Home Health Care Nurse Network

Thesis Presentation

Spring 2018

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Agenda

- Home Health Care
- Home Health Care Nurse Network
- System Analysis
- System Design
- Technologies
- Implementation
- Challenges and Milestone

Home Health Care

Home Health Care Industry

- ***Purpose***: sending nurses to patient's houses.
- ***Routine***: facilities schedule nurses assignments
- ***Problem***: when a scheduled nurse calls in sick.

Traditional Solution

Phone Calls

Nurse Registry Agency

Traditional Solution Problems

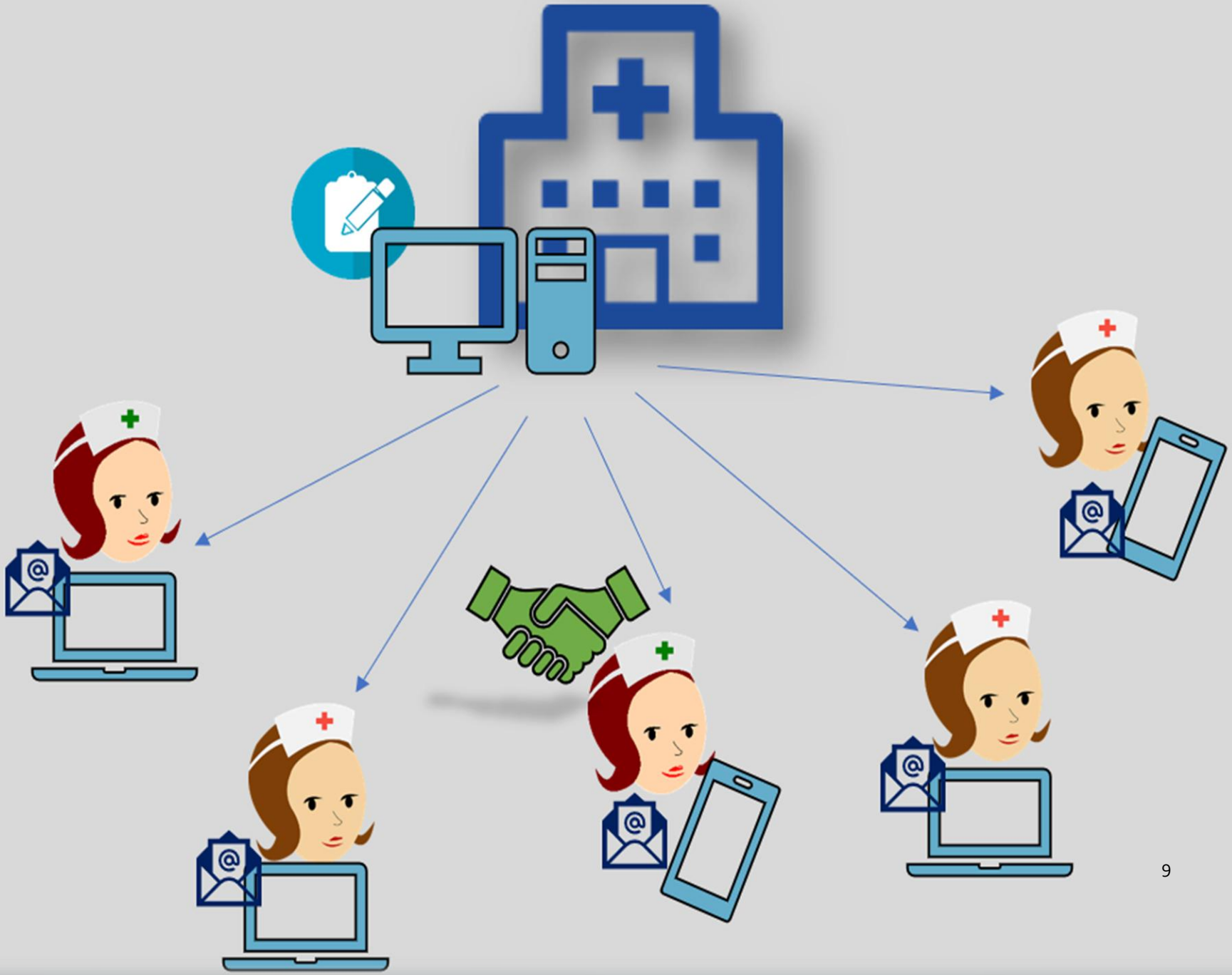
- **Making Phone Calls**
  - Time Consuming
  - Reduce Productivity
  - Annoying daily phone calls for nurses
- **Nurse Registry Agencies**
  - Temporary Nurses
    - Unexperienced
    - Unqualified
  - Unsatisfied Patients
    - costly

