Interim Progress Report

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This report presents our group's progress in the project and our implementation plan so far. We experimented with Stanford CoreNLP and decided to use its tokenizer, tagger and dependency parser. We also decided to implement parts of stanford's `semgrex` ourselves. Finally we modified and simplified our pipeline as described below.

1 Initial Experiments

We experimented with Stanford CoreNLP library using simple sentences. We found the idea of using `tokregex` & `semgrex` to generate and answer questions particularly appealing because it simplifies a lot of processing as regex matching-like operations. Unfortunately, the CoreNLP server takes up huge amount of space and time when these features are used, while it is quite fast when used just for regular operations like tokenizing, tagging and parsing.

2 Tested Prototypes

We implemented two modules to deal with question generation. Firstly, we implemented the 'Document' class, to simplify working with text documents in which we only need to supply its method `generateQuestionsFromPattrens` with a list of tuples of pattren and function for createing questions from these matchings. We, also, implemented a class `DepGraph` which is a subset of the functionality of stanford's `semgrex`. It takes relations of the form "node x has tag *VBD* and is a governor of a *nsubj* relation to a node y that has tag *NNP* and also a *dobj* relation to a node z of unspecified tag" (In CoreNLP notation `{tag:VBD} >nsubj {tag: NNP} >dobj {}`). It returns indices of the words matching the nodes in the same order. The current implementation matches only in a single level but we will expand it to match recursively on the parse tree.

3 Results

We tested out implementation with an actual template and document. Figure <insert ref> shows some of the results.

../src/test.py

```python
#!/usr/bin/python3

from depgraph import DepGraph
from utils import Document
from pycorenlp import StanfordCoreNLP

client = StanfordCoreNLP('http://localhost:9000')

with open('../data/set1/a2.txt') as f:
    doc = Document(f.read())
print(len(doc.sentences))
for sent in doc.getSentences():
    dg = DepGraph(client, sent)
    res = dg.match('VBD', [('nsubj', None), ('dobj', None)])
    if res:
        verb, subj, obj = res
        print('Who {} {}? {}'.format(dg.tokens[verb], dg.tokens[obj], dg.tokens[subj]))
```