**Overview:**

The Hospital Management System is designed to streamline the interaction between patients, doctors, and the hospital's administrative system. It offers functionalities tailored to the needs of both patients and doctors, ensuring efficient management of appointments, schedules, and financial transactions.

**Key Components:**

**1. User Class:**

* The `User` class serves as the base class for both patients and doctors. It encapsulates common attributes and methods such as username, password, balance management, and service display.

**2. Patient Class:**

* Derived from the `User` class, the `Patient` class extends functionality specific to patients, such as account charging and discount code application.

**3. Doctor Class:**

* Similar to the `Patient` class, the `Doctor` class represents healthcare professionals within the system. It includes features like schedule management and availability tracking.

**4. HospitalSimulation Class:**

* The `HospitalSimulation` class acts as the main driver of the system, orchestrating user interactions and service access.
* It manages user registration, authentication, and service provision through a command-line interface.

**Detailed Functionality:**

**1. User Registration:**

- Patients and doctors can register by providing a unique username and password.

- Upon registration, users are added to separate lists maintained by the system.

**2. User Authentication:**

* Registered users can authenticate themselves by providing their username and password.
* Successful authentication grants access to user-specific services and functionalities.

**3. Patient Services:**

* Patients have access to services such as viewing their account balance, charging their account with funds, and applying discount codes to avail discounts on hospital services.

**4. Doctor Services:**

* Doctors can view their schedules, manage availability slots, and perform administrative tasks related to patient appoin.tments

**5. Discount Code System:**

* The system includes a discount code mechanism allowing eligible users to apply unique discount codes.
* Discount codes provide either percentage-based or fixed amount discounts on hospital services, enhancing affordability for patients and incentivizing appointments for doctors.

**Usage Guidelines:**

**1. Installation:**

* Clone the repository to your local machine and compile the Java files using a Java compiler.

**2. Execution:**

* Run the `HospitalSimulation` class to launch the Hospital Management System.
* Follow the command-line prompts to register, log in, and utilize the system's functionalities.

**3. Contribution:**

* Contributions to the project are encouraged. Fork the repository, implement changes or enhancements, and submit pull requests for review.

This detailed explanation provides a comprehensive overview of the Hospital Management System, its functionalities, usage guidelines, and potential areas for future development and enhancement.