

## Frontend Programming

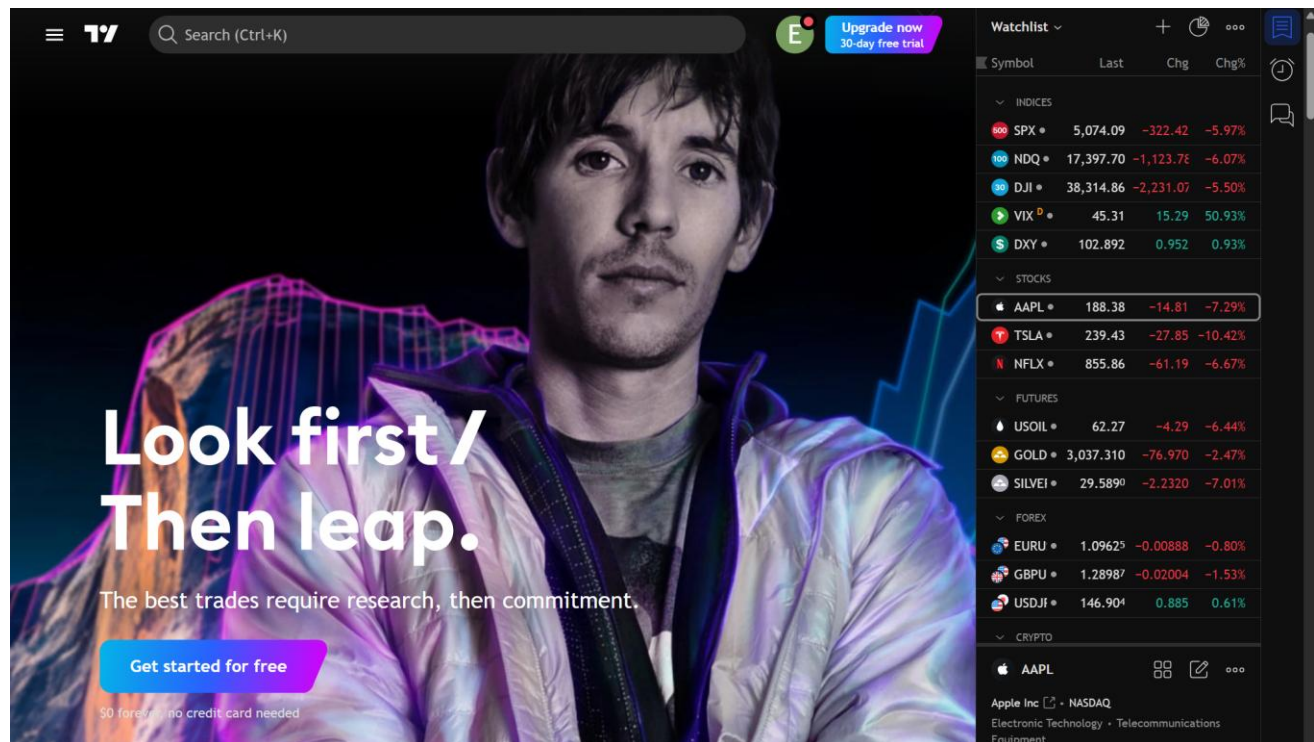
### Final exam project and presentation

Your final project for the Frontend Programming course involves programming a Mobile Native app (Part 1) and designing an interactive responsive Web App (Part 2).

The Mobile Native App must be programmed and installed on an Android mobile device, or it should 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 Web App should be published on a free hosting service. 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 Web App and the Mobile App will display the current stock market information from an API, related to the user's current location, date, and time. For an example of a Stock Market Web App, you can visit the following link: <https://www.tradingview.com/>



## 1- Stock Market Mobile App Requirements

The Stock Market Native App must work on an Android Emulator using Android Studio, or it can be presented during the final exam presentation on an Android physical device. **The mobile app must be programmed with Dart using Flutter only; other programming languages will not be accepted.**

The app must display the stock market prices with fitting visual language (such as changing text colors - red for the stock prices going down, green for the stock prices going up, etc.). The data should be visualized with tables and charts. The country name should be determined automatically from the Geolocator in the mobile device, or it can be provided by the users. Stock information can be collected using a free plan of an API such as: <https://marketstack.com/>

Users should be able to open the Stock Market Web Page from the Mobile App to view, for example, detailed charts of the last week.

Please create a simple app design and functionality to ensure a working app at the exam. The functionality of the app is more important than the design.

## 2- IT AGILE Development Requirements

In agile, the work is always a collaborative effort. So you will be doing this in groups. The Development should be executed in SCRUM according to the Frameworks rules.

