2 phases:

1- Phase 1:
   - Design the App using Figma, (Colors, and fonts, images if needed), Please uses the same logo colors for the Website design,
   - Program the stateless pages, and links the pages using navigation buttons,
   - Write and **prepare the Widgets Tree**,
2- Phase 2:
   - Adding the smart functionalities to the App by using APIs to collect the data, dart function, and statefull widgets,
   - Add the GPS locator,
   - Testing the App,
   - Submit the solution,

The native App must at least has the following work flow of as shown in the following image:

1- The App must at least has 3 pages. The landing page or (main page), and pages will be used to show the results,
2- The navigation between pages must be done using buttons, or navigation bars,
3- The App must have a unique lunch icon,
4- The App must have at least App bar with title,

5- The App must contain at least 1 Assets image.
6- The used image must fit automatically in the App screen if the **App is tilted** (No error must be generated).
7- The App must have a set of common colors for all it is pages.
8- At least one flutter package must be used,
9- The App must not show errors in Emulators/Simulator or even when is presented in the physical device.
10- You have to uses APIs to retrieves a real data from the internet.
11- You have to uses GPS location package: https://pub.dev/packages/geolocation
12- Using a material themes (Extra requirement).

In the following a list of the some documentation you may uses during your project.

a. Playing wave sound package: https://pub.dev/packages/audioplayers
b. Flutter documentation https://flutter.dev/docs
c. https://flutter-widget.live/basics/introduction
d. https://appicon.co/
e. https://flutterawesome.com/tag/apps-tag/

2- IT Agile Development Requirements

The work is done using group activities muss be done using agile methodologies, in 4 sprints, each is 1 week (4 weeks to finish the first part of the project (Native App).

You are free to distribute the loads in each sprint. Each groups will select a product owner, scrum master and development team and you will rotate the roles in each sprint.

Task should be estimated and a total execution timeline should be provided. Your worktime on every task should be recorded in Jira. You also must apply all SCRUM Rules & Events during execution.

1. Sprint 1:
    - Divide the working load,
    - Create Jira account,
    - Create the Backlogs ,
    - Create the logo,
    - Select the colors, and the design,
    - Read the requirements and API documentation,
    - Prepare the text, images, etc
    - Build the Figma Design
    - Test the Figma Design

2. Sprint 2: Building the First App and Tested,
    - Build the Main Screen,
    - Add the Appbar and Logo,
    - Build the screen 2, Screen 3, screen 4….
    - Link the screens using navigation buttons or Navigation Bar,
    - Test the App,

3. Sprint 3: Add the Texture and color design
    - Add the main textures and weather results to the main screen,
    - Add the colors, and weather images, as static
    - Add the City name, and Temperature, as static
    - Change the links to other screens,
    - Design the remaining screens,
    - Test App,

- 1st Quality review by the PO

4. Sprint 4: Link the Weather API to the Static page,
    - Change the statless pages to satefull pages when required,
    - Add GPS locator, to detect the city
    - Add the API, and read the weather data,
    - Test the Landing Page for all possible error,
    - Add The HTML link to your future Weather Website,
    - Publish the App,

5. Sprint 5: Quality review.
    - 2nd Quality review by the PO

IT AGILE DEVELOPMENT SPRINT PLAN

Lecture	Length	Sprint	Sprint	Sprint	Sprint	Sprint	Sprint	Sprint	Sprint	Sprint	Sprint	Sprint	Sprint
5+6	Double	Sprint Planning	Sprint Planning										
		Sprint Set up / Prep Work											
7+8	Double			1	1								
9+10	Double					2	2						
11+12	Double							3	3				
13	Single									4			
14	Single										5		
15+16	Double											SPRINT RETROSPECTIVE	
												Exam	
												Practical Presentations	