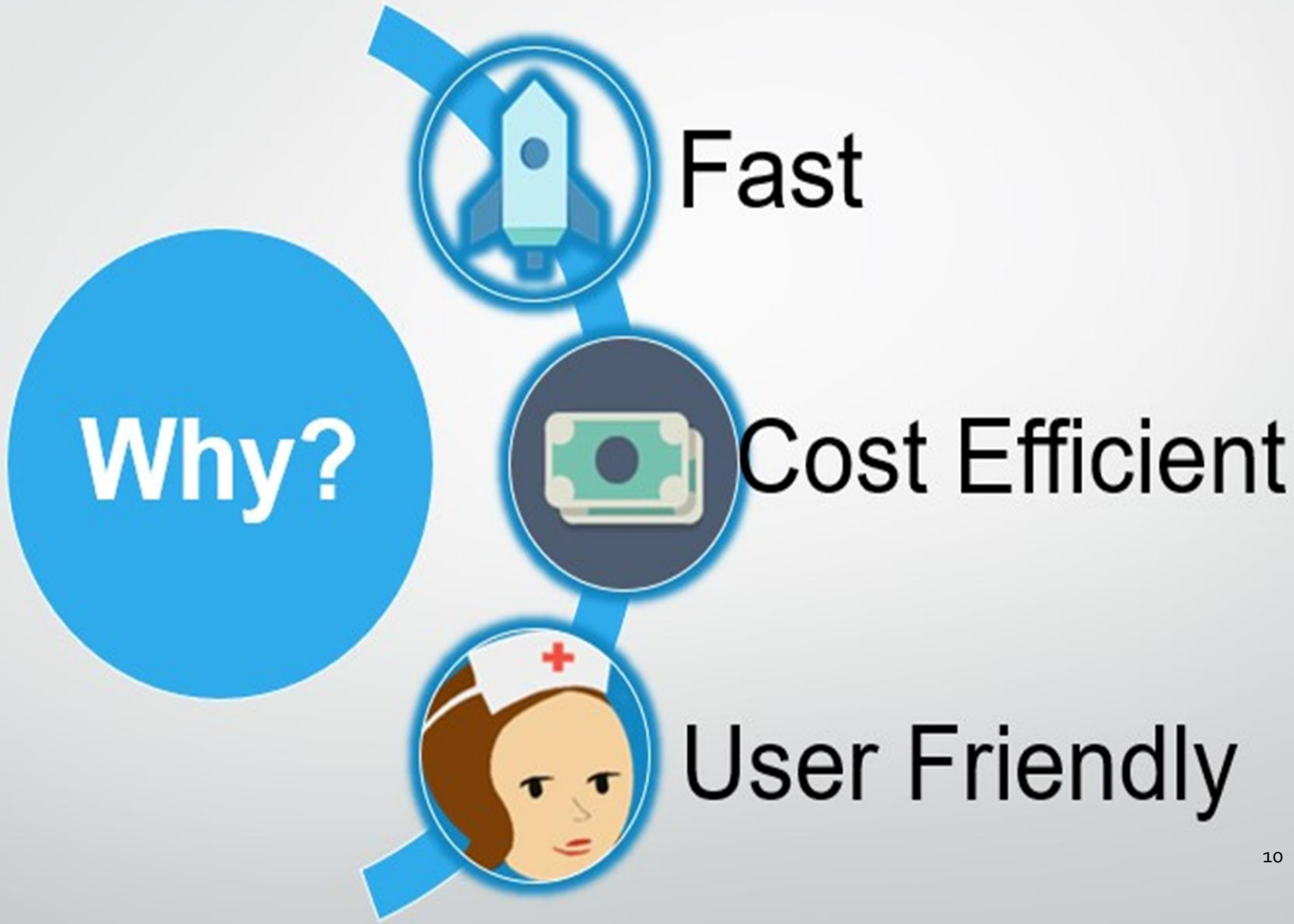
Home Health Care Nurse Network

HHCNN

HHCNN

- Web-based application
- Platform
  - Home Health Care Facilities
  - Nurses
  - Cover nurses in case of absence

