

Chase Hannegan

Week 4 Homework

4-1

Pertaining has some subtle differences when compared to fine turning. Pertaining is unsupervised learning on raw data to extend the knowledge base while fine tuning is supervised learning with label examples used to modify specific behavior. This fine tuning usually only modifies a few layers while pretraining affects the entire model.

The benefits of this pertaining are that it can use large amounts of data, enabling more consistent behavior across tasks and smooth integration of new knowledge at a base level.

The disadvantages are that it is resource intensive, expensive, time consuming, difficult to control, less targeted, and ultimately more complex.

4-2

The prompt I used is below. I used 4o and o1-preview.

Use the following format:

Question:

question here

Student's solution:

student's solution here

Actual solution:

steps to work out the solution and your solution here

Is the student's solution the same as actual solution \

just calculated:

yes or no

Student grade:

correct or incorrect

Question:

I'm building a solar power installation and I need help \ working out the financials.

- Land costs \$100 / square foot
- I can buy solar panels for \$250 / square foot
- I negotiated a contract for maintenance that will cost me a flat \$100k per year, and an additional \$10 / square foot

What is the total cost for the first year of operations \ as a function of the number of square feet.

Student's solution:

Let x be the size of the installation in square feet.


Costs:

1. Land cost: $100x$
 2. Solar panel cost: $250x$
 3. Maintenance cost: $100,000 + 100x$
- Total cost: $100x + 250x + 100,000 + 100x = 450x + 100,000$

Actual solution:

====

O-1 preview response:

 Thought for 26 seconds ▾

Actual solution:

yaml Copy code

```
Let x be the size of the installation in square feet.

Costs:

1. Land cost:  $\$100 * x = 100x$ 

2. Solar panel cost:  $\$250 * x = 250x$ 

3. Maintenance cost:  $\$100,000 + \$10 * x = 100,000 + 10x$ 

Total cost:  $100x + 250x + 100,000 + 10x = (100x + 250x + 10x) + 100,000 = 360x + 100,000$ 
```

Is the student's solution the same as actual solution just calculated:






yaml Copy code

```
No
```


Student grade:

Copy code

```
Incorrect
```

     ▾

4o response

 Question:

css

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```
I'm building a solar power installation and I need help \
working out the financials.
- Land costs $100 / square foot
- I can buy solar panels for $250 / square foot
- I negotiated a contract for maintenance that will cost \
me a flat $100k per year, and an additional $10 / square \
foot
What is the total cost for the first year of operations \
as a function of the number of square feet.
```

Student's solution:

yaml

Copy code

```
Let x be the size of the installation in square feet.
Costs:
1. Land cost: 100x
2. Solar panel cost: 250x
3. Maintenance cost: 100,000 + 10x
Total cost: 100x + 250x + 100,000 + 10x = 450x + 100,000
```

Actual solution:

java

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```
Let x represent the size of the installation in square feet.

1. Land cost: $100 per square foot
Land cost = 100 * x = 100x

2. Solar panel cost: $250 per square foot
Solar panel cost = 250 * x = 250x

3. Maintenance cost: flat $100,000 per year + $10 per square foot
Maintenance cost = 100,000 + (10 * x) = 100,000 + 10x

Adding all costs:
Total cost = Land cost + Solar panel cost + Maintenance cost
Total cost = 100x + 250x + 100,000 + 10x

Combining like terms:
Total cost = (100x + 250x + 10x) + 100,000
Total cost = 360x + 100,000
```

Is the student's solution the same as actual solution just calculated:

yaml







Copy code

```
No
```

Student grade:

Copy code

```
Incorrect
```

O-1 preview took longer to respond (26 seconds) and, due to its built in COT guidelines, the prompt we gave it was probably overkill. That being said, its response was more concise. 4o came to the same conclusion but was a bit more verbose.

