Java-Based Hospital Manager

by

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Abstract

In 2018, there were a recorded 36.3 million hospital admissions in the United States alone [1]. With millions of people being admitted to hospitals around the country, an easy way to keep track of patients is necessary to ensure their information is not lost. If someone were to be admitted to a hospital, attending doctors and nurses need to have access to that person's medical history to avoid improper care and a possible lawsuit. Using a computer system to keep track of patient's information, such as medications and insurance is the optimal choice. A computer system can swiftly look up a patient and make their information available to the attending doctors and nurses. Along with quick look up speed, a computer system allows for easy data security. Patient information is closely guarded and laws are enacted in order to protect a patient's medical information. Making sure data does not spill from one part of the program to another is important for a successful hospital manager system. Using Java, the group hopes to create a Hospital Management System that makes interfacing between the user (doctors and nurses) and the computer system that houses all the patient information an easy step-by-step process while allowing for ethical data security.

Operation

Operation of our Hospital Management System is easy and relies on a simple user menu. This user menu has 4 options:

1. Add a new patient to the system
2. Look up a patient in the system
3. Add an appointment to existing patient
4. Quit

All the user has to do is input the number associated with their choice into the console and then the program gives the user step-by-step instructions until the operation is completed. For example, if a user would like to add a new patient to the system, they simply have to:

1. Input "1" into the console on the user menu screen
2. Follow the program's directions to fill in patient attributes

Program directions for adding a patient include prompts to enter a patient's:

1. Full name
2. Gender
3. Month, day and year of the patient's birthdate
4. Attending doctor's full name
5. Attending nurse's full name
6. Insurance cardholder's name
7. Cardholder's id number
8. Cardholder's group number

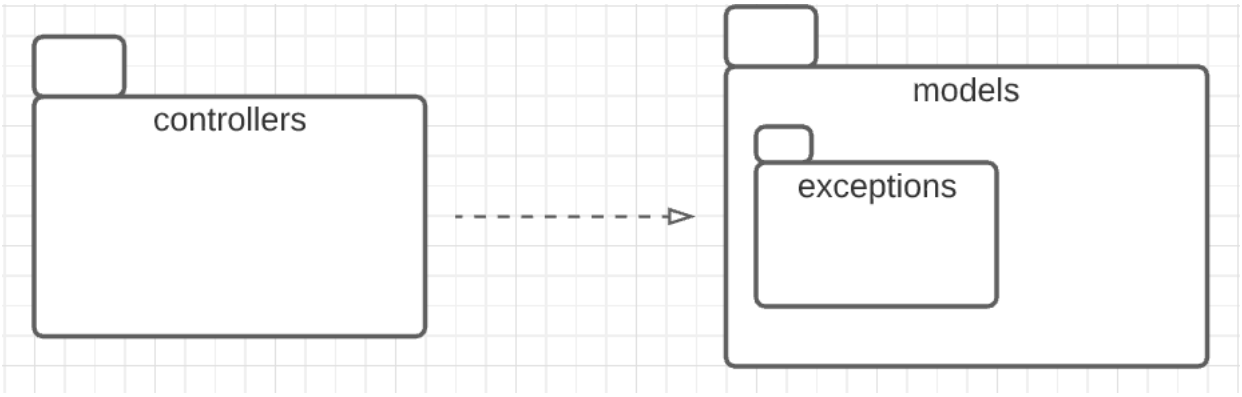
9. Medication name (if they have any medications)
10. Medication dose
11. Medication dose unit (i.e mg, g, kg, etc…)
12. Medication start and end dates
13. Appointment date and time (if they have any appointments to schedule)
14. Reason for that appointment

After the user is done following the directions given by the program, it will take them back to the main menu. If the user wishes to quit the program after completing an operation, they just simply have to enter “4” into the console.

