10791 hw3 Report

Design and Engineering of Intelligent Information System

Jiacong He Andrew ID: jiacongh

1.Introduction

This report mainly contains the following parts:

- 1. Create a CPE which is consiste of a Collection Reader, an Analysis Engine and a Cas Consumer
- 2. Create a UIMA AS client
- 3. Deploy my UIMA AS service
- 4. Run the StanfordCoreNLP annotator locally

2.Create and Running CPE(Task1)

In this task, I created a CPE and the construction is described as follow:

CPE:	hw3-jiacongh-aae-as-CPE.xml
Collection Reader:	FileSystemCollectionReader.xml
Analysis Engine:	hw2-jiacongh-aae.xml
CAS Consumer:	XmiWriterCasConsumer.xml

The FileSystemCollectionReader.xml file is designed to read the text file and convert it to a CAS object. Different from the Document Analyzer in hw2, the Collection Reader read the file for one time and will not read for several times.

The Analysis Engine is almost same with the one in hw2. But the evaluation part is removed.

The CAS Consumer is mainly the evaluation part in hw2. It help evaluation the scores of each sentence and print them on the console.

The result is shown as follow.

```
Processing completed successfully.

Documents Processed: 2

Total Time: 0.145 seconds

100% (145ms) - Collection Processing Engine

36.55% (53ms) - File System Collection Reader (Process)

40.69% (59ms) - hw2-jiacongh-aae (Analysis)

0% (0ms) - hw2-jiacongh-aae (End of Batch)

22.76% (33ms) - Xmi Writer CAS Consumer (Analysis)

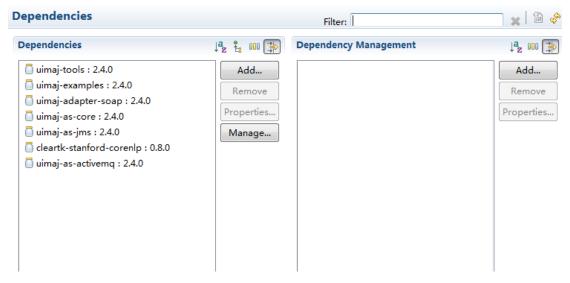
0% (0ms) - Xmi Writer CAS Consumer (End of Batch)
```

3. Deploy with UIMA AS(Task2)

In this task, I integrated a remote UIMA-AS service (Stanford CoreNLP) into my CPE pipeline, and deploy my aggregate analysis engine in homework 2 as an UIMA-AS service.

2.1 Creating an UIMA-AS client

In this task, I added the cleartk-stanford-corenlp and uima-as-activemq to the maven dependency. Then I add brokerURL and endpoint to the UIMA-AS service. Finally, I integrated the Name Entity annotations from the Stanford CoreNLP service into answer scoring component. I print all the name Entity out to console. The picture of this phase is as follow.

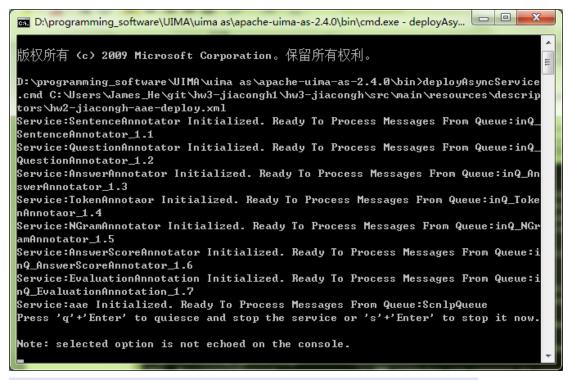


```
×
 Performance Report
                                                                                                                                                                                                                                                                  💋 Tasks 🥷 Problems 🕠 Executables 这 LogCat 📮 Console 🛭 🔅 Debug 🔮 Error Log
Processing completed successfully.
                                                                                                                                                                                                                                                                 UIMA Run CPE [Java Application] C.\Program Files\Java\jdk1.6.0_45\jre\bin\javaw.exe (2013-10-1 2001) Javaw.exe (2013-10-1 2001) J
Documents Processed: 2
Total Time: 1.39 seconds
    🚹 100% (1390ms) - Collection Processing Engine
             * 8.99% (125ms) - File System Collection Reader (Process)
        ● 69.5% (966ms) - hw2-jiacongh-aae-client.xml (Service Call)
                                                                                                                                                                                                                                                                   Q John
        John
  ± ... 7.91% (110ms) - aae (Analysis)
                                                                                                                                                                                                                                                                   A 1 John
         --- - 0% (Oms) - aae (End of Batch)
        --- 7.91% (110ms) - Xmi Writer CAS Consumer (Analysis)
                                                                                                                                                                                                                                                                  John
Mary with all his heart
Mary
his
A 1 Mary
1
            ** 0% (Oms) - Xmi Writer CAS Consumer (End of Batch)
                                                                                                                                                                                                                                                                    John
                                                                                                                                                                                                                                                                   A 0 Mary
0
                                                                                                                                                                                                                                                                   A Ø John
```

