User stories to application launch without humans

What does the topic cover?

In my opinion, the most important part in this topic is about natural language to structured query language.

Natural language processing (NLP) uses machine learning to analyze the structure and meaning of text. With natural language processing applications, applications/websites can analyze text and extract information about people, places and events to better understand the text’s meaning conveyed by humans.

Structured query language(SQL) is a database query and programming language used to access data and query, update and manage relational database systems. Different from other programming languages (such as C language, Java, etc.), SQL is composed of few keywords, and each SQL statement is composed of one or more keywords which can help organization to understand the text’s meaning easier.

Why it is important?

For most of organizations, in a number of situations, communication with customers cannot be completed by technians since there are some confidentiality clauses. At this time, since the NL2SQL can extract informtion about the text and output it to users, the functions can be realized in a very short time. Meanwhilei, if the organizations still realize their functions by product managers and other non-technical personnel spending time communicating with customers and conveying the texts to technians, there must be some misunderstandings in communication since the human language is ambiguous. So by using NL2SQL, people who are not programmers can easily generate the basic content framework required by simple descriptions without needing programming or technology, which can improve the efficiency of the applications /websites significantly. For those parts which can be open-sourced, they can use functional designs directly without any limitations, which can free many programmers and account managers from some basic product requirements and saving unnecessary labor costs, which can really improve the applications/websites’ profits. For the part which is controlled by the confidentiality clauses, at least it can save a large number of time for technians and other relevant staff in programming.

What are applications of the topic?

There are a large number of applications by using NL2SQL such as: email filters, online search engines, chatbots, machine translation and etc.

What is the societal significance of the research?

It can save a large number of time for technians and other relevant staff in programming so that they can do other tasks to improve efficiency.

The area that I’m interested in is that a surveyf deep learning based NL2SQL generation.

For those who do not know NL2SQL syntax, it is difficult to quickly find the data they are interested in in a database containing a large number of records In specific application scenarios, repeated data queries often consume a lot of human resources, such as customers asking e-commerce customer service for specific commodity prices and parameters Therefore, it is necessary and very helpful to automatically generate SQL statements with corresponding functions from the SQL text to SQL model by describing the purpose of the required query. It can enable non professionals to easily access the database, reduce the threshold of large-scale data analysis, and also provide automatic and timely query data feedback while reducing labor consumption In addition, NL2SQL syntax and mode are simpler than imperative programming languages, and the task of generating SQL statements is also highly feasible

The SQL generation task aims to map the natural language description to the SQL statements with specific functions according to the existing database information. It is one of the hot research topics in the code generation task in the software engineering field and the semantic parsing task in the natural language processing field NL2SQL generation task allows you to use the semantics of query questions to access and operate structured database information without knowing complex SQL query syntax, which greatly reduces the prior knowledge required for querying the database Previous studies have included the use of rule-based, program composition and other methods to generate query statements, but these methods are usually only tested on small-scale datasets and are difficult to achieve good results With the continuous emergence of deep learning technology and the continuous exploration of SQL generation scenarios by researchers, deep learning based text to SQL has become a very important research problem In recent years, the research on SQL generation based on deep learning has made a lot of research achievements, and the effect of SQL generation has been continuously improved, which has become the mainstream way in SQL generation research Therefore, an overview of SQL generation based on deep learning is of great significance for automatic code generation and deep learning applications

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