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Web Components for End-User Computing in Nursing

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Abstract

In this paper, we apply component technology to design a shared infrastructure that supports the nursing practice. A component model has been designed to develop flexible and tailorable web applications. The platform called NURSE serves as an environment in which web components can be run and tailored. The environment empowered nurses to create their own web component and creating web application.

Keywords:

web component, End-User Computing, nursing information system

Introduction

The limited available applications that support the tasks of nurses do not yet sufficiently address nursing needs. Nurses are dissatisfied with support provided by the information centers. Component-based Software Engineering (CBSE) has become recognized as a new sub-discipline of Software Engineering. Our work has centered on developing a software sharing environment as a research prototype 'Nurse Utilities Resource Sharing Environment' (NURSE).

The nurse utilities resource sharing environment

The platform is available under Microsoft Windows Sharepoint Services. The NURSE comes with common components that users can use right away. The web components are based on the technology 'Web Part'. A Web Part is a modular unit of information that has a single purpose and that forms the basic building block of a Web Page. Based on this environment, nurses are allowed to modify an application by reassembling components without programming. The NURSES deliver a set of core functionalities that allows nurses to develop their own specific web applications through the web-browser. It offer flexibility, ease of use can enhance the productivity of applications.

The architecture

The NURSE is web-based and operated by browser. Using internet based approach build components. Nurses can create more easily customizable application that brings a team together. The architecture forming by the component development steps:

(1) To create the infrastructure with templates to interact. The framework building a catalog of ready-to-use web component templates enable faster development that provides facilities to address a wide range of problems. The templates include: 'survey' ,'announcement list' ,'discussion board' ,' task list' ,' events list' ,'document library'. The ability to quickly develop using web modules componentized web page elements that empower nurses to create their own Web applications.(2) Components were developed for specific information needs. Extensible component architecture gathers various specialists to contribute their artifact. NURSE deposits web component resources. (3) Integration of components makes an application. By the way of providing the standards-based blocks build applications.

Discussion

We proposed an approach to empower nurses to create or assemble web applications, rather than to build the systems from scratch. Component can be reused, once a nurse write a web component and publish it, which can be used in multiple hospitals and nurses. The infrastructure provides a low cost solution to solve nurses' information demand. Future research would need to establish a mechanism to motivate sharing their artifacts and get rewards. Creation, cooperation, contribution for the sharing mechanisms are necessary prerequisites.