**D. Report No. 4 Software Design Description**

**1. Design Overview**

- *This document describes the technical and user interface design of Hospital Portal System. It includes the architectural design, the detailed design of common functions and business functions and the design of database model.*

*- The architectural design describes the overall architecture of the system and the architecture of each main component and subsystem.*

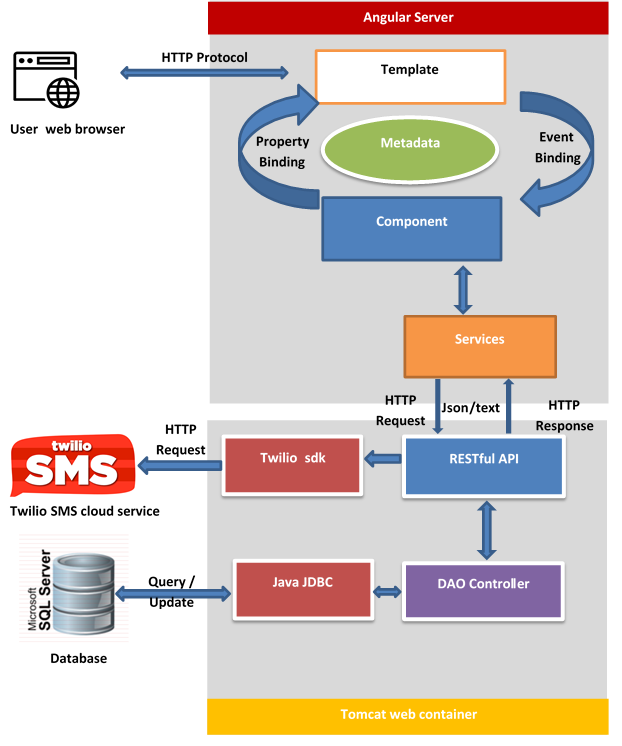
*- The detailed design describes static and dynamic structure for each component and functions. It includes class diagrams, class explanations and sequence diagrams for each use cases.*

*- The database design describes the relationships between entities and details of each entity.*

*- Document overview:*

* *Section 2: gives an overall description of the system architecture design.*
* *Section 3: gives component diagrams that describe the connection and integration of the system.*
* *Section 4: gives the detail design description which includes class diagram, class explanation, and sequence diagram to details the application functions.*
* *Section 5: describe screens design.*
* *Section 6: describe a fully attributed ERD.*
* *Section 7: describe algorithms.*

**2. System Architectural Design**

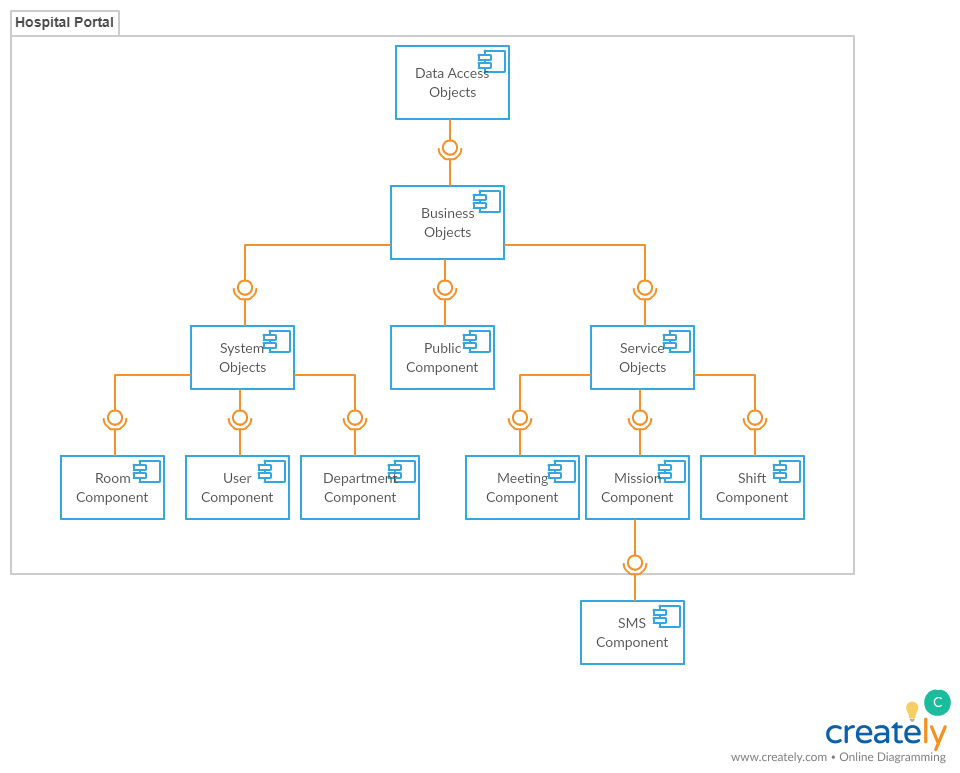
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**Figure 9 System architecture design**

**Web application architecture description:**

In Web Application, the system was built based on MVC, while the front end and back end are separated and communicate using the HTTP protocol. With Modal and Controller at the back end and View at front end. We chose a separate structure because of the following advantages:

* Back end to support J2EE compatible MVC and REST API JDBC structure and easy use familiar.
* Front end with Angular 5, support for binding data, one page design, and compatible modules on the mobile interface.
* Separating the controller and model from the view will facilitate future multi-interface and multi-language application development.
* Due to the unique nature of the hospital, the database will sometimes have to be stored locally at the hospital. Separating two servers will ensure that the hosting server on cloud still meets the requirements.
* Technology is selected based on the skill and experience of the developer team.

