REFINED HMS CLASS DIAGRAM

Hospital System

- instance : HospitalSystem
- hospitals : List<Hospital>

+ getInstance() : HospitalSystem
+ addHospital(hospital: Hospital)
+ removeHospital(hospital:
  Hospital)
+ getHospitals()

Hospital

- instance : Hospital
- hospitals : List<Hospital>
- hospitalId
- name : string
- location : string
- departments : List<Department>

+ getInstance(name: String, location: String) : Hospital
+ getId()
+ getName()
+ getLocation()
+ clone() : Object
+ addDepartment(department: Department)
+ removeDepartment(department: Department)
+ getDepartments() : List<Department>

Department

- departmentId
- name : string
- doctors : List<Doctors>
- patients

+ Department(name: String)
+ getId()
+ getName()
+ addDoctor(doctor: Doctor)
+ removeDoctor(doctor: Doctor)
+ getDoctors() : List<Doctor>
+ addPatient(patient: Patient)
+ removePatient(patient: Patient)
+ getPatients()
+ clone() : Object

Doctor

- doctorId
- name : string
- specialization : string
- patients

+ Doctor(name: String, specialization: String)
+ getId()
+ getName()
+ getSpecialization()
+ addPatient(patient: Patient)
+ removePatient(patient: Patient)
+ getPatients()
+ clone() : Object

Patient

- patientId
- name : string
- age : int
- gender : string
- medicalHistory : string
- prescriptions : List<Prescription>

+ Patient(name: String, age: int, gender: String, medicalHistory:
  String)
+ getId()
+ getName()
+ getAge()
+ getGender()
+ getMedicalHistory()
+ addPrescription(prescription: Prescription)
+ removePrescription(prescription: Prescription)
+ getPrescriptions() : List<Prescription>
+ clone() : object

Prescription

- prescriptionId
- medicationName : string
- dosage : string
- frequency : string
- startDate : date
- endDate : date

+ Prescription(medicationName: String, dosage: String, frequency: String, startDate: Date, endDate: Date)
+ getId()
+ getMedicationName()
+ getDosage()
+ getFrequency()
+ getStartDate()
+ getEndDate()
+ clone() : object
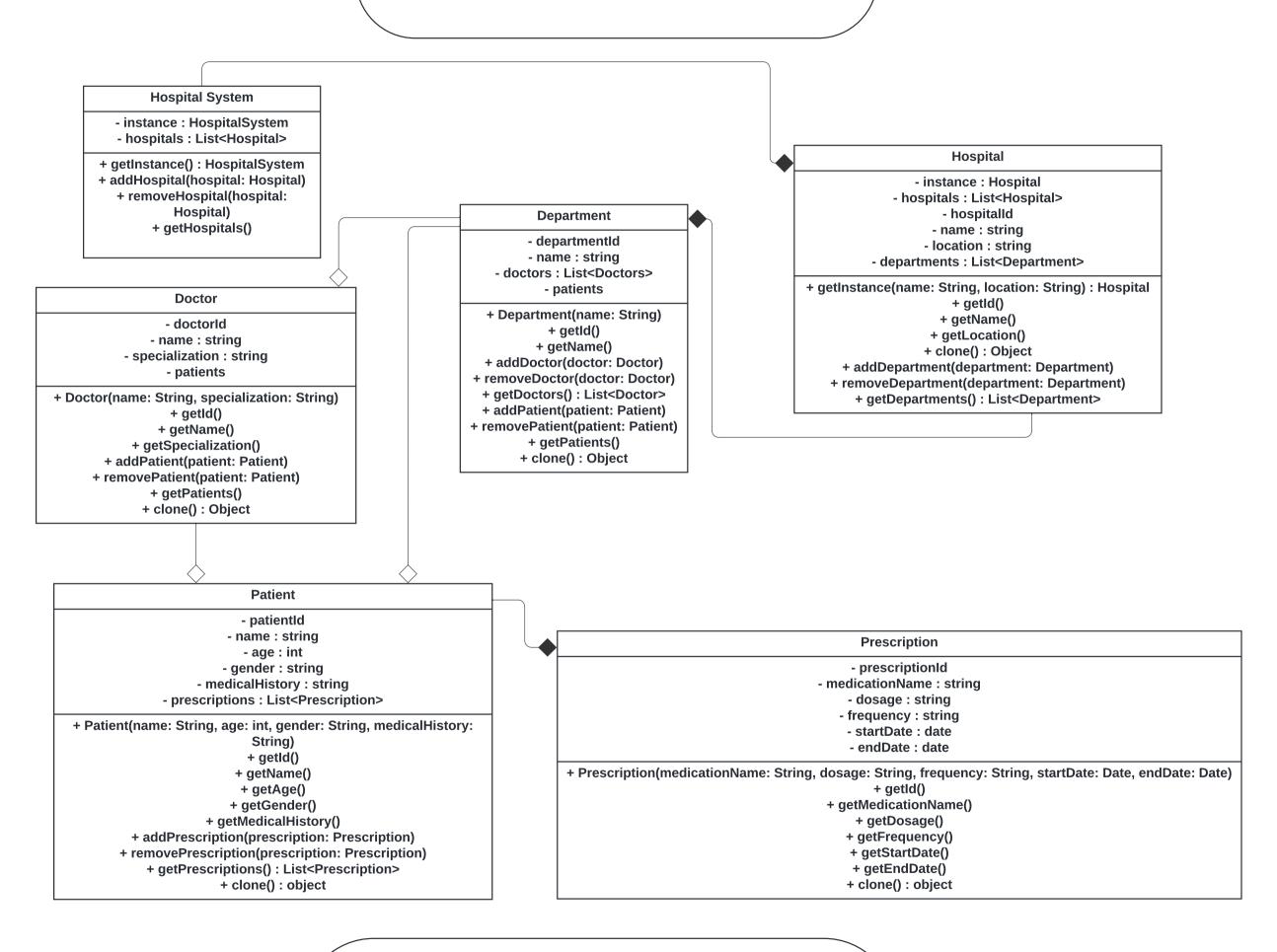
NOTE:
Hospital:
Added a static instance field to implement the Singleton pattern.
Added a clone() method to implement the Prototype pattern.
Department, Doctor, Patient, Prescription:
Added a clone() method to implement the Prototype pattern.