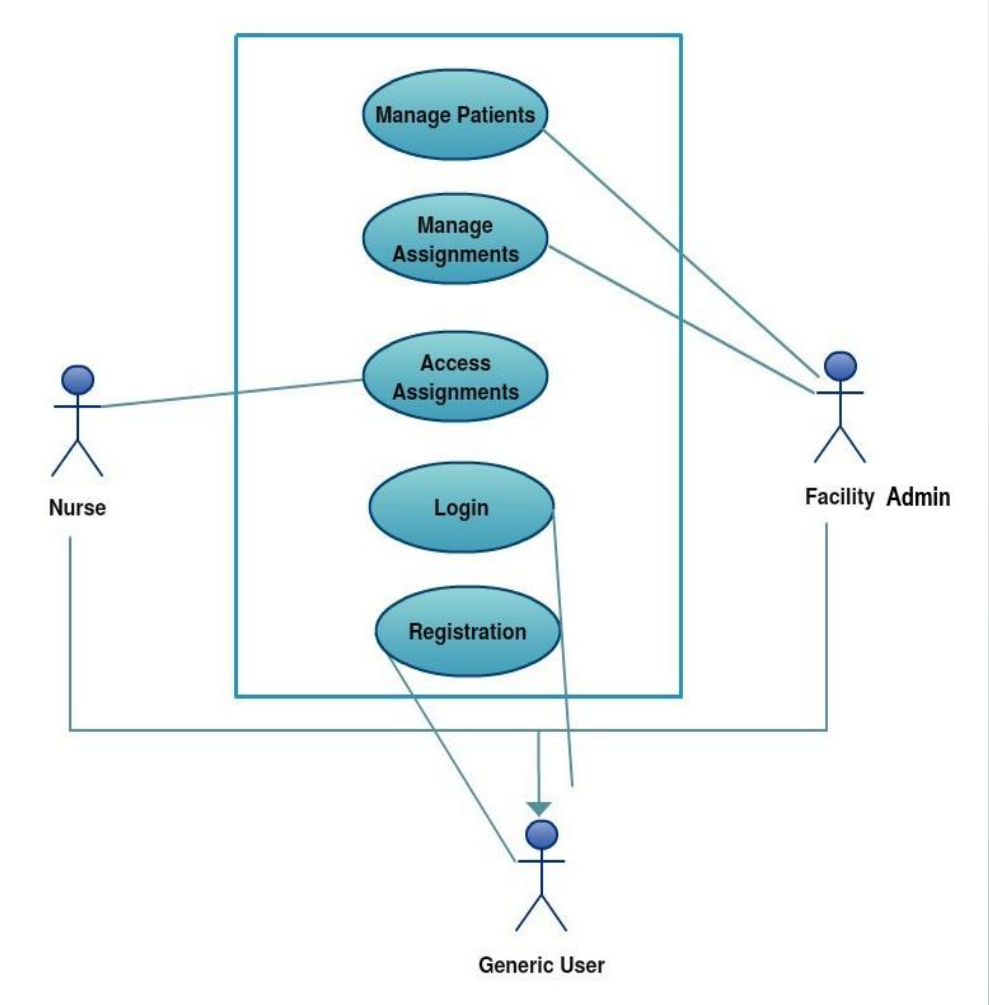



Why?
Fast
Cost Efficient
User Friendly

System Analysis

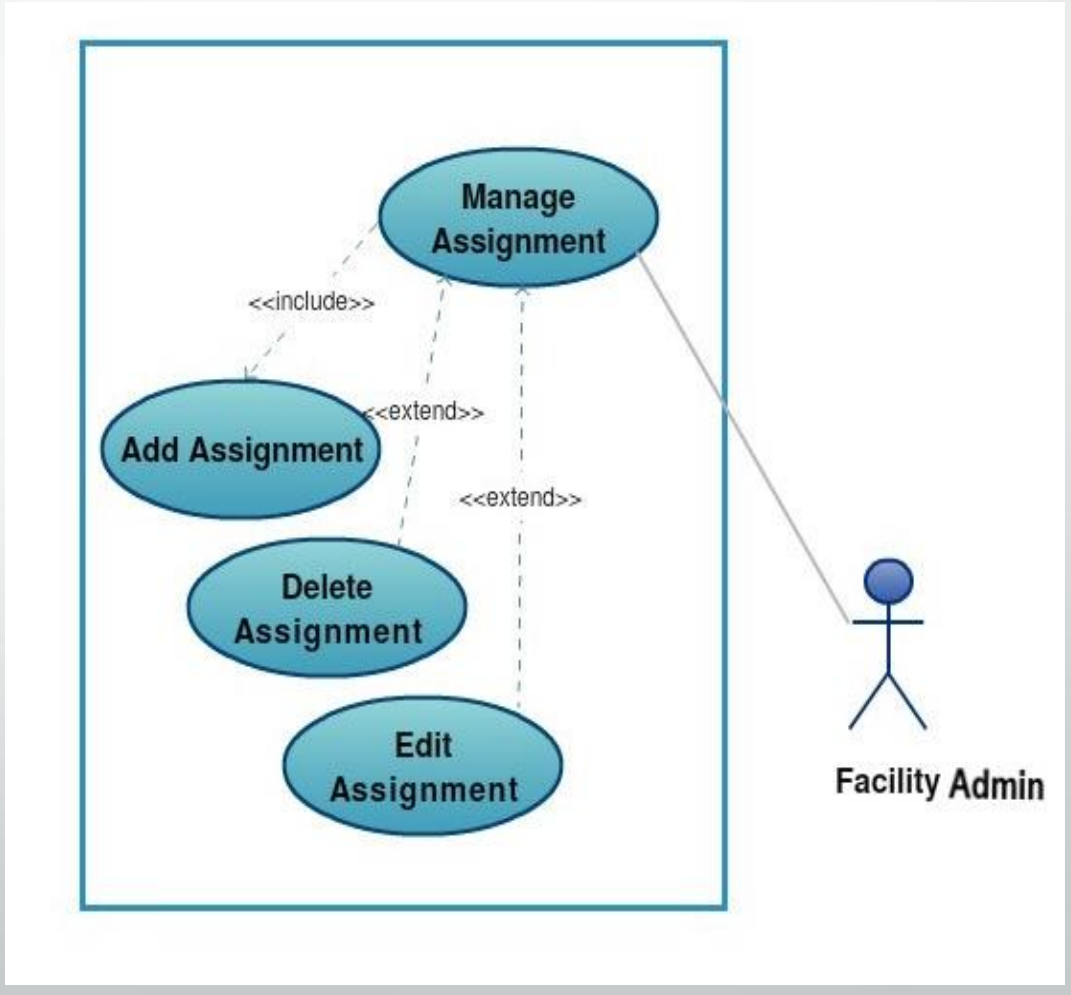
System Analysis

- General Use Case Diagram



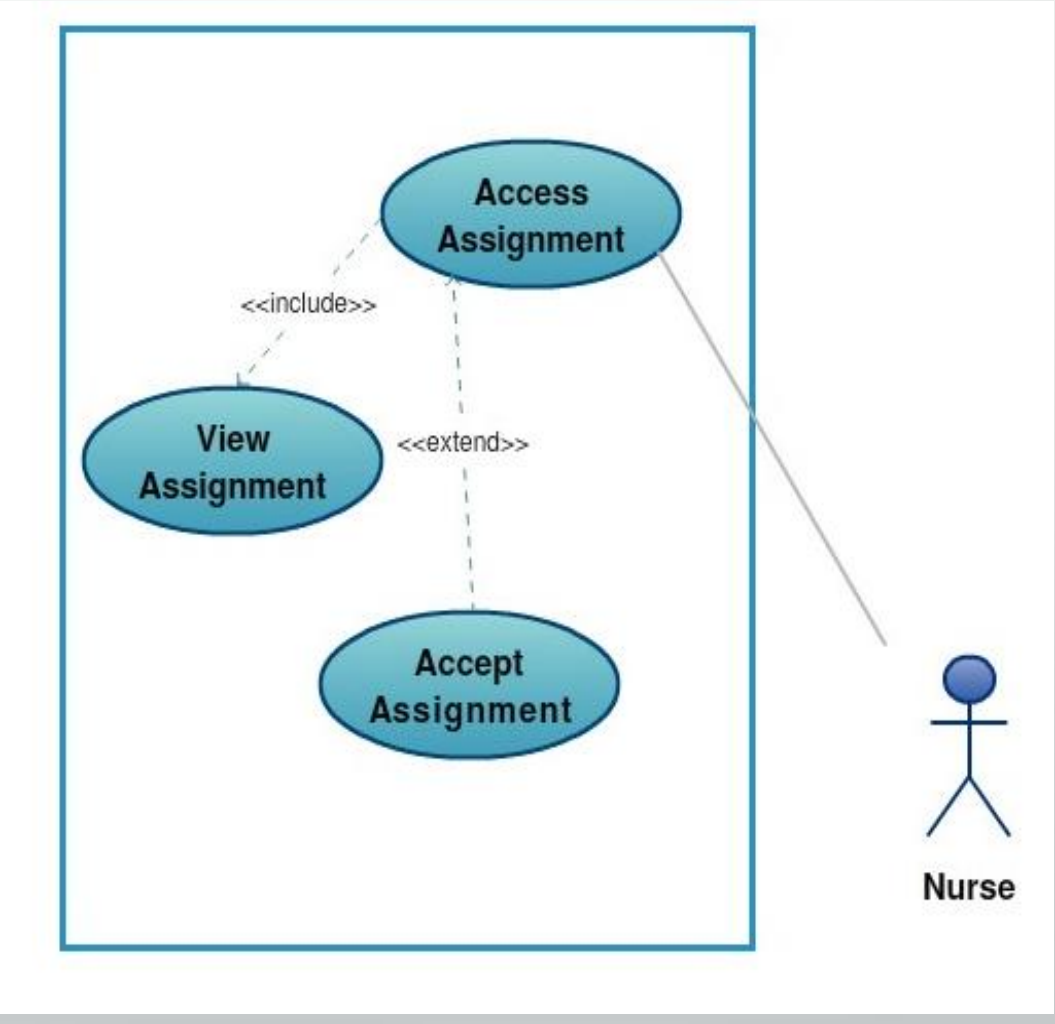
System Analysis

- Assignment Management Use Case Diagram



System Analysis

- Access Assignment Use Case Diagram



System Analysis

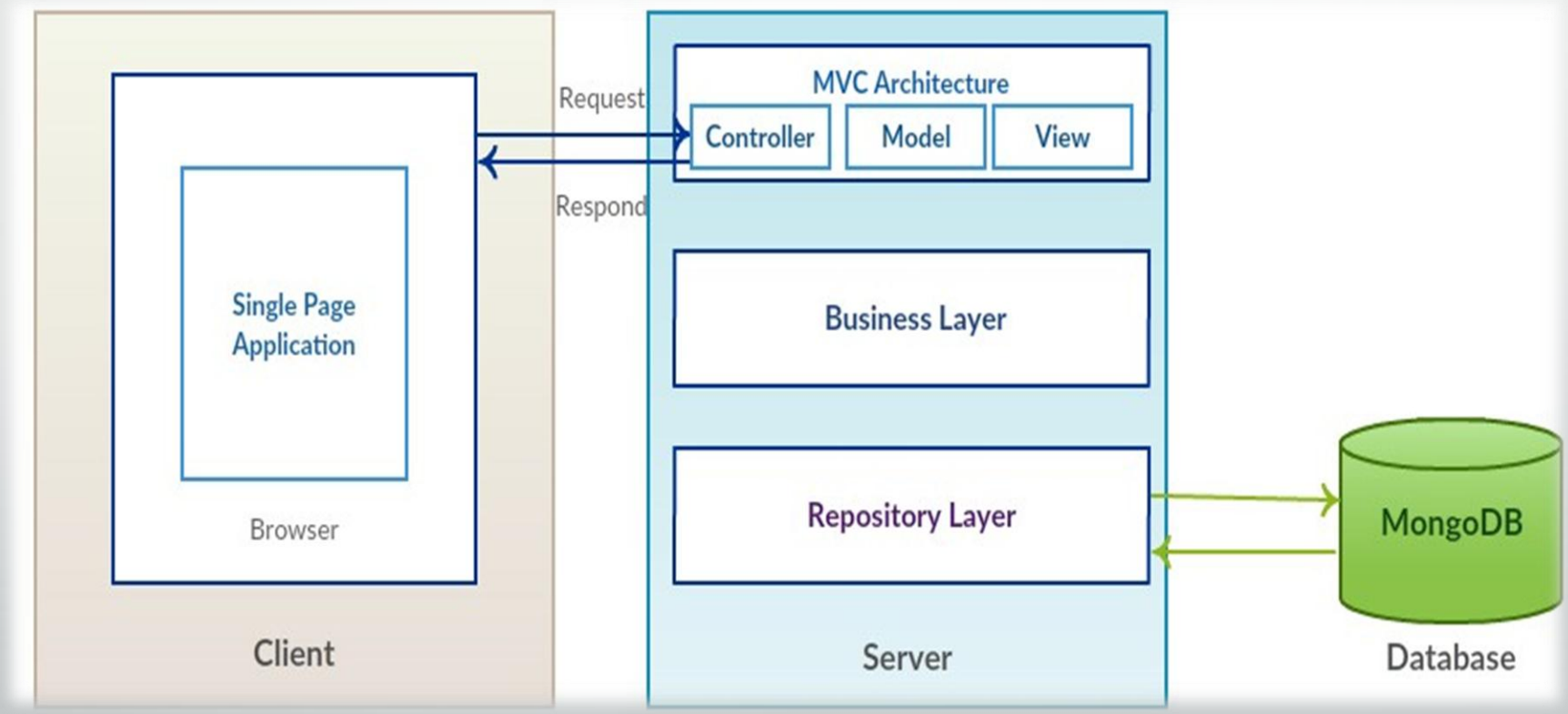
- More Use Case Diagrams such as:
  - Registration
  - Login
