Know Your Rights! Making legislation accessible through technology

OVERVIEW

Making legislation accessible through a chatbot, using artificial intelligence to answer questions and point users to relevant provisions of law. The Renting Homes (Wales) Act 2016 is transformed into a machine-readable format. Its paragraphs and subsections are flagged as "answers".

Natural language processing is applied to generate questions from these "answers", automatically. A database of thousands of questions and answers is generated by the computer.

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A chatbot utilises the database to answer questions formulated in natural language, by pointing to the relevant paragraph or subsection.





Cronfa Datblygu Rhanbarthol Ewrop European Regional Development Fund www.legaltech.wales legalinnovation@swansea.ac.uk

The Renting Homes (Wales) Act 2016

From 1 December 2022, housing law in Wales is changing. New legislation will provide greater protection for contract-holders, clearer rules on occupation contracts, and simplified contractual schemes (secure and standard contracts). The Renting Homes (Wales) Act 2016 consists of 263 articles and 16 schedules
it provides an ambitious, modern and comprehensive legal framework for renting in Wales.
Our mission is simple: making this law accessible to everyone through the use of technology!

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WORDS & TAGS

Laws are written in humanreadable language. Before a computer can read them, we need to identify their key elements - title and date, but also sections, paragraphs and keywords. We do this through a mark-up language called Akoma Ntoso, a XML format.

BREAK IT DOWN!

The Akoma Ntoso file is parsed to automatically extract each section of the Act, as well as sub-sections, paragraphs, subparagraphs and more. These contain the "answers" to all your questions - but how can we connect the two, without the help of a lawyer?

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SOME NLP MAGIC

We use advanced natural language processing (NLP) techniques to generate questions from the "answers" provided by the Act. Using models trained on millions of documents, we create a catalogue of questions and answers for the Act.

CHAT WITH A BOT

04

The catalogue of questions and answers is the script behind our chatbot. Using more artificial intelligence (AI) and NLP, the chatbot correlates your question to one of the questions in the catalogue and provides the related answer. Easy, no?







03

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Here's how we go from a static text file written in complex legal language to an interactive chatbot that can answer complex queries and identify the relevant paragraphs of the Renting Homes (Wales) Act 2016.



Step 05

We use T5 for our tokenisation pipeline. T5 is an encoderdecoder model created by researchers at Google in 2020. It takes a text input and generates a text output.

Step 06

We generate batches of questions for each "answer" through conditional generation, using a T5 model trained on the Stanford Question Answering Dataset (SQuAD), which contains a set of 100,000 questions on Wikipedia articles. We provide additional context by feeding the text of sections of the Act into the model.

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Step 07

The catalogue of questions and answers is fed into Microsoft Power Virtual Agents, as a series of trigger phrases used as input for our chatbot.

Step 08

The deployed chatbot seeks for trigger phrases and similar expressions, providing answers according to the AIgenerated script.

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