Intelligent Academic Advisor

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STEVENS INSTITUTE of TECHNOLOGY
THE INNOVATION UNIVERSITY®
Business Intelligence & Analytics

Introduction

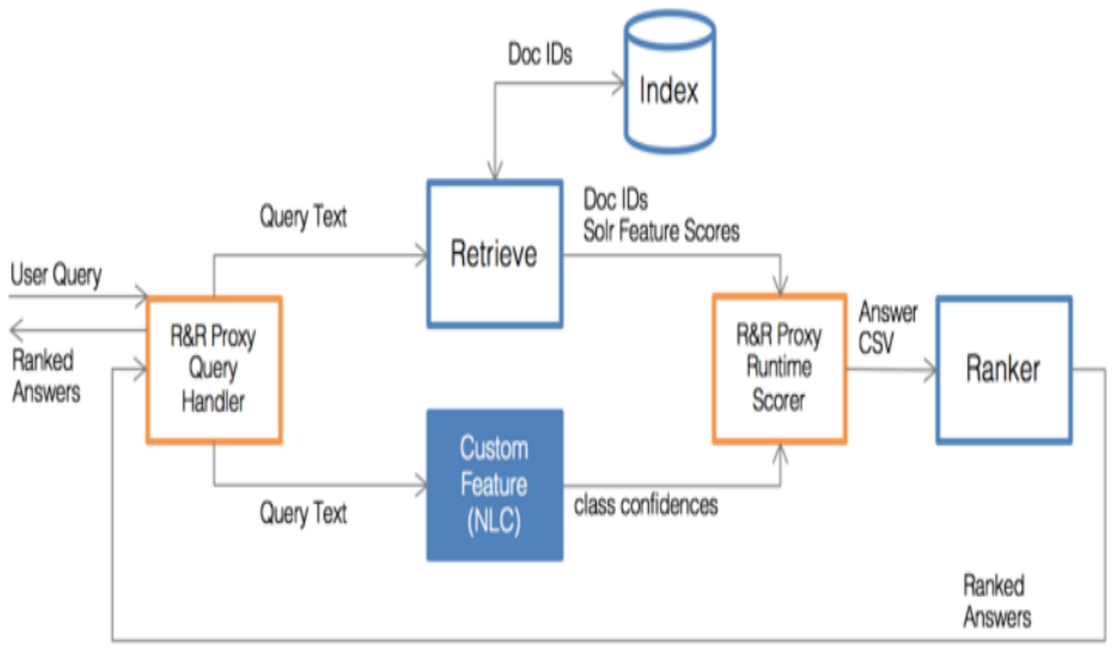
- The BI&A program receives hundreds of questions from potential applicants, including many frequently and some infrequently asked questions. Engaging the interest of potential applicants can be very important in both differentiating our program and ensuring that interest eventually turns into applications.
- The Intelligent Academic Advisor is a Watson-based question answering (QA) cognitive computing system. The system utilizes advanced natural language processing, information retrieval, automated reasoning, and machine learning algorithm to provide answers to program related questions.

Data

- The source of information for the application includes an initial corpus of 292 questions and answers covering 15 topic areas.

Question	Q#	A1	A2	A3	Answer
What is the programming language requirement or prequisite?	117	117			A course in programming or equivalent industry programmi
Do I need to have work experience?	118	118			At least one year of work experience is required for admiss
What is the average age of students?	119	119			The average age of students in the MS in BI&A program is a
Are older students accepted?	120	120			There is no age limit for acceptance to any Stevens prograr
Are undergraduates without work experience admitted?	121	121			Stevens undergraduate students participating in the "4+1" p
What prior degrees are preferred?	122	122			The preferred degrees (undergraduate or master's) are in s

