ToDo List Application - Coding Challenge

Objective

Create a command-line ToDo List application that allows users to manage their tasks efficiently. The application should persist data in a database and provide basic CRUD (Create, Read, Update, Delete) operations.

Technical Requirements

- Choose either Java or C++ for implementation.
- Use any RDBMS (Relational Database Management System) to persist data.
- Implement a console-based user interface (no GUI required).

Core Features

1. Application Startup

- On startup, the application should load existing data from the database.
- Present the user with the following options:
    - Insert Items (Press I)
    - Edit Item (Press E)
    - Remove Items (Press R)
    - Print Items (Press P)

2. Insert Item

- Prompt the user to enter text for a new ToDo list item.
- Add the provided text to the list of items in the application.
- Assign a unique item number to the new entry.

3. Edit Item

- Ask the user to provide the item number to be edited.
- Display the existing item text for the specified number.
- Prompt the user to enter new text for the item.
- Update the item with the new text while maintaining the same item number.

4. Remove Item

- Request the item number to be removed from the user.
- Delete the specified item from the ToDo list.
- Update the remaining items to reflect new item numbers if necessary.

5. Print Items

- Display all items in the ToDo list along with their corresponding item numbers.

Data Persistence

- Ensure that all changes (insertions, edits, and removals) are persisted in the database.
- Load existing data from the database when the application starts.

Extra Challenges (Optional)

Candidates who complete the core features can attempt these additional challenges:

1. Multiple Operations:
    - o Implement functionality to insert, edit, or remove multiple items in a single operation.
2. Sorting:
    - o Add options to sort the Todo list based on:
        1. Item Number
        2. Date Created (you'll need to add this attribute to your data model)

Evaluation Criteria

- Code organization and clarity.
- Proper use of data structures.
- Error handling and input validation
- Database integration
- Adherence to object-oriented programming principles (if applicable)
- Completion of core features
- Successful implementation of extra challenges (if attempted)

Submission Guidelines

- Provide the complete source code for the application.
- Include any necessary setup instructions for the database.
- Briefly document any assumptions or design decisions made during implementation.

Good luck!