  - Patient Management
  - … .

System Design

System Design

- **Sever-side**
  - MVC Architecture
    - Model: Maintain data
    - View: Displays UI and data
    - Controller: Handles Request/Response
  - Business Layer (Logical part)
  - Repository Layer (Communicate with DB)

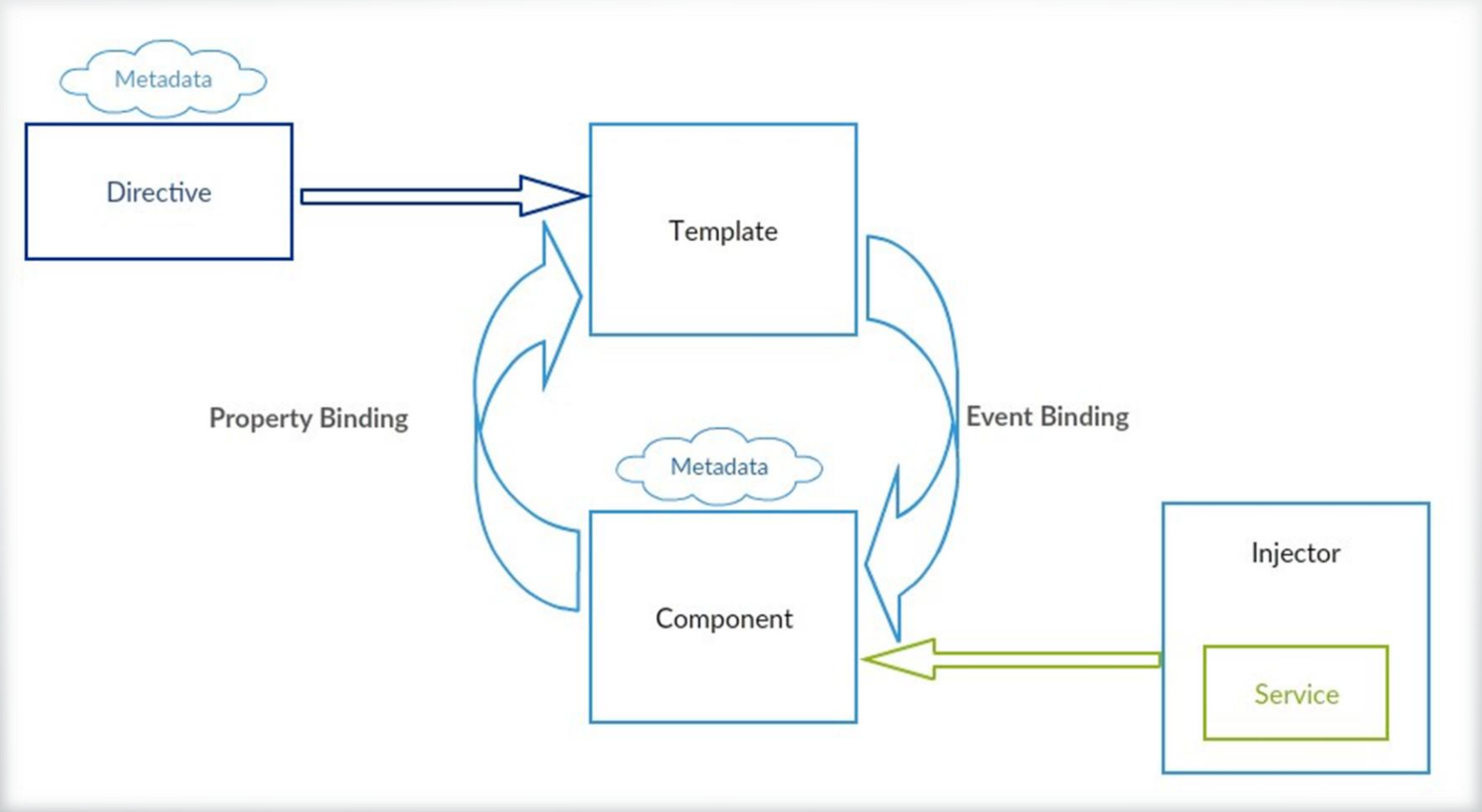
Sever-side Architecture



System Design

- **Client-side**
  - SPA(Single Page Application)
    - Components
      - HTML Templates
      - TypeScript

