Chapter 18
An Essence of the SOA on Healthcare

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ABSTRACT
The chapter designates to choose the software architecture which must be so sound to handle the variations & for development on several competing specialists’ theories existing in the era for the same symptoms and disease. It initiates the architecture of medical process with reusability. It represented as an instance of UML class diagram based on service-oriented architectural style. The reusable process helped to improve understanding of the components of Medical Process Model. The design pattern illuminates the conception of design which addresses reusable and recurrent design problems and solutions. It uses the Service-oriented architecture style that provides the communication between various medical processes with reusable components and the usability of various design patterns in a medical process reusable model in order to increase the reusability of the components. The SOA for MPM used five design patterns (DP) namely Façade Mediator, Proxy, Observer, and Visitor.

INTRODUCTION
Accomplishment of the healthcare industry in IT world to specific track is very challenging task. From many years, thousands of vivid, innovative and technical persons around the world have been contributing to give the recognition to the technology as companion to healthcare sources, providers and patients and also assist them to take better decisions in view of improved health of patients. Thus, the key component is patient safety which is one of the measures of the quality of health care. Technically, this can be achieve by:

- Individual’s health condition assessment.
- Environmental conditions & safety and impact on individual’s health.

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• Medication:
  ◦ Infection control.
  ◦ Medicine reaction control.
• Risk assessment.
• Performance improvements.
• Reviews.
• Overall cost.

In order to achieve this, there are many challenges as the medical domain may perhaps appear to be of an oxymoron nature. The challenges are some professional are only interested in OLAP(Online Analytical Processing), some are not interested in text data, medical data, demographic change, aging people, increasing complexity of health care and technological developments, high patients expectations, pressure of accountability, costs are name to few.

The health care is the birthright of every citizen in INDIA, but in fact, the 60% of the population is out of reach to avail the facilities due to the shortage of the adequate infrastructure, specialized hands, medical facilities, and many more and even not affordable too. Though the government policies exist for the weaker section but still the conditions are very shocking. The main causes are the accessibility of the medical facilities on time, experts, hospital facilities and many more. Thus, these factors force not only the common citizen but the weaker too to depend on private health sector where the quality also varies. Near about 92% of the population is relying on private health sector out of which 70% are from the urban area. In the present situation, due to the cost of the medication and lack of the medical facilities the mortality rates are increasing. In order to manage such situations, special concentration is to give to the health sector. For this reason, various researchers are taking the help of the technology which plays a vital role in controlling the situation in current scenario. For this, the robust software is to be available in the rural as well as urban as the experts if the health cares’ centers are lacking in the specialization domain. Healthcare considers with the robustness of the software development process which initiates from the software architecture level.

Recent research suggests that medical domain attracts many researchers due to its very large and complex properties which can’t be so flexible that it varies from time to time. As per the conditions it varies from persons to persons, thus, it becomes nearly impossible to develop the system and implement in the optimum and efficient manner. For this the developers have to choose the software architecture which must be so sound that can handle the variations, for the development and on the other hand for future development from several competing specialists’ theories existing in the era for the same symptoms and disease.

SOFTWARE ARCHITECTURE

The services of the software architecture are utilized by the software industries in many applications of scientific such as Medical and business such as stock, finance etc. The major role played by the software architecture style, by which the communication made is more appropriately suitable at various level of Software development with respect to its architecture. Different style has different system characteristics. A system encompasses the key constituents with their associations in the setup with the defined protocols of design and development. Software architecture plays a vital role in the conception of such