Practical Task for Full Stack Developer

Description:

Design and implement a simple task management system with the following features:

1. **User Registration and Login:**
   - Users can register an account (including username, password, and email).
   - Users can log in and log out of the system.
2. **Task Management:**
   - Logged-in users can create, edit, delete, and view tasks.
   - Each task includes a title, description, status (to-do, in progress, completed), and due date.
3. **Filtering and Sorting:**
   - Users can filter tasks based on their status (to-do, in progress, completed).
   - Users can sort tasks by their due date, supporting both ascending and descending order.
4. **Technical Requirements:**
   - The frontend should be implemented using React, providing an intuitive user interface.
   - The backend should be developed using .NET Core and provide RESTful APIs for the frontend.
   - The database should use PostgreSQL with a well-designed schema.
   - Entity Framework should be used for database operations.
   - Use Docker to containerize the frontend, backend, and database, providing a docker-compose file for easy startup.
5. **Bonus Features (Optional):**
   - **User Role Management:** Add roles for admin and regular users. Admins can manage all users and tasks, while regular users can only manage their own tasks.
   - **Keyword Search:** Users can search tasks based on the title.

    - **Testing Implementation:** Implement basic unit tests and end-to-end tests to ensure the functionality of the system.

Deliverables:

- Complete source code and necessary documentation (e.g., how to set up the development environment and run the project).
- API documentation (can be generated using Swagger or Postman).
- Deployment instructions, including how to use docker-compose to start the entire application.

Evaluation Criteria:

- Completeness of the implemented features.
- Code structure and readability.
- Correctness and operability of Docker containerization.
- Implementation of bonus features (if chosen).