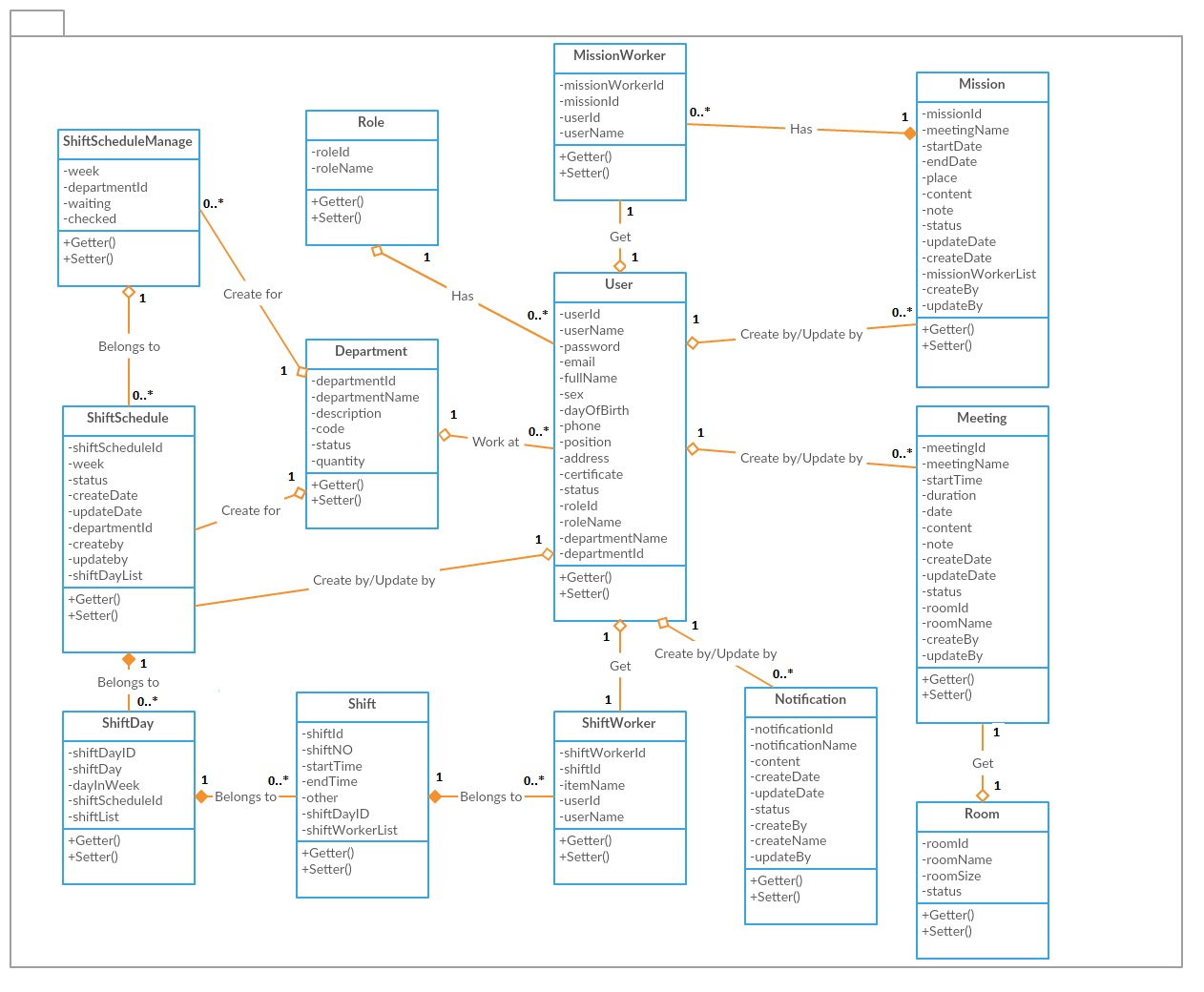
**3. Component Diagram**

**Figure 10 Component Diagram**

**Table 10 Component Dictionary**

|  |  |
| --- | --- |
| Component Dictionary: Describes components | |
| Data Access Objects | Component to handle interaction between the system and database |
| Business Objects | Common objects to handle domain business operations for each component |
| System Objects | Common objects to handle domain operations for each system component |
| Public Component | Component to handle guest activities in the system |
| Service Objects | Common objects to handle domain operations for each service component |
| Room Component | Component to handle room resource in the system |
| User Component | Component to handle account in the system |
| Department Component | Component to handle department in the system |
| Meeting Component | Component to handle meeting scheduler in the system |
| Mission Component | Component to handle mission scheduler in the system |
| Shift Component | Component to handle shift scheduler in the system |
| SMS Component | Handle SMS process with Twilio SMS API |

**4. Detailed Description**

**4.1 Class Diagram**

**Figure 11 Class Diagram**

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| --- | --- |
| *Class dictionary: describe Class* | |
| **Class Name** | **Description** |
| Department | Contain the department information |
| User |  |
| Meeting |  |
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