Hospital Management System

Overview

This project is designed to simulate a basic Hospital Management System using Java. The system allows users to list available doctors, get details about specific doctors, and schedule appointments. The project demonstrates key Java concepts such as collections, multithreading, exception handling, inheritance, polymorphism, and synchronization.

Objectives

- ✓ Understand and implement basic Java collections.
- ✓ Use threads to simulate delay and enhance user experience.
- ✓ Handle exceptions gracefully.
- ✓ Demonstrate inheritance and polymorphism.
- ✓ Synchronize methods to ensure thread safety.

Functional Requirements

1. List Available Doctors:

- The system should display a list of available doctors with their specialties.
- Use a HashMap to store doctor specialties.

2. Doctor Details and Appointment Scheduling:

- Provide details of doctors including their names and specialties.
- Allow users to select a type of doctor for scheduling an appointment.
- Simulate appointment preparation with a delay.

3. Patient Information Collection:

- Collect and display patient information such as name, sex, and age.

Project Structure

Package: com.hospital

Classes:

General: Contains methods to list doctors and display details with synchronized methods and thread sleep for simulation.

Doctor: Extends General and overrides the check method to collect patient information.

Hospital: Contains the main method to drive the application.

Class Descriptions

General

Methods:

List(): Lists available doctors using a HashMap and simulates delay with Thread.sleep().

details(): Displays doctor details and allows users to schedule appointments. Synchronization ensures thread safety.

check(): Placeholder method intended for overriding.

Doctor

Methods:

check(): Collects patient information such as name, sex, and age.

Hospital

Methods:

main(String args[]): Entry point of the application. Welcomes users, lists doctors, collects patient information, and schedules appointments.

Implementation Details

1. Listing Doctors:

- Implemented in General class using a HashMap to store doctor types.
- Uses Thread.sleep() to simulate delay in listing each doctor.

2. Doctor Details and Appointment Scheduling:

- Synchronized method details() in General class to display doctor details and handle user input for appointment scheduling.
- Simulates appointment preparation with Thread.sleep().

3.Patient Information Collection:

- Overridden check() method in Doctor class to collect and display patient details.
- Uses Scanner for input.

Usage

- Run the Hospital class.
- The system will display a welcome message.
- The List() method will list available doctors with a simulated delay.

- The check() method in Doctor class will prompt the user to enter patient details.
- The details() method will display doctor details and allow the user to schedule an appointment.
- The system will simulate the appointment preparation and confirm the appointment.

Sample Output with Multithreading(Synchronization)

Note :details are dispalyong every 1000 milliseconds

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WELCOME....!
THE LIST OF DOCTORS WE HAVE IS :
1=NEUROLGIST
2=OPTHAMOLOGIST
3=DENTIST
4=DERMATOLOGIST
5=CARDIOLOGIST
6=GENERAL SURGEON
7=ENT
ENTER PATIENT NAME:
sathya
ENTER YOUR SEX:
male
ENTER PATIENT AGE:
30
THANK YOU FOR ENTERING YOUR DETAILS
HERE IS THE LIST OF DOCTORS WITH THEIR DESIGNATION:
Neurologist :Devasena
Othomolgist :Kattapa
Dentist :Bahubali
Dermotologist :Ballaladeva
Cardiologist :Keerthi
General Surgeon :Suresh
ENT :RajMohan
SELECT THE TYPE OF DOCTOR YOU WANT TO CONSULT(AS PROVIDED IN THE ABOVE IST(APPROPRIATE)) :
keerthi
THANK YOU FOR WAITING,YOUR APPOINTMENT IS READY
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