Product report: Triple Boost for Data Consistency and Increased User-Friendliness (Part 1 of 3)

Auto-Completion Based on Deep Qualicision AI

The entry of data via input forms is nowadays an integral part of many activities, context-dependent and across industries. However, the large number of available fields as well as room for individual input often lead to process time extensions and data inconsistencies. Using Qualitative Labeling and Machine Learning, however, it is possible to design a complete AI system from historicized data that can be used to actively support data collection. Auto-completion based on the Deep Qualicison AI Framework is the first step towards a measurable improvement in data consistency and user-friendliness, while at the same time creating the basis for a corresponding overall AI system.

As a result of digitalization across industries, the collection of data in a wide diversity of applications—for example in ERP and other management systems—is one of the everyday tasks of most business processes. The individual fields of a form are mainly dependent in their systematics and semantics on the respective context, from human resources and contract management via customer and order management to quality documentation. Often, there are many input fields available, whereby some of them are required entries, while others are optional.

Different Spellings Lead to Inconsistencies

This large number of input fields means that measurable time is lost during manual entry. Especially optional fields are therefore often not or only partially filled in, thus weakening the reporting system. In addition, there is often room for input flexibility, such as the use of abbreviations. Since users usually have an individual way of entering data, different spellings for the same semantics can lead to inconsistencies in the data. In addition, the use of mobile devices makes fluent data entry significantly more difficult.

Auto-completion with Deep Qualicision AI.

Rule-Based Systems to Support Data Entry

In order to meet the arising challenges in data collection, all input fields could become required fields in a first step. While this ensures that reporting is complete, it does not have a positive effect on saving time and ensuring data consistency. To increase the user-friendliness of an input form, rules are therefore often derived from context-dependent systematics and semantics. These rules then provide a basis for specific user support during data entry. Although such strict rule systems model the respective business processes very precisely, but usually contain complex logic for checking the input. When processes change, this requires continuous modification of the code base by appropriately qualified developers. Strict rule systems are a good solution for clearly structured processes that remain stable over time. However, their complexity quickly increases with a detailed modelling of the processes and makes maintenance even more difficult. In addition, strict rule systems quickly reach their limits when there are semantically varying multi-dependencies in the data.

Data-Based Auto-Completion Using Qualitative Labeling and Machine Learning

In almost all business processes with a data entry process, a large base of historicized data can be accessed. By using Qualitative Labeling and Machine Learning from the Deep Qualicision AI Framework, a complete AI system can be configured that learns typical input patterns from historicized data. These patterns can be trained both generally and user-dependently to guarantee an optimal customization to any business process. Especially for modeling multiple dependencies in the data, which partly vary with the semantics, data-based approaches offer many more advantages.

KPI-Based Self-learning AI System Based on the Deep Qualicision AI Framework

The basis for an overall AI system for auto-completion based on the Deep Qualicison AI Framework is Qualitative Labeling and a knowledge base trained by machine learning from historicized data. However, rule-based systems should not be left out completely. Strict rules are useful for the dynamic modification of forms to hide context-dependent irrelevant input fields. Fixed dependencies between attributes also speak in favor of using a rule. In particular, the Deep Qualicison AI Framework enables decision support by simply preferring different assessment KPIs to evaluate strong deviations from predictions in a comprehensible way. In addition, the knowledge base is continuously updated by fully automated integration of new data. As a direct consequence, such a KPI-based self-learning overall AI system enables the automat ed evaluation of conformity with historicized data as an indication for manual checks in the form of an automated validation of input data sets.

Your Benefit of Self-acting Auto-Completion

+ Learned user behavior based on historicized data
+ Self-acting auto-completion at the time of data entry
+ Permanent relearning of the knowledge base to ensure an up-to-date status
+ Consistency of the entire data basis
+ Significant time savings in the data entry process
+ Qualitative standardization and plausibility analyses

Deep Qualicison-Based Auto-Completion in Use at Customer Sites

An auto-completion system based on the Deep Qualicison AI Framework has already been implemented in the management of purchase and sales contracts for a customer in the retail sector. Measurable improvements in user-friendliness and data consistency have been recorded.

Upgrading the Overall AI System Through Automated Validation

As the behavior of a user has been learned from historicized data and during data entry, this knowledge can be used directly to check entire data sets of an input form. A knowledge base created in this way thus provides the next step in expanding the overall AI system by automated data input validation and creates a further boost in terms of data consistency and user-friendliness based on the Deep Qualicision AI Framework (continued with Part 2 in the next issue of Production Manager).

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