Client-side Architecture

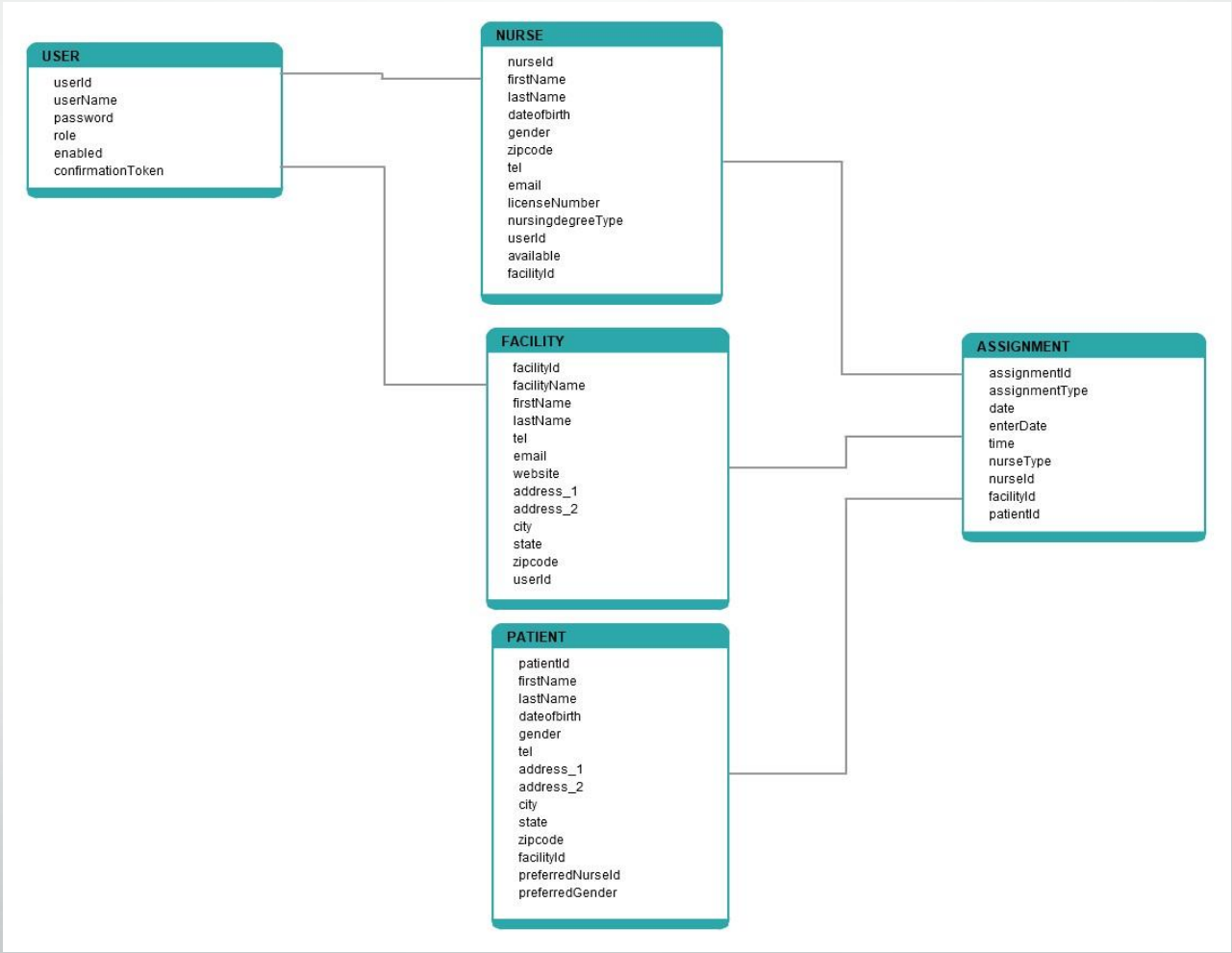


System Design

- **Database**
  - NoSQL Database
    - Scalable
    - Flexible and Fast Project Development
      - No need to define Tables, Columns and Types
  - **Referenced** Schema Design
    - Sub-document size increase

System Design

- **Database**



Technologies

Technologies


Spring Boot


Angular 5


MongoDB

Technologies

- Spring Boot
  - Lightweight framework
  - Less configuration code
  - Overridable default configuration

Technologies

- Angular 5
  - Front-end Web-application Platform
  - TypeScript
    - JavaScript
    - Complex projects

Technologies

- MongoDB
  - NoSQL DBMS and Document oriented
    - JSON like Documents
    - Collections
  - The Most Popular NoSQL database
    - Storing and retrieving great quantities of data

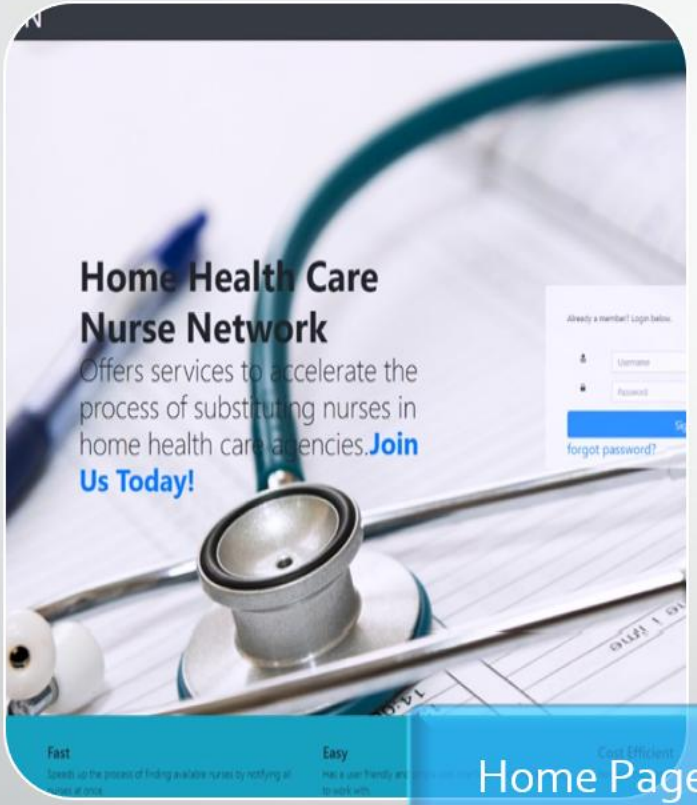
Implementation

HHCNN

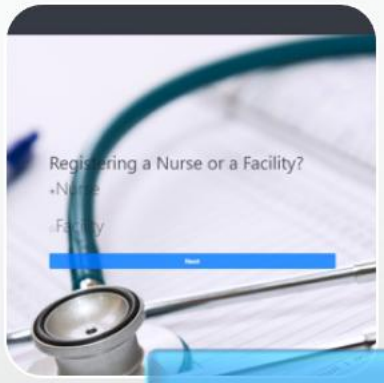
- Registration
- Login
- Patient Management
- User Profile Management
- Assignment Management
- … .

