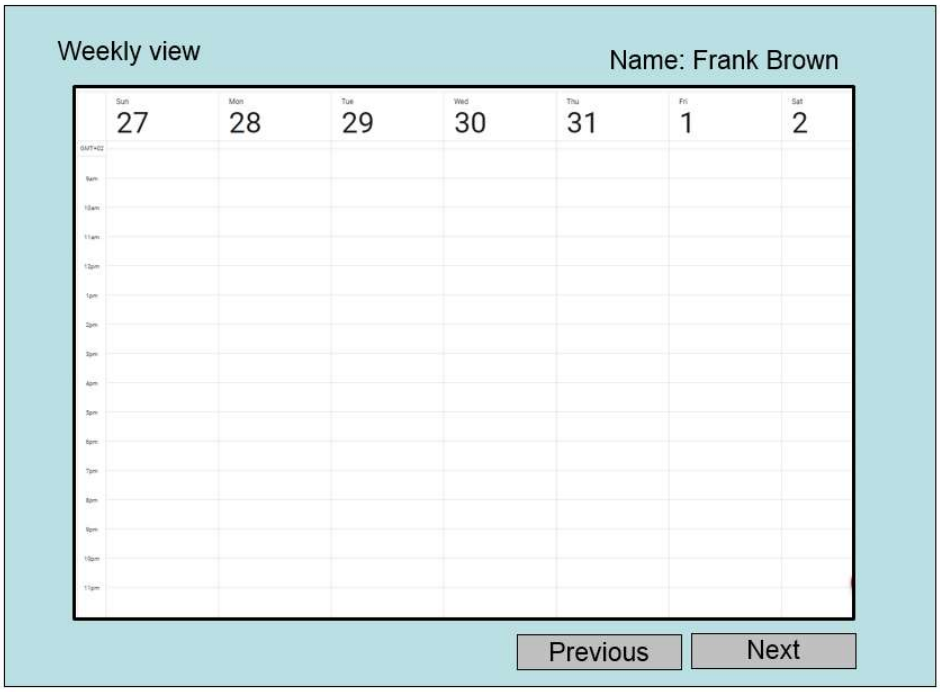
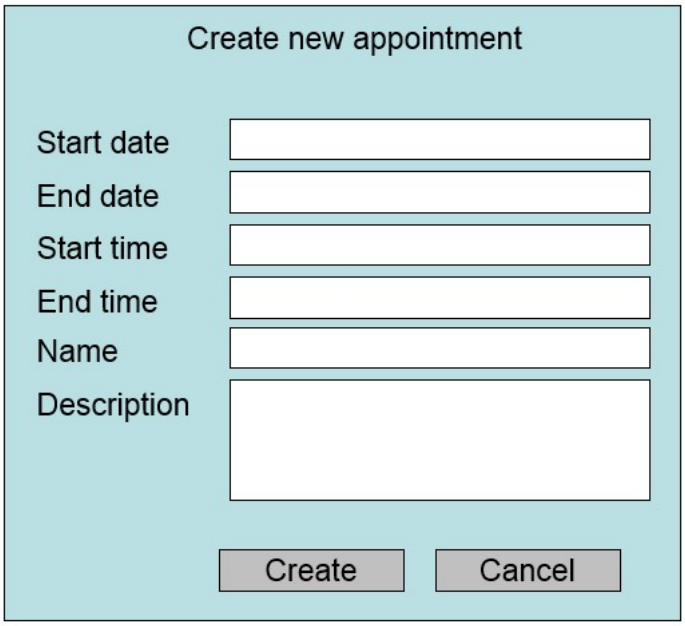
Question 2 [55 points] {70 minutes}

Suppose we need to design a calendar application with the following requirements:

- Users of the application can create their own calendar.
- They can add and remove appointments to and from their calendar.
- Every appointment contains the following data: startDate, startTime, endDate, endTime, name of the appointment, and description of the appointment.
- Users first have to login with their username and password to access their calendar.
- The calendar can be shown with multiple views (monthly, weekly, daily)
- It should be easy to add more views (yearly, …)
- Users can choose to show multiple views at the same time. So a user can choose to show both the monthly and the weekly view at the same time. This means when a user adds a new appointment, this appointment should show up both on the monthly view as well on the weekly view
- Users can be notified 1 hour before the appointment is scheduled.
- Users can choose how to be notified: by email or by whatsapp message.
- It should be easy to add more ways of notification (SMS,…)
- All calendar data should be stored in a database.
- The application also supports undo/redo for both creating and removing an appointment

Here are some prototype screens that have been developed in the requirements phase:





a. Draw the class diagram of your calendar application.

b. Draw the sequence diagram of the following scenario

1. The user first creates a new appointment, and this new appointment is shown on both the monthly view and the weekly view
2. Then the user selects the undo action, so the appointment disappears from both the monthly view and the weekly view
3. Then the user selects the redo action, so the appointment appears again on both the monthly view and the weekly view

Make sure you add all necessary UML elements (interfaces, abstract classes, attributes, methods, multiplicity, etc) to communicate the important parts of your design.

Make sure that your design follows the design principles we studied in this course.