2.2 Deploying my UIMA-AS service

In this task, I deployed my aggregate analysis engine in Homework 2 on my machine, and called the service locally. I started the broker and use the connection tcp://0.0.0.0:61616 as the brokerURL in my aae-client

```
D:\programming_software\UIMA\uima as\apache-uima-as-2.4.0\bin\cmd.exe - startBroker...
 Heap sizes: current=60736k free=58823k max=466048k
   JVM args: -Dcom.sun.management.jmxremote -Xmx512M -Dorg.apache.activemq.UseD
ivemq.classpath=amq/conf;D:\programming_software\UIMA\uima as\apache-uima-as-2.4
.0\apache-activemq-5.4.1/conf; -Dactivemq.home=D:\programming_software\UIMA\uima
as \apache-uima-as-2.4.0 \apache-activemq-5.4.1 -Dactivemq.base=amq
ACTIVEMQ_HOME: D:\programming_software\UIMA\uima as\apache-uima-as-2.4.0\apache-
activemq-5.4.1
ACTIVEMQ_BASE: amq
Loading message broker from: xbean:file:amq/conf/activemq-nojournal.xml
INFO BrokerService
                                    - Using Persistence Adapter: MemoryPersiste
nceAdapter
INFO BrokerService
                                    - ActiveMQ 5.4.1 JMS Message Broker (localh
ost) is starting
INFO BrokerService
                                   - For help or more information please see:
http://activemq.apache.org/
INFO ManagementContext
                                   - JMX consoles can connect to service:jmx:r
mi:///jndi/rmi://localhost:1099/jmxrmi
INFO TransportServerThreadSupport
                                   - Listening for connections at: tcp://0.0.0
.0:61616
INFO TransportConnector
                                   - Connector openwire Started
INFO BrokerService
                                   - ActiveMQ JMS Message Broker (localhost,
D:James_He-PC-58227-1381363877119-0:0) started
```





UIMA Run CPE [Java Application] C:\Program Files\Java\jdk1.6.0_45\jre\bin\java

Question: [Booth shot Lincoln?]

Answers and Scores:

- 1 Booth shot Lincoln. Score:1.00
- 0 Lincoln shot Booth. Score:0.50
- 1 Booth assassinated Lincoln. Score:0.33
- 0 Lincoln assassinated Booth. Score:0.33
- 1 Lincoln was shot by Booth. Score:0.25
- 0 Booth was shot by Lincoln. Score:0.25
- 1 Lincoln was assassinated by Booth. Score:0.17
- 0 Booth was assassinated by Lincoln. Score:0.17

Question: [John loves Mary?]

Answers and Scores:

.

- 1 John loves Mary. Score:1.00
- 1 John loves Mary with all his heart. Score:0.33
- 0 Mary doesn't love John. Score:0.22
- 0 John doesn't love Mary. Score:0.22
- 1 Mary is dearly loved by John. Score:0.13

```
Processing completed successfully.

Documents Processed: 2

Iotal Time: 1.171 seconds

100% (1171ms) - Collection Processing Engine

2.65% (31ms) - File System Collection Reader (Process)

86.59% (1014ms) - hw2-jiacongh-aae-client.xml (Service Call)

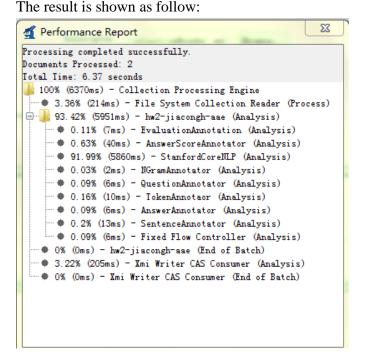
10.76% (126ms) - hw2-jiacongh-aae-client.xml (End of Batch)

0% (0ms) - Xmi Writer CAS Consumer (Analysis)

0% (0ms) - Xmi Writer CAS Consumer (End of Batch)
```

4. Run Stanford Annotator locally (Bonus)

In this part, I ran StanfordCoreNLP annotator locally. I added a StanfordCoreNLP Discriptor.xml which reflect to the StanfordCoreNLPAnnotator.java file.



```
Question: [John loves Mary?]
Answers and Scores:
1 John loves Mary. Score:1.00
1 John loves Mary with all his heart. Score:0.33
0 Mary doesn't love John. Score:0.22
0 John doesn't love Mary. Score:0.22
1 Mary is dearly loved by John. Score:0.13
Adding annotator tokenize
Adding annotator ssplit
Adding annotator pos
Adding annotator lemma
Adding annotator ner
Adding annotator parse
Adding annotator dcoref
Print Name Entity Starts----!
Booth
shot
Lincoln
```

From the picture we can find that the time of running locally is slower than calling remote service.