### Sprint Planning

**To Process the initial requirements to address the content of the following points Pre-development process:**

- 1- Requirements gathering through list of client requirements and software specifications**
- 2- Requirement analysis and definition to conclude list of functions and features in each interface to be discussed in details with complete software interactions (input [functional] + output [nonfunctional] + behavior) for each interface (SRS).**

**From the details provided with this document and SRS about software product specifications, create and priorities' jobs list with the development team to prepare product backlog to be declared via Jira platform.**

- 3- Sort this tasks into a logical sequence for the development. Estimate and Prioritize them accordingly.**

**Then select number of tasks to be grouped and implemented by sprints**

**Sprint –1- Design of architecture (show code framework) and graphic design that matches the architecture based on client requirements**

**Sprint –2- Implementation**

**Sprint –3- Testing**

**Sprint - 4 Q-Review ( Quality Review )**

## DEVELOPMENT SPRINT PLAN

### GROUP WORK

Lecture Plan 2025									
Location	Course Topic	Lecture Content	Lecture ID	Sprint Planning	Sprint 01	Sprint 02	Sprint 03	Sprint 04	Sprint Retrospective
Potsdam	Agile Priming	Basics	1						
Potsdam	Agile Priming	Basics	2						
Potsdam	SCRUM / JIRA	SCRUM	3.4						
Potsdam	Sprint Planning	Agile Advanced	5.6	Planning Session					
Potsdam	Sprint 01	Agile Practical	7.8		Sprint 01				
Potsdam	Sprint 02	Agile Practical	9.10			Sprint 02			
Potsdam	Sprint 03	Agile Practical	11.12				Sprint 03		
Potsdam	Sprint 04	Agile Practical	13/14					Sprint 04	
Potsdam	Retrospective	Practical EXAM	15/16						EXAM

Your implementation can be divided into 2 phases

- 1- Phase 1:
  - Design the App using Figma, (Colors, fonts, images, and screen design), Please use the same logo and colors for the Website and for the Mobile App
  - Program the stateless pages, and link the pages using navigation buttons,
  - Write and prepare the Widgets Tree,
- 2- Phase 2:
  - Adding smart functionalities to the Mobile App by using APIs to collect data, dart function, and stateful widgets,
  - Add the Geolocator and extract country information,
  - Testing the App,
  - Submit the solution,

The Native Mobile App must have at least the following criteria points: use the following points to create the stories and tasks

- 1- The Mobile App must have at least 6 screens.
  - a. a main page,
  - b. a page where users view snapshot of news, as well as stock prices.

One or two of stock prices should be clickable and linked to the page in the following point,

- c. a detailed stock prices page of a certain company with tables, charts, key information, and links to news
  - d. a registration and/or sign-in page,
  - e. a page where users track their portfolio,
  - f. a page where users can buy the pro version of your app.,
- 2- The navigation between pages must be done using buttons, or navigation bars,
  - 3- The App must have a unique launcher icon,
  - 4- The App must have at least App bar with a title,
  - 5- The App must contain at least 1 Assets image.
  - 6- The image used must fit automatically in the App screen if the **App is tilted** (No error should be generated).
  - 7- The App must have a set of common colors for all its pages (continuity).
  - 8- At least one flutter package must be used,
  - 9- **The App should not display any errors in Emulator/Simulator or when it is presented in the physical device.**
  - 10- You have to use APIs to retrieve real data from the internet.
  - 11- You have to use Geolocator to extract country information.
  - 12- Using material theme (Extra requirement).

You may use the following list of documentation during your project.

- a. Playing sound package: <https://pub.dev/packages/audioplayers>
- b. Flutter documentation <https://docs.flutter.dev/>
- c. <https://appicon.co/>
- d. <https://flutterawesome.com/>