Registration
(in detail)

Registration



Home Page



Nurse or Facility

Registration Form

Registration

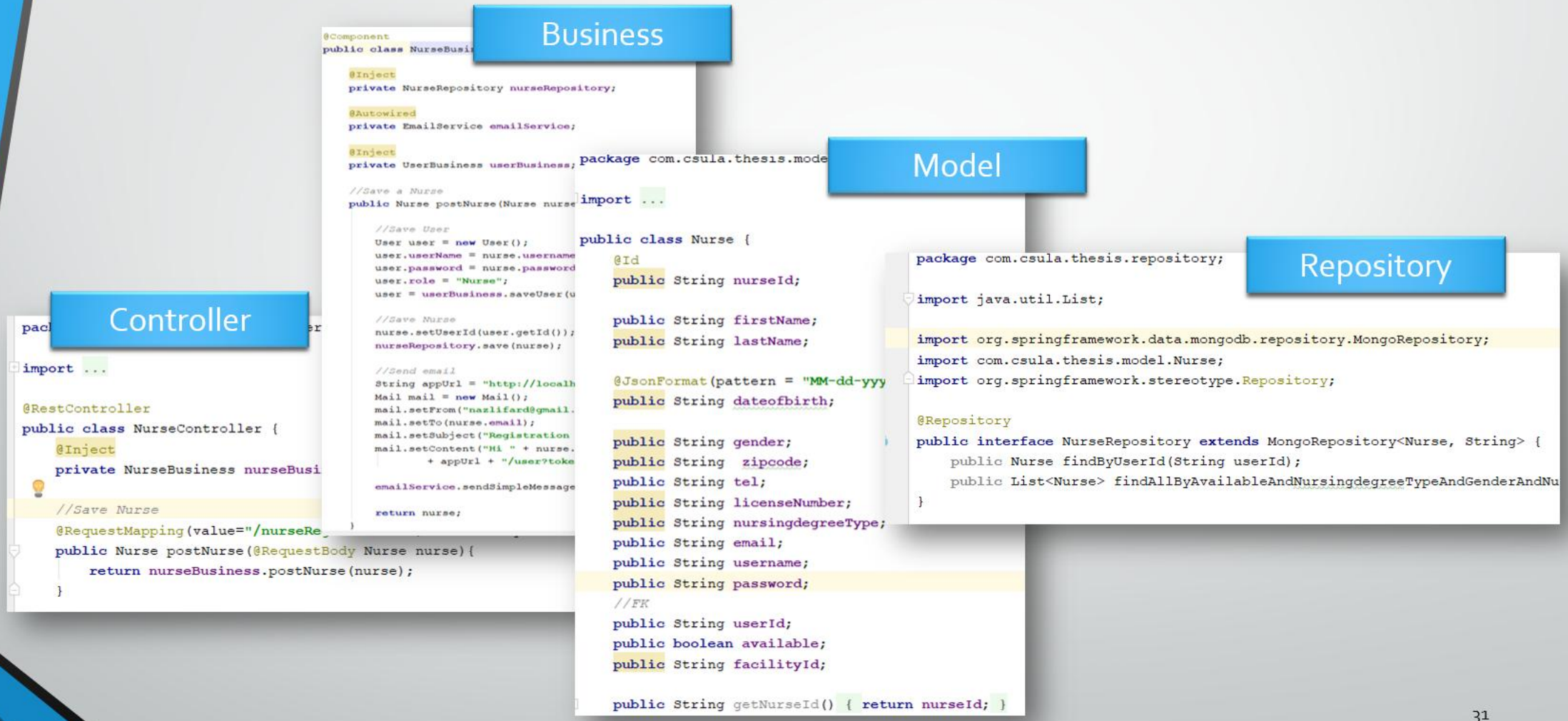
HTML Template

```
<div class="panel panel-info bg-light col-6" style="...">
  <h3 align="left" class="mt-2">Please fill out the form below:</h3>
  <form (ngSubmit)="saveNurse()" #nurseForm="ngForm"  >
    <div class="  mt-5 mb-5 justify-content-center" >
      <div class="form-group">
        <label for="firstname">FirstName:</label>
        <input type="text" class="form-control" [(ngModel)]="nurse.firstName" name="first
      </div>
      <div class="form-group">
        <label for="lastname">LastName:</label>
        <input type="text" class="form-control" [(ngModel)]="nurse.lastName" name="lastna
      </div>
      <div class="form-group">
        <label for="dateofbirth">DateOfBirth:</label>
        <input type="date" pattern="MM-dd-yyyy" class="form-control" [(ngModel)]="nurse.d
      </div>
      <div class="form-group">
        <label for="gender">Gender:</label>
        <div>
          <input type="radio" checked name="gender" value="male" [(ngModel)]="nurse.gende
          <input type="radio" name="gender" value="female" [(ngModel)]="nurse.gender" > F
          <input type="radio" name="gender" value="other" [(ngModel)]="nurse.gender"> Oth
        </div>
      </div>
      <div class="form-group">
        <label for="zipcode">ZipCode:</label>
        <input type="text" class="form-control" [(ngModel)]="nurse.zipcode" name="zipcode
      </div>
      <div class="form-group">
        <label for="tel">Phone Number:</label>
        <input type="tel" class="form-control" [(ngModel)]="nurse.tel" name="tel" id ="te
      </div>
      <div class="form-group">
        <label for="licensenumber">License Number:</label>
        <input type="text" class="form-control" [(ngModel)]="nurse.licenseNumber" name="licensenumber" id
      </div>
```

