

FoLT Tutorial 6 Summary

Part 1: Zero-shot prompt-based text classification

- What does **zero-shot classification** mean:
 - It is the task of predicting a class that **wasn't seen by the model during training**
 - we provide the model with a **prompt** and a **sequence of text** that describes what we want our model to do, in natural language
 - Zero-shot classification excludes any examples of the desired task being completed
 - Code: I'm not gonna put code here because it's basically trying zero-shot classification with models like:
 - **Mistral-7B**
 - **Flan-UL2**
 - **Flan-T5-XXL**

Part 2: One shot and few shot prompt-based text classification

- What does **one-shot and few-shot classification** mean:
 - It is the task of predicting a class that wasn't seen by the model during training
 - In one-shot, we provide the model with a prompt and a sequence of text that describes what we want our model to do
 - plus an example of the desired task being completed
 - In few-shot classification, we provide more than one example of the desired task being completed
- Code: Here I'm gonna put some code just as a demo for how it works:

```
example_question = "what medications could cause excessive hair growth"
example_answer = "Side Effects"
example_rationale = "excessive hair growth can be a side effect"

test_question_1 = "problems when stopping metformin, hair loss?"
mistral_one_shot_prompt: str = f"""<s>[INST] This is a question type classifier for
medication consumer. Classify the TYPE of the MEDICATION QUESTION into one of the
following categories: Information, Dose, Usage, Side Effects, Indication, Interaction.
Only answer with the category name.
MEDICATION QUESTION: {example_question}
TYPE: [/INST] {example_answer}</s> [INST]
MEDICATION QUESTION: {test_question_1}
TYPE: [/INST]"""

answer = inference("Mistral-7B", text=mistral_one_shot_prompt)
print(answer)
```

- Result:

```
Model: Mistral-7B
Side Effects.
```

Part 3: Chain-of-thought prompt-based text classification

- **Chain of Thought** (CoT) prompting is a recently developed prompting method, which encourages the LLM to **explain its reasoning**.
- Code:

```
example_question = "what medications could cause excessive hair growth"
example_answer = "Side Effects"
example_rationale = "excessive hair growth can be a side effect"

test_question_1 = "problems when stopping metformin, hair loss?"
mistral_chain_of_thought_prompt: str = f"""<s>[INST] This is a question type classifier
for medication consumer. Classify the TYPE of the MEDICATION QUESTION into one of the
following categories: Information, Dose, Usage, Side Effects, Indication, Interaction.
Answer the question type and explain the reason.
MEDICATION QUESTION: {example_question}
TYPE: Let's think step-by-step. [/INST] {example_answer} because {example_rationale}.
</s> [INST]
MEDICATION QUESTION: {test_question_1}
TYPE: Let's think step-by-step. [/INST]"""

answer = inference("Mistral-7B", text=mistral_chain_of_thought_prompt)
print(answer)
```

- Result:

```
Model: Mistral-7B
Side Effects because hair loss can be a side effect of stopping metformin.
```