

Ma322 Quiz 5 Review Solutions

1. True or False

- a) LLMs need to be retrained to respond to different prompting strategies.

Solution: False

LLMs can respond to different prompting strategies without retraining. Their ability to understand and follow instructions is built into their training.

- b) Using more detailed prompts always guarantees accurate responses from LLMs.

Solution: False

While detailed prompts often improve responses, they don't guarantee accuracy. LLMs can still make mistakes regardless of prompt detail.

- c) Chain of thought prompting can help reduce errors but doesn't eliminate them completely.

Solution: True

Chain of thought prompting improves reasoning by breaking down complex tasks, but LLMs can still make errors in their logic or conclusions.

2. System prompts help improve responses by

- a) Defining the AI's role and behavior upfront
- b) Training the model on new data
- c) Making the prompts shorter and more efficient
- d) Requiring specific programming languages

Solution: a

System prompts help by defining the AI's role and behavior upfront. This sets expectations and context for the model's responses without requiring retraining or specific programming.

3. What does the following code print out when executed?

```
template="Give {num} interesting facts about {subject} in {country}"

prompt=template.format(num="three", subject="food", country="Italy")
print(prompt)
prompt=template.format(country="num", subject="country", num="subject")
print(prompt)
```

Solution

```
Give three interesting facts about food in Italy
Give subject interesting facts about country in num
```

4. Role-based prompting is most effective for tasks that
- a) Require only factual information
 - b) Need specific expertise or perspective
 - c) Are purely computational
 - d) Have only one correct answer

Solution: b

Role-based prompting works best for tasks needing specific expertise or perspective, as it helps frame the response from a particular viewpoint or domain knowledge.

5. When using chain of thought prompting, which is true?
- a) It only works for mathematical problems
 - b) It helps the model break down complex reasoning into steps
 - c) It makes responses shorter and more concise
 - d) It requires multiple examples to work

Solution: b

Chain of thought prompting helps the model break down complex reasoning into steps, making the thinking process explicit and more reliable.

6. Prompting with Template Variables
- a) Create a template string using a template variable `{topic}` for asking the LLM to explain `{topic}` to a beginner.

```
template= CODE
```

Solution

```
template = "Please explain {topic} to a beginner."
```

- b) Evaluate your template using the string "machine learning"

```
prompt=template.format(CODE)
```

Solution

```
prompt = template.format(topic="machine learning")
```

- c) Call `get_completion` to get the response from the LLM

```
response = get_completion(CODE)
```

Solution

```
response = get_completion(prompt)
```

d) Print out the prompt and completion.

```
CODE
```

Solution

```
print(prompt)
print(response)
```

e) Add another template variable called `{level}` to the template above and ask the LLM to explain the topic at the specified difficulty level.

```
template = CODE
```

Solution

```
template = "Please explain {topic} to someone at a {level} level."
```

f) Evaluate your template with topic as “machine learning” and level as “intermediate”. Save it in the `prompt` variable. Print out the prompt.

```
prompt=template.format(CODE)
CODE
```

Solution

```
prompt = template.format(topic="machine learning", level="intermediate")
print(prompt)
```