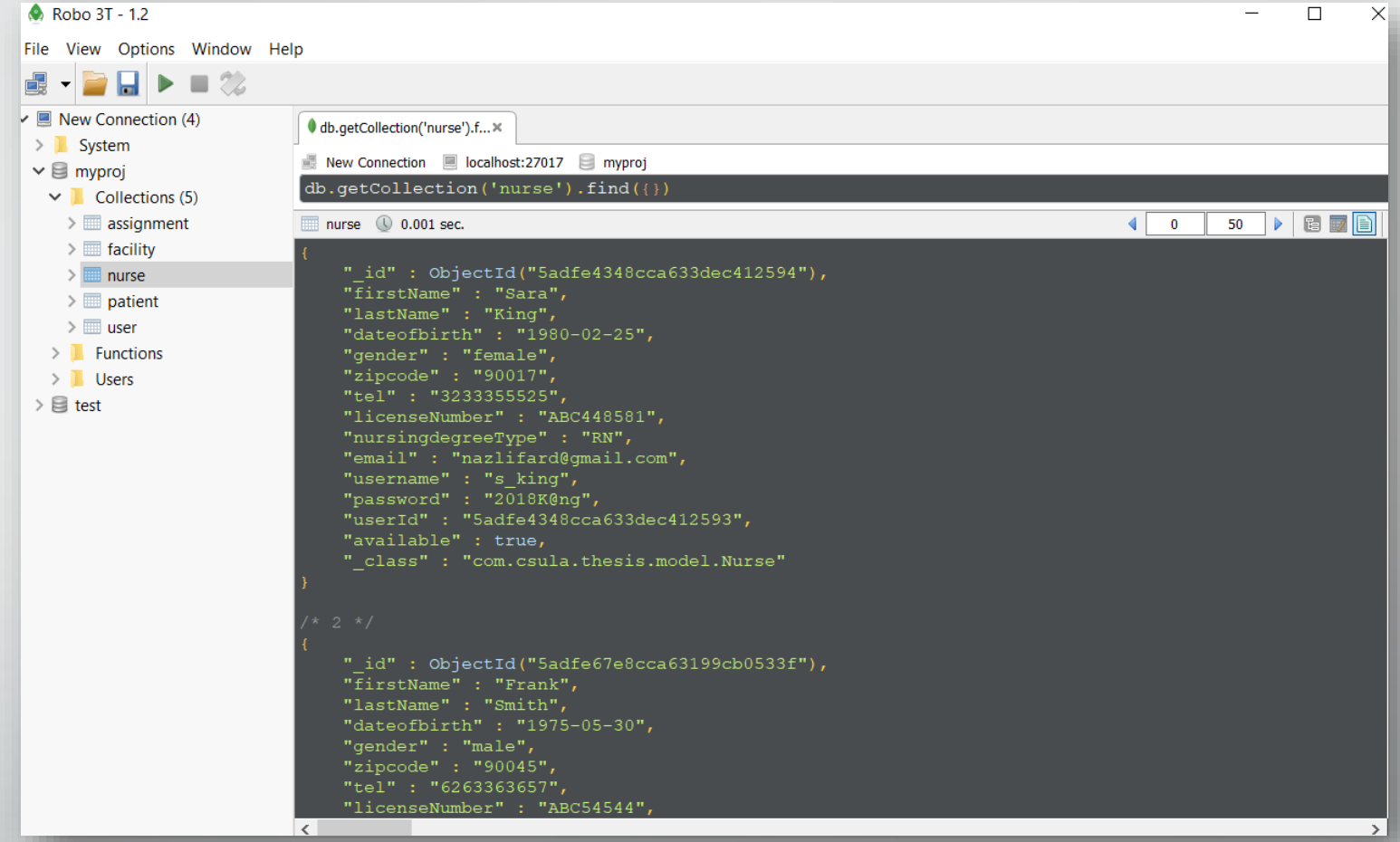
TypeScript Class

```
@Component({
  selector: 'app-nurse-registration',
  templateUrl: './nurse-registration.component.html',
  styleUrls: ['./nurse-registration.component.css']
})
export class NurseRegistrationComponent implements OnInit {

  nurse = {firstName:"",lastName:"",dateofbirth:"",gender:"",zipcode:"",tel:"",license
    email:"",username:"",password:""};

  constructor(private http: HttpClient, private router: Router) { }

  ngOnInit() {
  }
  saveNurse() {
    this.http.post( url: '/nurseRegistration', this.nurse)
      .subscribe( next: res => {
          this.router.navigate( commands: ['/']);
        }, error: (err) => {
          console.log(err);
        }
      );
  }
}
```

