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Development of Medical Intelligent Process Model Using Ontology Based Technique

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Abstract : An urgent demand for creative solutions has been created by the rapid expansion of medical knowledge, the complexity of patient care, and the requirement for more precise decision-making. As a solution to this problem, the creation of a Medical Intelligent Process Model (MIPM) utilizing ontology-based appears as a promising way to overcome this obstacle and unleash the full potential of healthcare systems. The development of a Medical Intelligent Process Model (MIPM) using ontology-based techniques is motivated by a lack of quick access to relevant medical information and advanced tools for treatment planning and clinical decision-making, which ontology-based techniques can provide. The aim of this work is to develop a structured and knowledge-driven framework that leverages ontology, a formal representation of domain knowledge, to enhance various aspects of healthcare. Object-Oriented Analysis and Design Methodology (OOADM) were adopted in the design of the system as we desired to build a usable and evolvable application. For effective implementation of this work, we used the following materials/methods/tools: the medical dataset for the test of our model in this work was obtained from Kaggle. The ontology-based technique was used with Confusion Matrix, MySQL, Python, Hypertext Markup Language (HTML), Hypertext Preprocessor (PHP), Cascaded Style Sheet (CSS), JavaScript, Dreamweaver, and Fireworks. According to test results on the new system using Confusion Matrix, both the accuracy and overall effectiveness of the medical intelligent process significantly improved by 20% compared to the previous system. Therefore, using the model is recommended for healthcare professionals.

Keywords : ontology-based, model, database, OOADM, healthcare
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