Developing and IBM Watson Cognitive Processing Application
Supporting Application Security (Software Assurance)

IBM Watson made an impressive introduction. In 2011, Watson competed on one of America’s leading question and answer shows against former winners Brad Rutter and Ken Jennings. Watson received the first place prize of $1 million.*

Watson is a question answering computer system capable of answering questions posed in natural language, developed in IBM’s DeepQA project by a research team led by principal investigator David Ferrucci. Watson was named after IBM’s first CEO and industrialist Thomas J. Watson. The computer system was specifically developed to answer questions on one of America’s leading question and answer shows.

Application development timeline

Team:
- 2 graduate students
- 2 undergraduate students
- 3-5 SwA experts
- No IBM Watson experience
- Used Python and JSON interfaces
- 11 weeks

Example original document: CERT INT33-C
Rule - Parts
- IBM Watson works on Solr document
- Each rule or CWE resulted in about 11 Solr documents
- Whole rule or CWE is a Solr document
- Key sections are Solr documents
- Many different formats within document
- Corpus held about 15,000 documents

Application performance
Better Recall and Precision: Example: “What is the risk of INT33-C”

Watson’s interfaces for cognitive querying evolved over time
Organization of technology rapidly evolved
- Splitting some components into distinct services
- Combining some services into usable chunks
- Ease-of-use interfaces delivered in open source (out of product cycle)

Project focused on using “Retrieve and Rank” on BlueMix
- Available support from IBM
- Combined Watson Pathways for Concept Expansion, Concept Insights and Question-and-Answer

Lessons learned from project

Disposition of materials
Government use rights apply. IBM Watson software (and any dependencies) must be licensed from IBM.

SparkCognition is an IBM Watson business partner (independent software vendor) and has licensed the project materials from CMU for use in their products.

We want to thank and acknowledge collaborators

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*https://en.wikipedia.org/wiki/Watson_(computer)