**Frontend Assignment - Real-Time Collaborative Whiteboard**

**Problem Statement:**

Create a web application using React that allows users to upload images and receive real-time predictions from a pre-trained machine learning model. The application should be able to classify the uploaded images into multiple categories.

**Minimum Requirements:**

* Users can create a new whiteboard session or join an existing one.
* The whiteboard should support drawing using different colors and brush sizes.
* Implement the ability to undo/redo the last action on the whiteboard.
* Users should be able to see the cursors of other connected users moving in real-time, indicating their drawing actions.
* Add an option to save the whiteboard content as an image or PDF file.
* Implement authentication (user signup and login) to ensure that only authorized users can access the whiteboard.
* The application should be responsive and work on both desktop and mobile devices.

**Must have:**

* Use React for front-end development.
* The UX should look professional – see any white boarding tool from Microsoft for UX reference – bad ux choices will have negative points
* For real-time functionality, consider using WebSocket or a real-time database like PostGres SQL via a docker container.
* For drawing on the whiteboard, you can explore libraries like Fabric.js or Konva.js.
* Implement secure authentication using a backend service of keycloak only. Please use keycloak via a docker. User should only be allowed on home screen after login
* Clean & fluidic layout – use bootstrap (5.0) only
* Code must be written in **TypeScript only**, no JS code will be accepted
* Error-free, **Readable, Simple & Clean code**
* Let me stress the previous point - **Readable, Simple & Clean code**

**Bonus Points:**

* Allow users to collaborate through live chat while drawing on the whiteboard.
* Implement an invitation system, where users can invite others to join their whiteboard session via email.
* Add the ability to export the whiteboard content as a video with a playback of the drawing actions.

**Quick Hint:**

You can use local storage to save the user preferences.

**Few links for reference:**

1. Keycloak - <https://www.keycloak.org/> & <https://www.keycloak.org/getting-started/getting-started-docker>

**Note:**

1. **PLEASE NOTE THAT, WE HAVE A ZERO TOLERANCE POLICY FOR PLAGIARISM. IF YOU PLAGIARIZE THE TEST, YOU WILL BE CAUGHT AND IMMEDIATELY TERMINATED.**
2. **Please do not submit the code if code is not up to a standard.**
3. **Please do not submit the assignment if UI doesn’t look clean and beautiful like image above.**
4. **Please do not send LinkedIn Request to Connect!**
5. **PLEASE MAKE SURE YOU SUBMIT EVERYTHING VIA A GITHUB LINK AND PLS UPLOAD ALL ASSETS AND FILES. PLEASE MAKE SURE YOU UPLOAD THE SCREENSHOT OF THE FINAL APPLICATION YOU BUILD.**