NORTHERN UNIVERSITY
BANGLADESH

Department of Computer Science and Engineering

Final Project Report

Project Name: Medicine Reminder

Course Title: Software Development 1

Course Code: CSE 1290

Section: 2C

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Introduction

The **Medicine Reminder System** is a C++ console-based program designed to help users register their personal information, maintain a medicine library, and schedule reminders for taking medicines. It provides basic medicine record management functionalities such as adding, searching, deleting, and modifying medicine details. Furthermore, it simulates notifications to remind users about their scheduled medicines. The system has been developed in the C++ programming language as part of the Software Development 1 course.

This project is useful for personal healthcare management and demonstrates fundamental concepts of **structured programming, data storage, and simulation** in C++.

Objectives

- To design a **simple and efficient medicine management tool**.
- To allow users to **register** personal details.
- To create and manage a **medicine library**.
- To provide features for **adding, searching, deleting, and updating dosage information**.
- To let users **set schedules** for medicines and receive **simulated reminders**.
- To practice and implement **C++ programming concepts** (structures, vectors, loops, functions, and threads).

System Requirements

Hardware Requirements

- Processor: Intel/AMD Dual Core or higher
- RAM: 2 GB minimum
- Storage: 100 MB free space
- OS: Windows/Linux/Mac (any OS with a C++ compiler)

Software Requirements

- C++ Compiler (e.g., g++ in MinGW or Linux GCC)
- IDE/Text Editor (e.g., Code::Blocks, Dev-C++, VS Code, CLion)

Tools and Technologies Used

- **Programming Language:** C++ (Standard Library)
- **Libraries Used:**
  - `<iostream>` → Input/Output operations
  - `<string>` → String handling
  - `<vector>` → Dynamic storage of medicines & schedules
  - `<thread>` and `<chrono>` → Notification simulation (delays)

System Design

Main Modules

1. **User Registration**
   - Collects and stores user details (name, age, gender, phone).

2. **Medicine Library**
    - Stores medicines with names and dosages.
    - Features include:
        - View Medicines (names only)
        - Add Medicine (initially without dosage)
        - Search Medicine (with dosage info)
        - Delete Medicine
        - Modify Dosage
3. **Medicine Scheduling**
    - Users set a schedule for selected medicines at specific times.
    - Warns if dosage is not set.
4. **Notification System**
    - Simulates reminders with text messages and delay using `sleep`.

Program Flow

Step-by-Step Flow

1. Start program → Show title.
2. Register user details.
3. Load default medicines into the library.
4. Open the **Medicine Library Menu** for management.
5. Allow user to set a schedule for medicines.
6. Trigger notifications with simulated sound/text.
7. Program ends.

Implementation

Data Structures

- `struct UserInfo` → stores user information.
- `struct Medicine` → stores medicine name and dosage.
- `struct MedicineSchedule` → stores medicine name and scheduled time.

Key Features

- Uses `vector` for dynamic storage.
- Uses `thread` & `chrono` for notification simulation.
- Ensures modularity with **functions** for each operation.

Output (Sample Run)

```
===== Medicine Reminder System =====

===== User Registration =====

Enter your name: Alex

Enter your age: 25

Enter your gender (Male/Female/Other): Male

Enter your phone number: 017XXXXXXXX

User Info Registered Successfully!

Name: Alex
```

Age: 25

Gender: Male

Phone: 017XXXXXXXX

===== Medicine Library Menu =====

1. View Medicines

2. Add Medicine

3. Search Medicine

4. Delete Medicine

5. Set/Modify Medicine Dosage

0. Exit Library Menu

Enter choice: 1

===== Medicine Library =====

0. Nafa A

1. Nafa B

2. Nafa C

3. Nafa D

How many medicines do you want to schedule? 2

Select medicine index (0-3): 0

Enter time for Nafa A (HH:MM, 24hr format): 08:00

Select medicine index (0-3): 2

⚠ Warning: Dosage for Nafa C is not set. Please update it in the library.

Enter time for Nafa C (HH:MM, 24hr format): 21:00

===== Triggering Notifications =====

Reminder: Take Nafa A | Dosage: 500mg at 08:00 ⏰

[Playing notification sound...]

Reminder: Take Nafa C | Dosage: Not set at 21:00 ⏰

[Playing notification sound...]

Advantages

- Simple and easy to use.
- Lightweight and runs on any system.
- Provides reminder simulation for medicines.
- Demonstrates structured C++ programming.

Limitations

- Notifications are **simulated only** (not real-time alarms).
- No **file storage** → data is lost after program exit.
- No GUI → only console-based.

Future Enhancements

- Add **file handling/database** to store medicines permanently.
- Implement **real-time clock** for live reminders.
- Create a **GUI version** using Qt/GTK.
- Add SMS/Email/Push notifications.

Conclusion

The **Medicine Reminder System** successfully demonstrates how C++ can be used to create a practical application for healthcare management. It includes essential features like user registration, medicine library management, scheduling, and notifications. With further development, it can evolve into a fully functional personal healthcare reminder tool.

On the other hand The project's outcome showed that C++ is an effective tool for simulating a Medicine Reminder environment. This experience not only deepened our understanding of **structured programming** but also strengthened our abilities in **problem-solving**, **teamwork**, and **debugging**.

GitHub Repository

https://github.com/dev-asad-galib/medicine_reminder.git