Abstract

Information assumes a vital aspect of our lives. One of the main supplies of information is databases. There is a blooming interest in databases by researchers and its innovation is growing rapidly. This has subsequently resulted in an influence on the utilization of computers assiduously. Furthermore, most Information Technology (IT) related applications stores, retrieves, organizes, accesses and analyzes information from databases. For instance, retrieval of information from database involves the understanding of database languages like Structured Query Language (SQL). Nonetheless, not everyone is capable of scripting SQL queries, as they may not know of the structure of SQL makeup of the database. The aforementioned issues triggered the building of systems where non-expert users compose their questions in their natural language and obtain the results in the form of a database. The natural language interface to the database (NLIDB) was developed to query relational databases in their natural language instead of working with SQL, an idea provoked to form a new kind of management system. The existing approaches to NLIDBs are challenged with some weaknesses, which include non-intelligent, slow response time and inability to interact with user queries. This paper
presents an intelligent NLIDB that uses a chatbot as the natural language interface and a Synthetic Intelligence Markup language (SIML) as the Knowledge-base. The Chatbot is utilized to capture keywords in the user's utterances stored in the knowledge base. The proposed NLIDB structure is based on pattern matching technique employed to communicate with users, manages complications and uncertainties for building natural language queries associated with SQL. Experimental results show that the proposed method gave a promising result on user satisfaction and task completion as compared with existing approaches.

References


Index Terms

Computer Science Information Sciences

Keywords

Natural Language Database, Knowledge Base, Database, Synthetic Intelligent Markup Language.