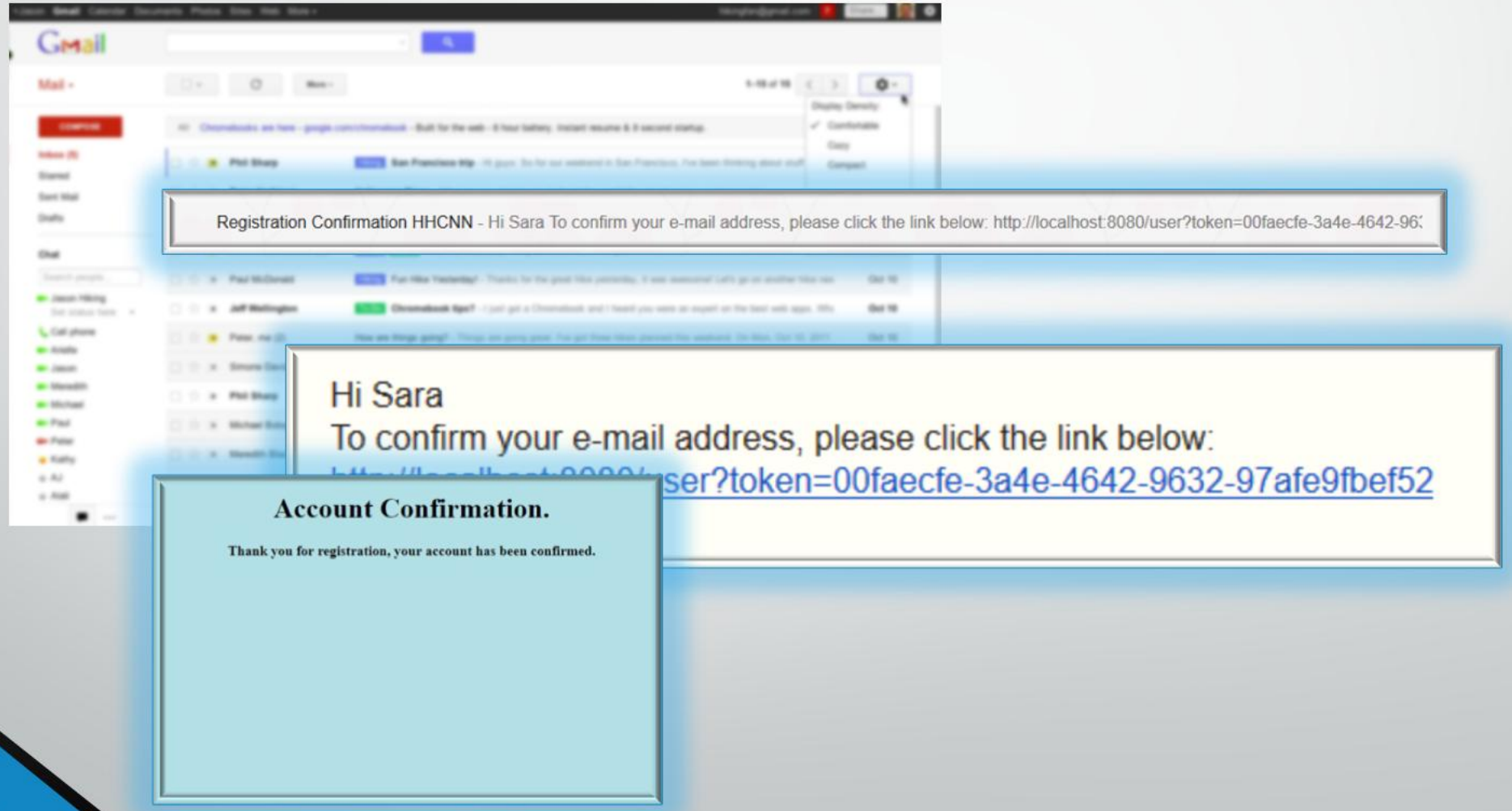
Registration



Registration



Registration Confirmation



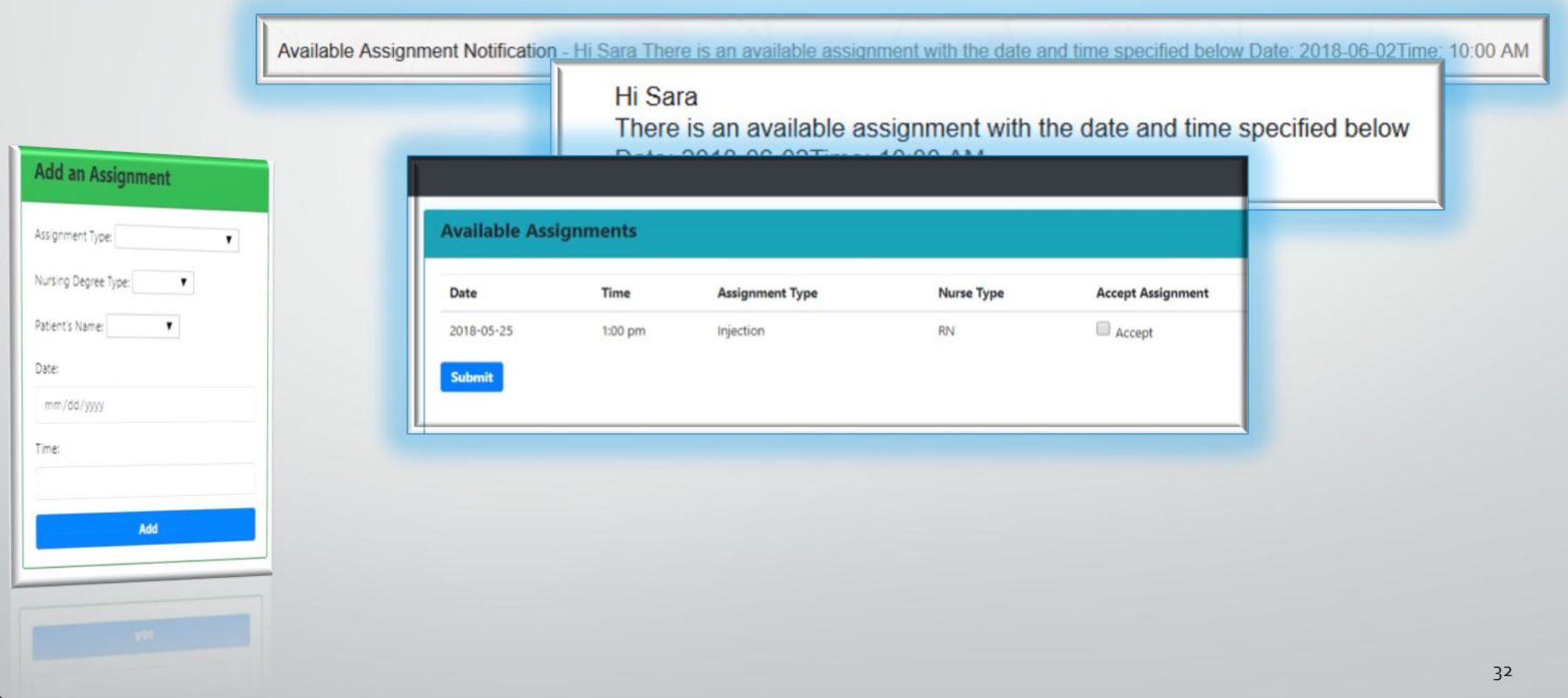
Login

Login


HHCNN
Home Health Care Nurse Network
Offers services to accelerate the process of substituting nurses in home health care agencies.Join Us Today!
Sign in
forgot password?
Fast
Easy
Cost Efficient
HHCNN
Dashboard
Profile
Manage Assignments
Manage Patients
Available Assignments
HHCNN
Dashboard
Profile
Assignment Log
Notify me!
Available Assignments
Upcoming Assignments

Assignment Management

Assignment Management



HHCNN

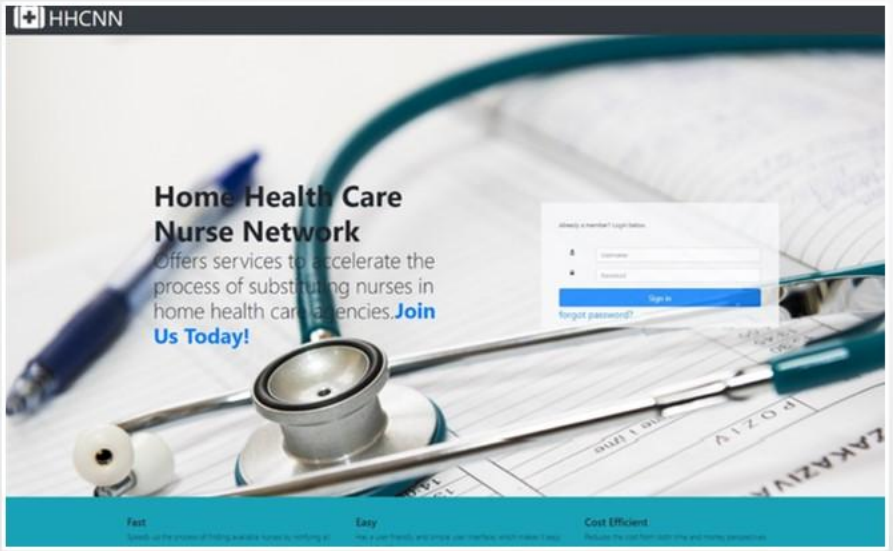
- **Notification Conditions**
  - Nurse
    - Get notified
  - Assignment
    - Assignment Type
    - Nursing Degree
  - Patients
    - Preferred Nurse
    - Preferred Nurse Gender

Challenges


Choosing the right Architectures and Technologies
Started from Scratch
Unassisted
Challenges
Staying Organized and Self-discipline
Integrating Different Technologie
Learning New Technologies

Milestone


Spring 2017
• Research
• Project Initiation
Fall 2017
• Upgrading Technologies
• Integration Challenges
Spring 2018
• 5000 LOC
• Final Product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