KBAI Project 1 (understanding)
(09/12/2018)

	Project 1 Understanding	Project 2 Classification	Project 3 Learning
Domain	DUEDATE RELEASEDATE WEIGHT PROCESS DURATION		
KBAI Algorithms	● Thematic Roles ● Frames	● Semantic Networks ● Generate and Test ● Production Systems (rules based systems) (decision trees) ● Means-Ends Analysis ● Problem Reduction ● Learning by Recording Cases ● Case Based Reasoning	● Incremental Concept Learning ● Version Spaces ● Analogical Reasoning ● Logic ● Planning ● Scripts ● Learning by Correcting Mistakes
Example Questions	See below		

Understanding

"*Semantic Role Labeling, also called Thematic Role Labeling, or Case Role Assignment or Shallow Semantic Parsing is the task of automatically finding the thematic roles for each predicate in a Sentence.*" [1]

For project one you will parse questions into thematic roles to fill slots in a frame. Your agent will be given a sentence and must return a completed frame (object, data requested). Later projects will build on this project. Using the completed frame to answer the question.

Metacognition

For this project you will need to create your own test questions. You will need to parse the questions manually to generate test answers in order to test your agent. The creation of this test set is an important opportunity for you to learn how you think. Your goal is to code your thought process. How do you as a human determine the object of a sentence? How do you as a human determine the type of data requested? What knowledge did you use to make these decision (this 'model of world' is what you will need to hardcode into your agent). **Use random objects in your sentences.** The requested data is limited to the type in the chart below.

Project Details

An example file called ExampleQuestions.json will be provided. You will need to add your manually generated dictionaries to this file to test your agent.

Examples (you will not receive the full list of questions)

Question	Question Object	Data Requested
When is the **project** <u>due</u>?	project	"DUEDATE"
When is the **project** <u>released</u>?	project	"RELEASEDATE"
<u>How much</u> is the **project** worth?	project	"WEIGHT"
<u>Where</u> do I <u>turn in</u> my **project**?	project	"PROCESS"
<u>Where</u> is the **project specification**?	project specification	"PROCESS"
How long do we have to complete a **project**?	project	"DURATION"
Please see ExampleQuestions.json for more examples		

It is very important that you understand the above example questions are just examples to give you an idea of the scale of questions your agent will be asked. Do not infer structure or objects from the above examples. Your agent will have to find the object and type of data requested using concepts covered in the thematic role lectures and the papers referenced below. You should hardcode a vocabulary into your agent, but the vocabulary should NOT be limited to the examples above.

Domain

The domain for the project is the English language. The test questions will use proper English and grammar rules. The types of sentences are further limited by the "data requested" types. Your agent will not be asked a question that does not fit into one of those types. The test questions will have random objects.

The domain is limited by the type of data requested. Only questions asking for dates, the weight or value of an object, or duration will be asked. For example, "Who is professor Goel?" will not be asked. Yes and no questions, "Does this class teach KBAI?" will not be asked.

Questions will start with: 'What, Where, When, or How and be limited to requesting data from the table below. **You only only need to return the object and data type requested.**

Object	Release Date	Due Date	Duration	Weight	Process
	8/20/2018	9/2/2018	1 week		Turn in to Canvas as PDF.
	9/3/2018	9/23/2018	3 weeks		Turn in code as zip file, and report as pdf into Canvas.
	9/24/2018	9/30/0208	1 week		Turn in to Canvas as PDF.
	10/1/2018	10/7/2018	1 week		Turn in to Canvas as PDF.
	10/8/2018	10/28/2018	3 weeks		Turn in code as zip file, and report as pdf into Canvas.
	10/29/2018	11/4/2018	1 week		Turn in to Canvas as PDF.
	11/5/2018	11/25/2018	3 weeks		Turn in code as zip file, and report as pdf into Canvas.
	11/26/2018	12/2/2018	1 week		Turn in to Canvas as PDF.

The category 'Process' is constrained to acquiring or submitting an object.

Types of Questions that will **NOT** be Asked:

Who is professor Goel?
Is this a KBAI class?
What is the color of the room?
What is project 1?
Do you like Dilbert?
Who are the virtual TA's?

Getting the code

git clone https://github.gatech.edu/Dilab/CS7637AOProjects.git

Executing the code (you must use Python 3)

Python AgentGrader.py

```
=================================
Autograder - Version student083118


usage: -f <json containing dictionary frames>
       -l <path/filename to log file>
       -v verbose output to console
       -h this message to console
=================================
```

Code (located in project 1 directory)

File	Change?	Description
ExampleQuestions.json	YES	Add your manually generated frames into this file
StudentAgent.py	YES	Add your code here
AgentInterface.py	NO	Autograder to agent interface
AgentGrader.py	NO	The autograder will test your agent and output a result
common.py	NO	Helper functions

Decoding the Autograder Results

```
when is the project due|project|DUEDATE|project|DUEDATE1|1.0|1.0
when is the project released|project|RELEASEDATE|project|DUEDATE2|2.0|1.0
how much is the project worth|project|WEIGHT|project|DUEDATE3|3.0|1.0
where do I turn in my project|project|PROCESS|project|DUEDATE4|4.0|1.0
where is the project specification|project|PROCESS|project|DUEDATE5|5.0|1.0
how long do we have to complete a project|project|DURATION|project|DUEDATE6|6.0|1.0
------------------------------------------------------------------------------------------------
```
| is a delimiter.
count,object,datatype
6 | 6.0 | 1.0

count = total # of questions
object = # of correct object matches
datatype = # of correct datatype matches

		ground truth		student agent				
question		object	requested		object	requested	question #	object match	request match
when is the project due		project	DUEDATE		project	DUEDATE	1	1.0	1.0

Grading

Your agent will be asked 100 questions with random objects. Each question is worth 0.5 points (0.25 points for the Object and 0.25 points for the data type). The object match is binary aka: exactly 'project', 'space shuttle', 'professor goel'. The data type must be one of: 'DUEDATE', 'RELEASEDATE', 'WEIGHT', 'PROCESS', 'DURATION'.
The results from your agent represent 50% of your grade. The report represents the other 50% of your grade.

Report Rubric (50% of grade)

Item #	P	Address in your report
1	10	Draw a block diagram of your agent.
2	10	Explain, in detail, how you used thematic roles and frames in your agent.
3	10	How does your agent's design relate to human cognition?
4	10	How did you create test questions? Please provide a partial list of your test questions.
5	10	What are the strengths and weaknesses of your agent?

References

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