Project 1
Follow up

LINFO2263 – Computational Linguistics

General comments

If not already started, do it now!

Project takes time

Time needed for each task increases as you advance into the project!

Only around ¼ of students started already!

General comments

- Refer to the slides for theoretical notions

- No plagiarism

  You have to submit the code you designed yourself to get your answers

- Do not forget to cite your public sources, if any

- You may use generative tools, but indicate it in the code as any other public source

General comments

100% on Inginious
before final deadline

100%
in the end

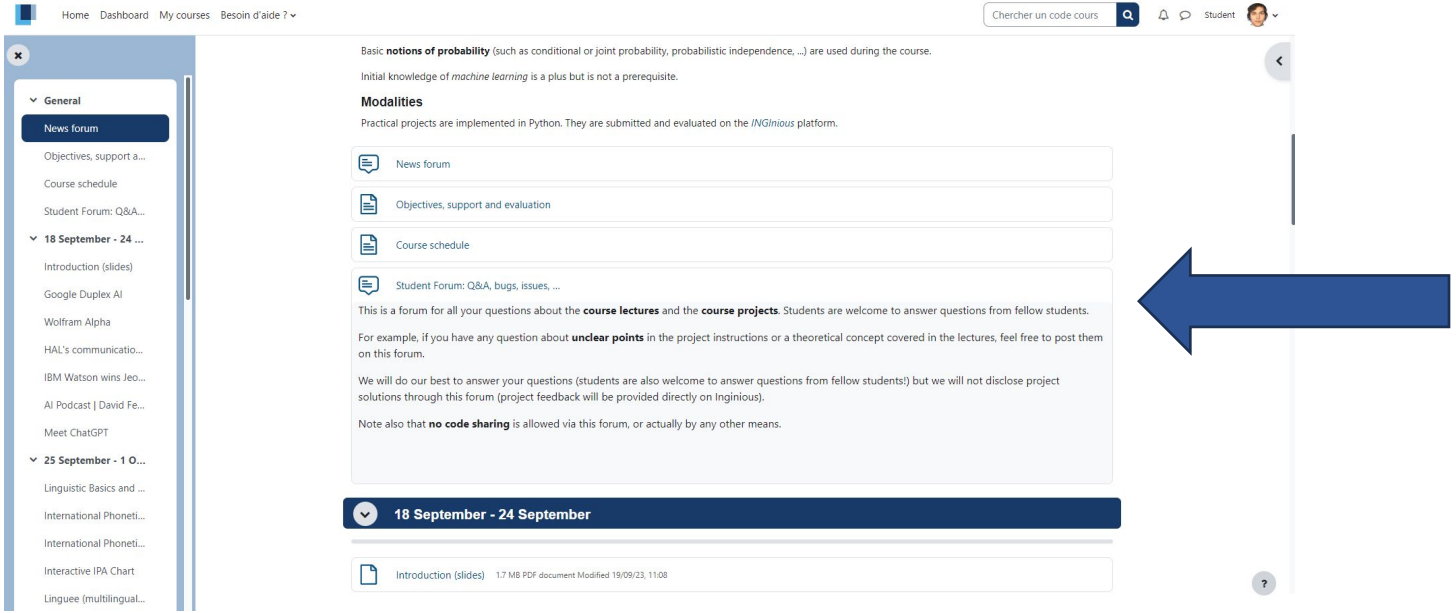
100% before deadline = your answers have the correct format

Grading is run after the deadline

Only the last submission is evaluated

General comments

Get help, help the others: use the Student Forum!



No code sharing !!

General comments

TASK	NLTK	
1.1	✓	
1.2	✓	
1.3	✗	Use only for preprocessing (vocabulary, …)
1.4	✗	Use only for preprocessing (vocabulary, …)

Question 1.0

Download the corpus

!! Preprocess the corpus !!

```
to_skip = ['(', ')', '[', ']', '{', '}', ':', ';', '=', '-', '/', '\\', '"', "'"]
```

Question 1.0

Examples

```
to_skip = ['(', ')', '[', ']', '{', '}', ':', ';', '=', '-', '/', '\\', '"', "'"]
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tokens = [“hello:”, “world!”, “;”, “hel-lo”, “\everyone”]

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Question 1.0

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tokens = [“hello”, “world!”, “hello”, “everyone”]

Question 1.1

- Check the documentation
- Remark: not all tokens are words
- OOV = frequence of the <UNK> token in the whole corpus (as a %)

Question 1.2

- What would be the padded version of the sentence below?

May the Force be with you

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Answer:

<s> May the Force be with you </s>

- What would be the padded bigram of this sentence?

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<s> May the Force be with you </s>

- What would be the padded bigram of this sentence?

Answer:

[(“<s>”, “May”), (“May”, “the”), (“the”, “Force”), (“Force”, “be”), (“be”, “with”), (“with”, “you”), (“you”, “</s>”)]

Question 1.3

- Avoid numerical underflows, **use logarithms**

- 2 classes: HQ (High Quality) and LQ (Low Quality) and
  2 models (one for each class)

- Consider the full question directly, do not split by sentence (no need for padding in this case!)

Question 1.4

- 3 sub-tasks, **independent** from each other
  - Binary Naive Bayes
  - Negative Tokens Preprocessing
  - Smoothed Bigrams Model
- Report your accuracy and your code for each of them
- Refer to the slides for theoretical notions

Question 1.4 – Binary Naive Bayes

Word occurrences clipped to 1

Example:

With great power comes great responsability.

What is the total count of “power”? And “great”?

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And if we **add** the following document in our corpus?

We will watch your career with great interest.

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↳ 1 (clipped)

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↳ power: 1, great: 2

Question 1.4 – Negative tokens

Add « _NOT » after each token between a negative token and a punctuation sign

Consider ONLY ***not***, ***no*** and ***never*** as negative tokens

Consider ONLY these punctuation signs . , ? !

Question 1.4 – Negative tokens

Some examples to be clear…

Where we are going, we do not need roads.

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↳…, we do not need_NOT roads_NOT.

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↳NO CHANGE! (NB: this is an approximation)

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↳NO CHANGE! (NB: this is an approximation)

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↳…, we do not need_NOT roads_NOT

Notice that the . is missing here

Question 1.4 – Negative tokens

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Do or do not there is no try.

Question 1.4 – Negative tokens

Some examples to be clear…

Do or do not there is no try.

↳Do or do not there_NOT is_NOT no_NOT try_NOT.

Question 1.4 – Negative tokens

This modifies the original corpus!

What about the vocabulary?

Is it the same as before?

Question 1.4 – Smoothed Bigrams Model

During preprocessing…

How to treat the words not in the vocabulary?

Is it different from the previous tasks?

Question 1.4 – Smoothed Bigrams Model

During preprocessing…

How to treat the words not in the vocabulary?

Is it different from the previous tasks?

↳ Replace them by <UNK> token

Needed for bigrams, <UNK> can be used as a context or predicted word (sometimes both)

Questions?