UML Diagrams

Class: ***Attached on the next page.***

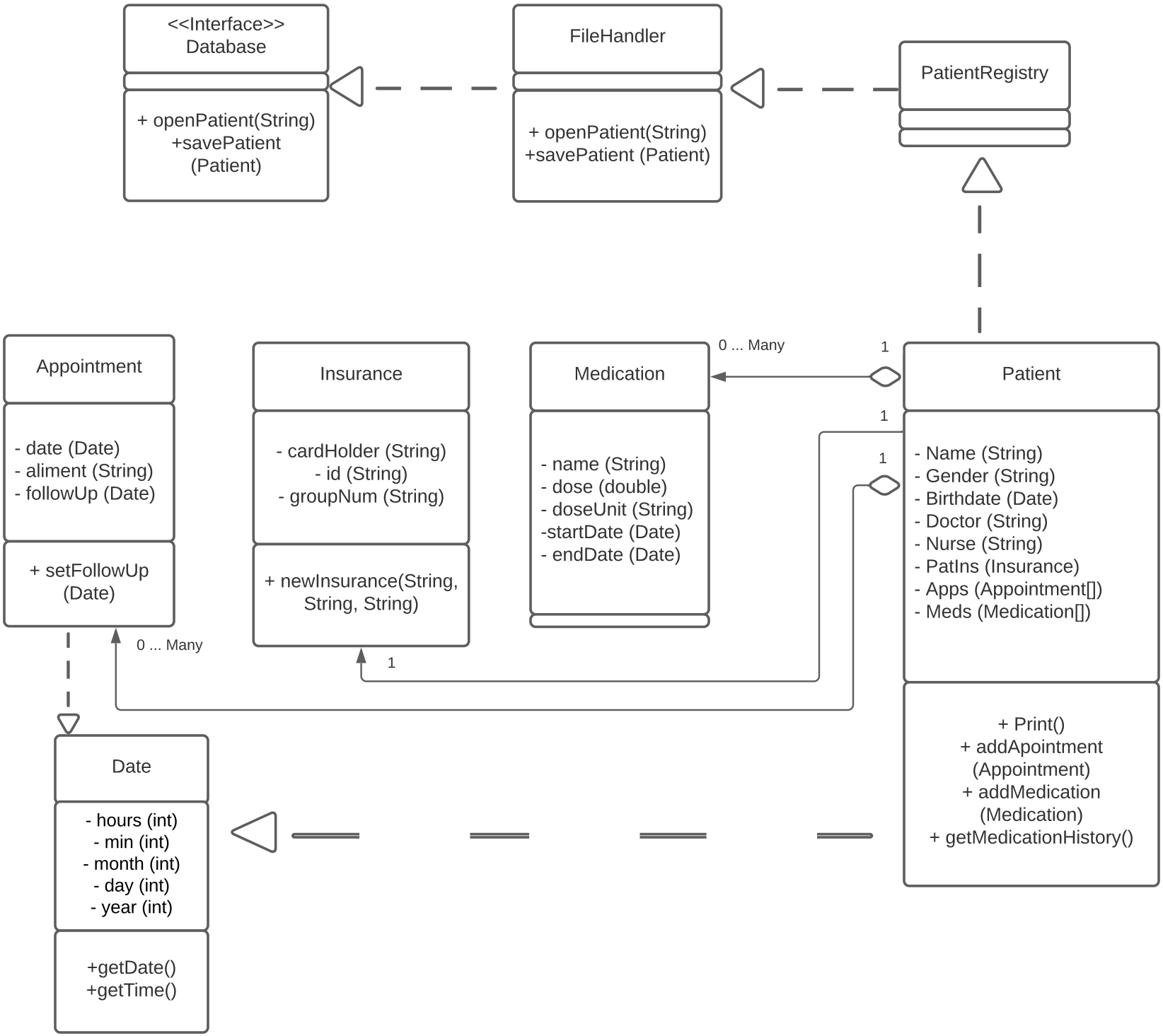
Package:



Team Member Contributions

For this project, the group made sure to split the work as evenly as possible. The group as a whole worked on the initial UML diagram to ensure the design was accepted by all members. Individual work commenced after the diagram was submitted. Alexander was responsible for creating the Patient and PatientRegistry classes. Andrew was responsible for creating the FileHandler class and its associated exceptions along with the Database interface. Cameron was responsible for creating the Appointment, Date, Insurance and Medication classes. Once the individual work was done, the group as a whole worked on debugging the program and adding or subtracting any aspects to improve the program’s user experience. Working with git through GitHub, the group was able to make changes to the program and have those changes be easily seen by other group members. Once a final version of the program code was agreed on, Cameron made the final UML diagram while Alexander made the package diagram and Andrew read both over to make sure the diagram was acceptable. Once the final UML was agreed upon, the group submitted the necessary files to canvas.

UML Class Diagram



Sources

[1] F. Michas, “Hospital admissions total number United States 1946-2018,” *Statista*, 02-Jul-2020. [Online]. Available: • Hospital admissions total number United States 1946-2018 8%2C%20there%20were%20over,hospital%20admissions%20in%20the%20U.S. [Accessed: 03-May-2021].

[2]"How to read and write Java object to a file - Mkyong.com", Mkyong.com, 2021. [Online]. Available: https://mkyong.com/java/how-to-read-and-write-java-object-to-a-file/. [Accessed: 04-May- 2021].