Architecture

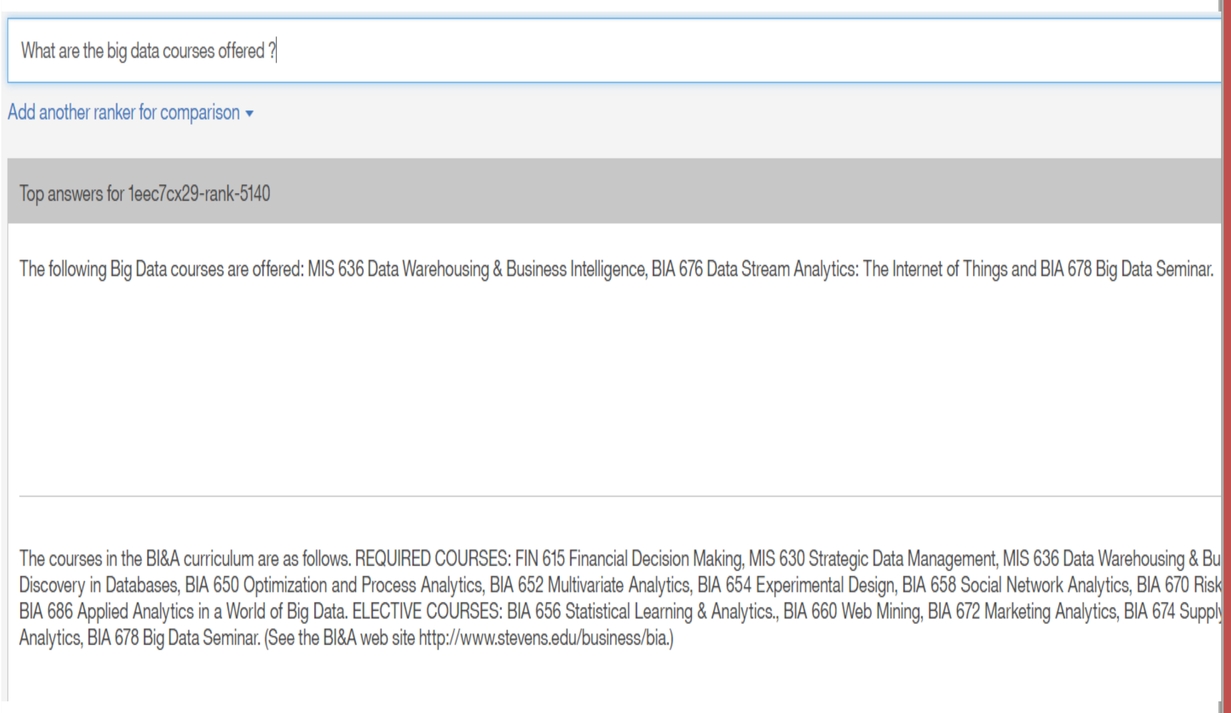


This system consists of two Watson Services:

- **Rank & Retrieve (R&R):**
  - Used to identify the most relevant answer to the question asked by the user.
  - Built on top of Apache Solr and returns a set of results based on a combination of search and machine learning algorithms.
  - Based on response confidence the highest ranking response is provided as an answer to the question.
- **Natural Language Classifier (NLC):**
  - Used to better understand the "context" of the question being asked by the user.
  - Classifies the questions related to Stevens, based on categories like location, skills, BI&A program etc.

Performance

Results



- The Intelligent Academic Advisor application will help potential applicants find answers to their questions. It will help differentiate our program and will potentially turn interest into applications.
- After the classifier is integrated with Rank and Retrieve service, the ranker can be trained on a corpus of frequently asked question, and then combining score from retrieve and classification to increase the confidence of response to infrequently asked question by user.

Future Work

- This initial application demonstrates the power of a cognitive assistant in helping to find answers to frequently, and not so frequently asked questions. Turning interest into applications has a significant benefit to the school as well as to the potential applicant (by saving time, reducing frustration, and helping match the interests of our audience with our offerings). If successful the application can be expanded from the BI&A Program, to the School of Business, and ultimately to Stevens.
- The Intelligent Academic Advisor can be deployed using Watson Conversation service, which can be integrated with Natural language classifier and Rank and Retrieve service in the backend. The front end of Watson Conversation service can be integrated with Text-to-Speech and Speech-to-Text service to provide cognitive interface to end user just like Apple Siri.