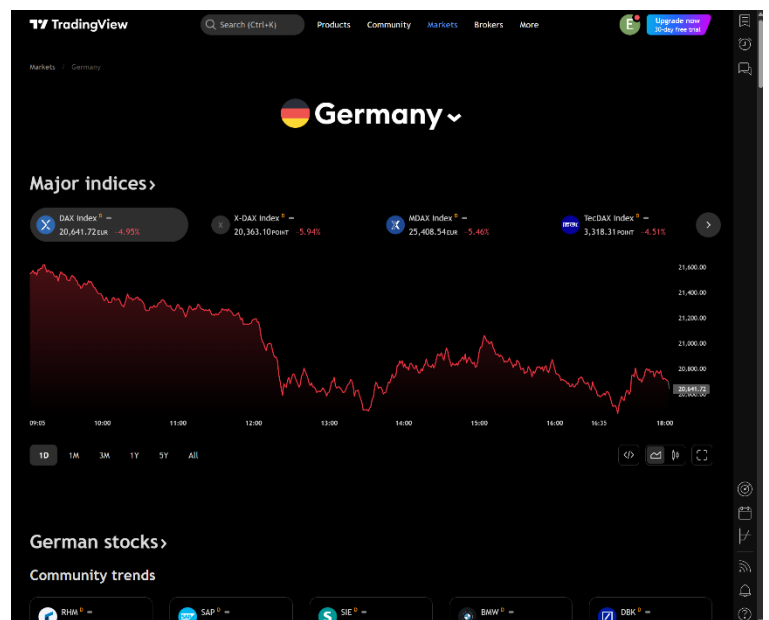
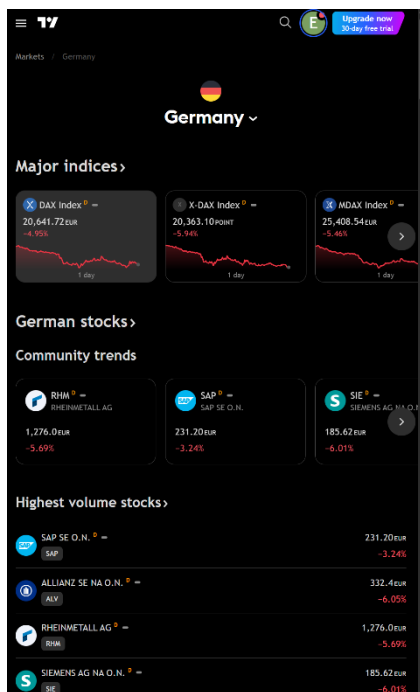
### 3 Stock Market Web App Requirements

The user can navigate the home page, see the stock market current data of the relevant country. The website must have the following pages:

- 1- a main page,
- 2- a page where users view snapshot of news, as well as stock prices. One or two of stock prices should be clickable and linked to the page in the following point,
- 3- a detailed stock prices page of a certain company with tables, charts, key information, and links to news
- 4- a registration and/or sign-in page,
- 5- a page where users track their portfolio,
- 6- a page where users can buy the pro version of your app.,

Your Website must have the following requirements:

- 1- The user will be able to see the current stock market information, in interaction. Images, icons and styles must change according to stock market information. For example, the stocks that are in negative trend should be displayed with red color, as shown in the following example.
- 2- The user will be able to search for different country stock markets and companies, by searching for the country and/or company name,
- 3- The user should be able to see the stock market prices for 1 day, 1 month, 3 months, or for a year. See the example below.
- 4- Users should be able to change between currencies.



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

- A- You can use the following website for the logo:  
<https://www.freelogodesign.org/>
- B- You can use any web site template but be sure to know how to change the design of the template if required. Free templates can be found in the following link: <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 site must be designed using the following technologies:
  - i. HTML5/ PHP,
  - ii. CSS3,
  - iii. Responsive web site,
  - iv. Bootstrap 5,
  - v. JavaScript.
- F- To extract the location of the user please read the following article:  
<https://medium.com/better-programming/how-to-detect-the-location-of-your-websites-visitor-using-javascript-92f9e91c095f>
- G- Use a Free Stock Market API, to get the actual data to your web site, such as <https://marketstack.com/>
- H- Uses a ChartJS techniques to display the charts,  
<https://www.chartjs.org/docs/latest/>



#### 4 Optional features:

If you want to create a more advanced application, please add the following features to your Mobile and Web App:

- Create light and dark mode that works throughout the Mobile and Web App
- Add a database to the app to save user information and to provide users to create a watchlist for certain stocks
- Create a functioning shopping card and add the session id
- Design and create admin GUI for the editors to add news to the webpage.

### Notes:

- The work in the project is teamwork, so please divide and share the load between team members. Each member of the team must clearly present his/her part at the final exam.
- Each team member must know about all the parts of the project in detail. Knowledge of all the parts of the project is an individual responsibility of each member. Please share your work with your colleagues in the team during your meetings.
- Non-working App or Landing Page will not be accepted at the final exam, please make sure that your Mobile App works properly.
- Please do not use any website content management system software like Magneto, WordPress, Wix, shopify, ... Your work will not be considered in the final project and you will fail in the exam.
- The date of the **Frontend Programming** exam will be announced later. It will be in the last week of the semester.
- The deadline to submit the files is **24.06.2025, 23:59**. Create a zip file with all the necessary components of the mobile and web app and submit it to the Teams assignment page.
- Each team will have 10 minutes for presentation and 10 minutes for Q&A. The schedule of the presentations will be announced later. Please be ready at the class 10 minutes before the exam.

The Agile Practical exam will focus on your understanding of the Agile Methodology & Mindset. Not on coding!

**The failure to attend exam & the practical presentation in person will result in a failing grade for the course.**

Good Luck

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