3 Web Page Requirements

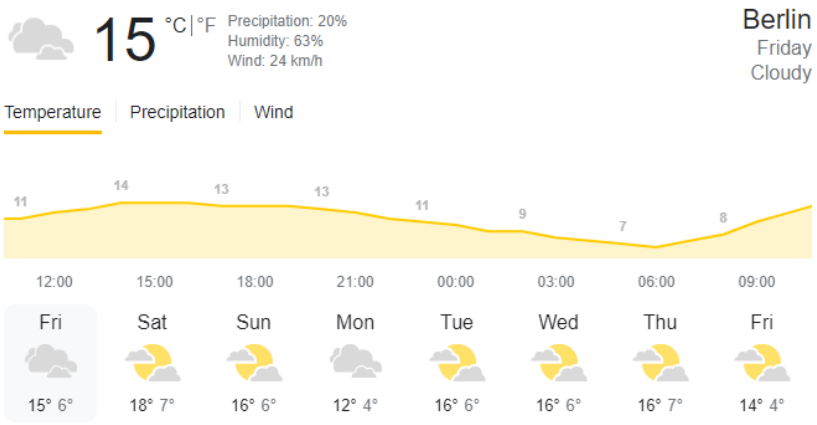
The user can see navigate the home page, see the weather of the current data and the actual location or city, the website must have the following pages:

1- Main page (Landing page), to present the weather, condition,
2- Contact Page, the page has to have a contact form,

3- About Us link to link to students' names and emails,

Your page must have the following requirements:

1- The user will be able to see the current weather condition, in interaction, images must be changed according to weather status, sunny, cloudy, etc. As shown in the following example.
2- The user will be able to search for different locations and cities, by searching for the city name,
3- The user will be able to see the weather forecast for 1 week, or 1 month, See the below example,
4- User able to change between Fahrenheit and Celsius,
5- Contact the Admin, using the contact form,



You are free to select the design images, and colors of the landing page. Please be sure that the following points must be accomplished,

A- Website Log, You can uses the following website: https://www.freelogodesign.org/

B- You can uses any web site templates, but be sure to know how to change the design of the template if required. Free templates can be found in the following links: https://html5up.net/

C- You can add icons, images to your web site to give a realistic design, a free icons can be downloaded from the following website: https://www.flaticon.com/, and free images can be downloaded from the following website: https://pixabay.com/

D- Your web must be designed using the following technologies:
   i. HTML5/ PHP,
   ii. CSS3,
   iii. Responsive web site,
   iv. Bootstrap,
   v. ES6 or Java Script.

E- You must have the following static HTML5 pages:
   2. Home page, or landing page,
   3. About Us page.
   4. Contact us page with HTML5 or Bootstrap form,
   5. Any additional page you see that is necessary for your Weather Landing page.

F- To extract the location of the user please read the following articles: https://betterprogramming.pub/how-to-detect-the-location-of-your-websites-visitor-using-javascript-92f9e91c095f

G- Use Weather Free API, to get the actual weather forecast to your web site, https://openweathermap.org/api

H- Uses a Jchart techniques to show the weather forecast, https://www.chartjs.org/docs/latest/

Notes:

- The work in the project is team work, so please divide and share the load between team members, each member of the team must clearly present his part at the final exam.
- The knowledge of all the part of the project is individual responsibility so each team member must know about all the part of the project in details so please share your works with your colleagues in the team in each meeting.
- Non-working App or Landing Page will not be accepted at the final exam, please be sure your Mobile App at least working even if the main functionality of your work is not completed in order to pass at least the minimum requirement.
- Please do not uses any websites software for example like Magneto, WordPress, Wix, shopify, … Your work will not be considered in the final project and you fail in the exam.
- **The practical presentation day (Sprint Retrospective) of the IT Agile development course will anwnced by your Agil Professor**
  The Final exam on IT Agile development will focused on Agile Methodology & Mindset, not on coding, more information will be provided during the class.

- **The final date of the exam of the Frontend Programming will be:**
  - **Frontend Programming SE (A) + DBDS 3.FS,**
    - **Mon, 1. Jul. 2024 16:30 18:45 P_Room 05.**
    - **Mon, 8. Jul. 2024 16:30 18:45 P_Room 05.**
  - **Frontend Programming SE (B)**
    - **Mon, 1. Jul. 2024 14:00 16:15 P_Auditorium.**
    - **Mon, 8. Jul. 2024 14:00 16:15 P_Auditorium.**
  - **Frontend Programming SE 3.FS**
    - **Tue, 2. Jul. 2024 P_Room 04.**
    - **Tue, 9. Jul. 2024 P_Room 04.**

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- Each team will have 10 minutes for presentation and 10 minutes for QaA. The order of the presentation will randomly selected so please all the groups must be ready 10 minutes before the exam.

The failure to attend exams will result in a failing grade for the course.

Good Luck

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