6COSC020W.1 Applied AI
Tutorial Week 9
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Natural Language Processing

1. Write a Finite State Automaton able to laugh, i.e. to write on your computer screen ha!, haha! Hahaha!

2. A bank wants to develop an automated customer assistant, available via kiosks in its branches. The automated assistant will allow customers to make requests of the assistant, using a simple question-answer dialog. The assistant can display the balance of a customer account, make a withdrawal from the account, print a statement etc.

   Using a finite state automaton, design a simple dialogue manager for the automated bank assistant. The dialog manager should show the different stages in the dialog from the assistant's perspective. Hint: the assistant should first ask the customer to verify themselves using the same kind of procedure you would use at a normal ATM. The assistant should also allow the customer to cancel and return to the beginning of the dialog.

3. If you have a smart phone with you, do try to test your voice assistant's abilities by answering the following questions (you can work individually or in small groups):
   i. How many ways can you ask your voice assistant to send a message to one of your contacts (that it understands)?
   ii. Try asking your voice assistant "How long would it take me to walk to the nearest McDonalds?"
   Does your voice assistant answer this question correctly - e.g., with a time? Why do you think it answers the way it does?
   iii. Ask your voice assistant what the weather will be on Saturday.
   Now ask if you will need an umbrella on Saturday. Does the voice assistant answer both questions correctly?
   iv. Ask your voice assistant the following "I really want to read a Harry Potter book. Where can I buy one?"
   What happens when you ask this question? Why do you think the voice assistant answers the way it does?
   v. Ask your voice assistant the following:
   1. "What's the best route, if I'm driving, to get to Liverpool*?"
   2. "What's the best way, if I'm going by car, to get to Liverpool*?"
   Do you get the same results in exactly the same way? Can you find a way to ask this question that confuses your voice assistant?
   vi. Using your voice assistant try to find the cheapest way to get to Oxford* using public transport. How easy is it?

   *You can adapt locations if you prefer.

4. Find further information on GPT-3 and write a short paragraph of approximately 100 words with the outcomes of your research. Do not forget to include the sources (references) that you used for your paragraph.