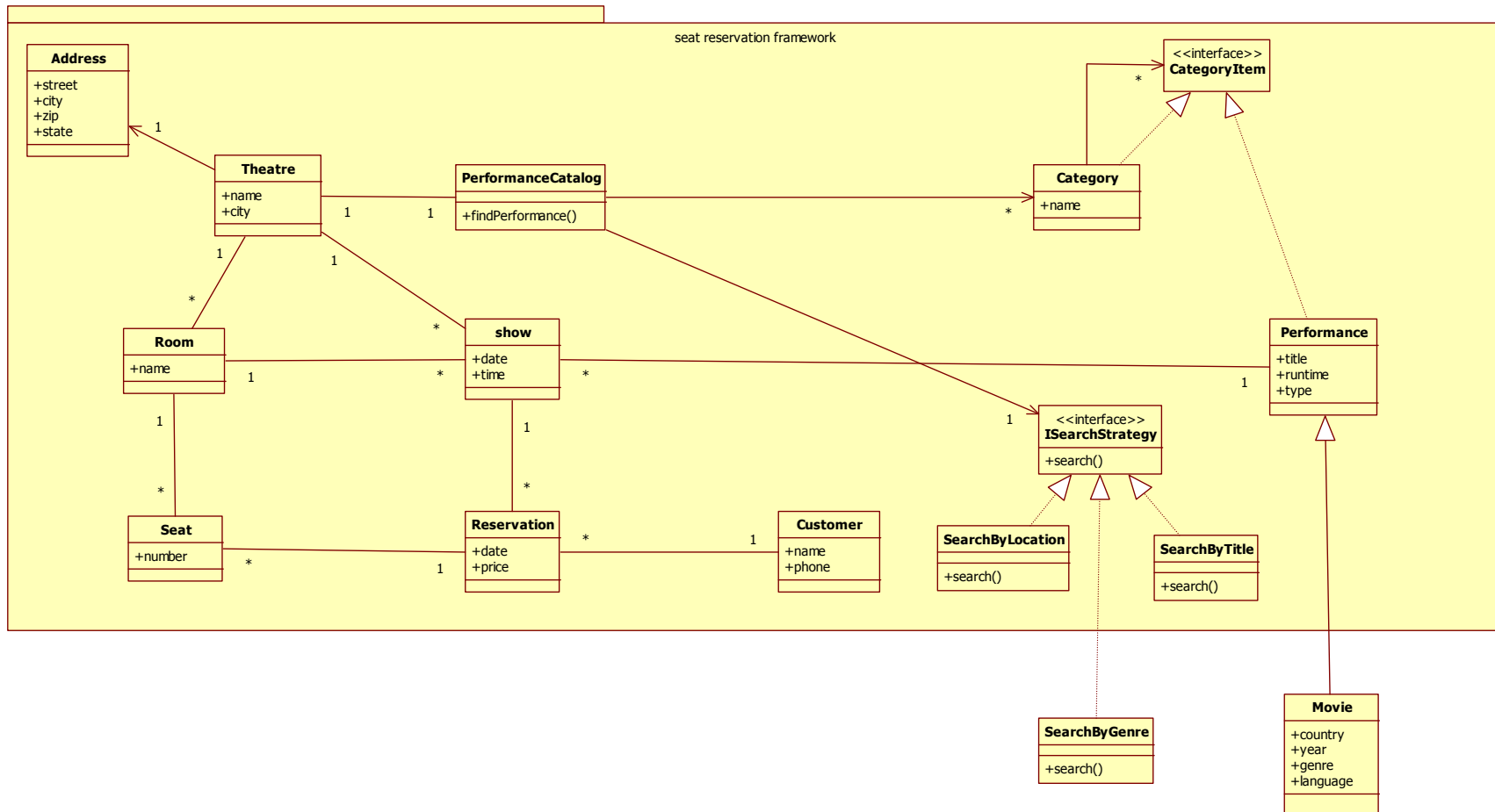


Question 1



Question 2 [40 points] {55 minutes}

```
public class Person {
    private String name;

    public Person(String name) {
        super();
        this.name = name;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }
}

public interface IPersonDAO {
    Person getPerson(String ssn);
}

public class PersonDAO implements IPersonDAO{

    public Person getPerson(String ssn) {
        if (ssn.equals("324-554-5678"))
            return new Person("Frank Brown");
        if (ssn.equals("233-332-4444"))
            return new Person("John Doe");
        return null;
    }
}
```

```
public interface IPersonService {
    public Person findPerson(String ssn);
}
```

```
public class PersonService implements IPersonService{
    private PersonDAO personDao;

    public Person findPerson(String ssn) {
        return personDao.getPerson(ssn);
    }

    public void setPersonDao(PersonDAO personDao) {
        this.personDao = personDao;
    }
}
```

```
public class Application {
    public static void main(String[] args) {
        ApplicationContext context = new ClassPathXmlApplicationContext("springconfig.xml");
        IPersonService personService = (IPersonService) context.getBean("personService");
        Person p = personService.findPerson("324-554-5678");
        System.out.println(p.getName());
        p = personService.findPerson("233-332-4444");
        System.out.println(p.getName());
    }
}
```

@Aspect

```
public class ServiceCounter {
    private int count=0;

    @After("execution(* PersonService.findPerson(..))")
    public void log(JoinPoint joinpoint) {
        count=count+1;
        System.out.println("method= " + joinpoint.getSignature().getName() + " is called " + count + " times" );
    }
}
```

```

}

<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"
       xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xmlns:aop="http://www.springframework.org/schema/aop"
       xsi:schemaLocation="
         http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans-3.0.xsd
         http://www.springframework.org/schema/aop http://www.springframework.org/schema/aop/spring-aop-3.0.xsd">

    <aop:aspectj-autoproxy/>
    <bean id="personService" class="PersonService">
        <property name="personDao" ref="personDao" />
    </bean>
    <bean id="personDao" class="PersonDAO"/>
    <bean id="serviceCounter" class="ServiceCounter"/>
</beans>

```

Question 3