4-3

I attempted the hangman problem using the following prompt for the game:

You will act as a Hangman game host. Follow these exact steps for each turn:

1. If this is the first turn:

- Choose a recognized English word that is 4-7 letters long
- Display the word as underscores (e.g., "____")
- Show the hangman state: No parts drawn (0/6)
- Show available letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ

2. For each subsequent turn:

- Update the word display with any correctly guessed letters
- Update the hangman state (add one part for each wrong guess)
- Update the available letters (remove guessed letters)
- Track wrong guesses: [list of wrong letters]

Rules:

- Do not change the chosen word during the game
- Add one body part for each wrong guess (head, body, left arm, right arm, left leg, right leg)
- Game ends when either:
 - * Word is guessed (player wins)
 - * Hangman is complete after 6 wrong guesses (player loses)

Expected format for each turn:

Word: [display word with underscores and revealed letters]

Hangman: [current state (X/6)]

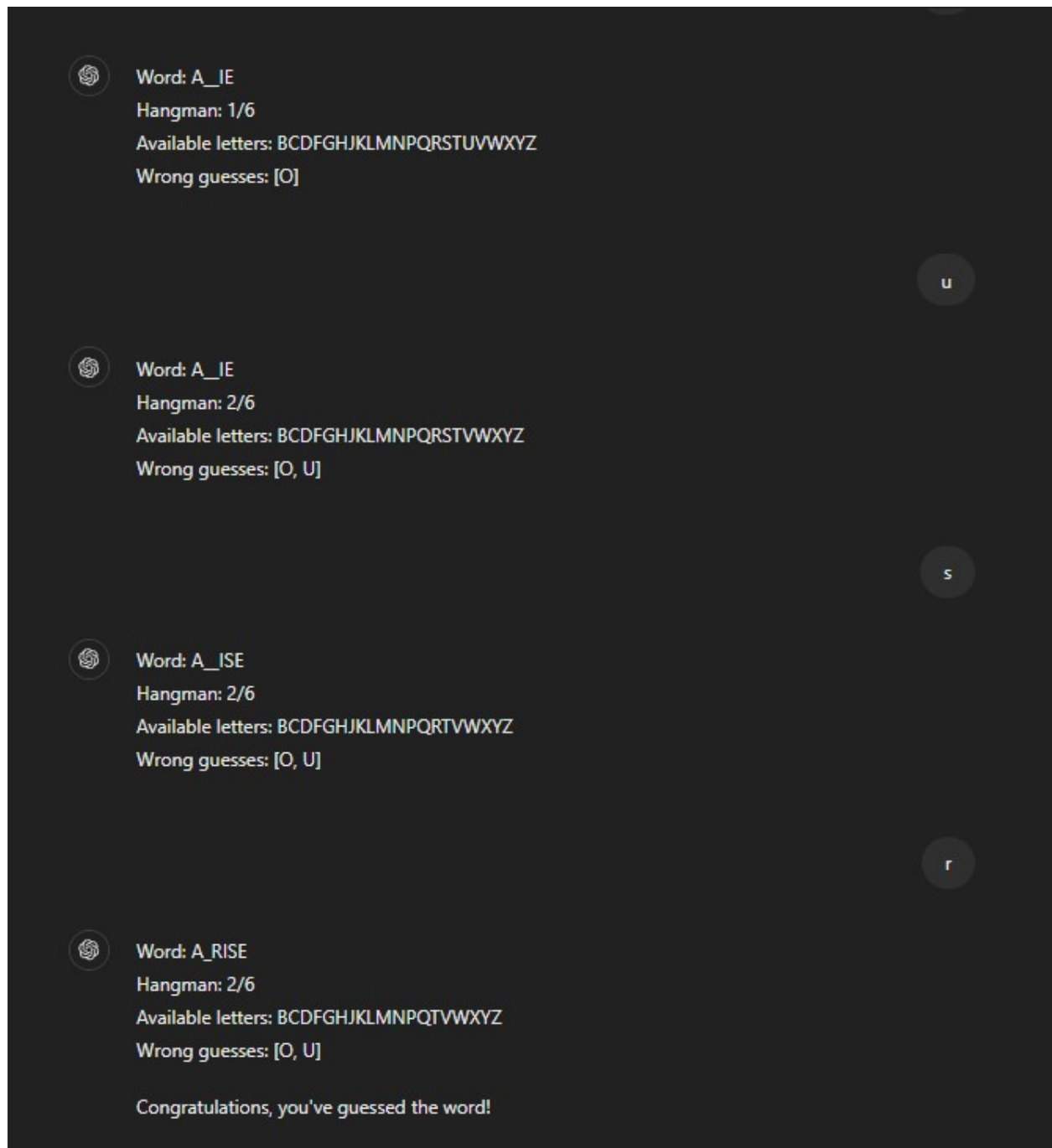
Available letters: [unguessed letters]

Wrong guesses: [list of wrong letters]

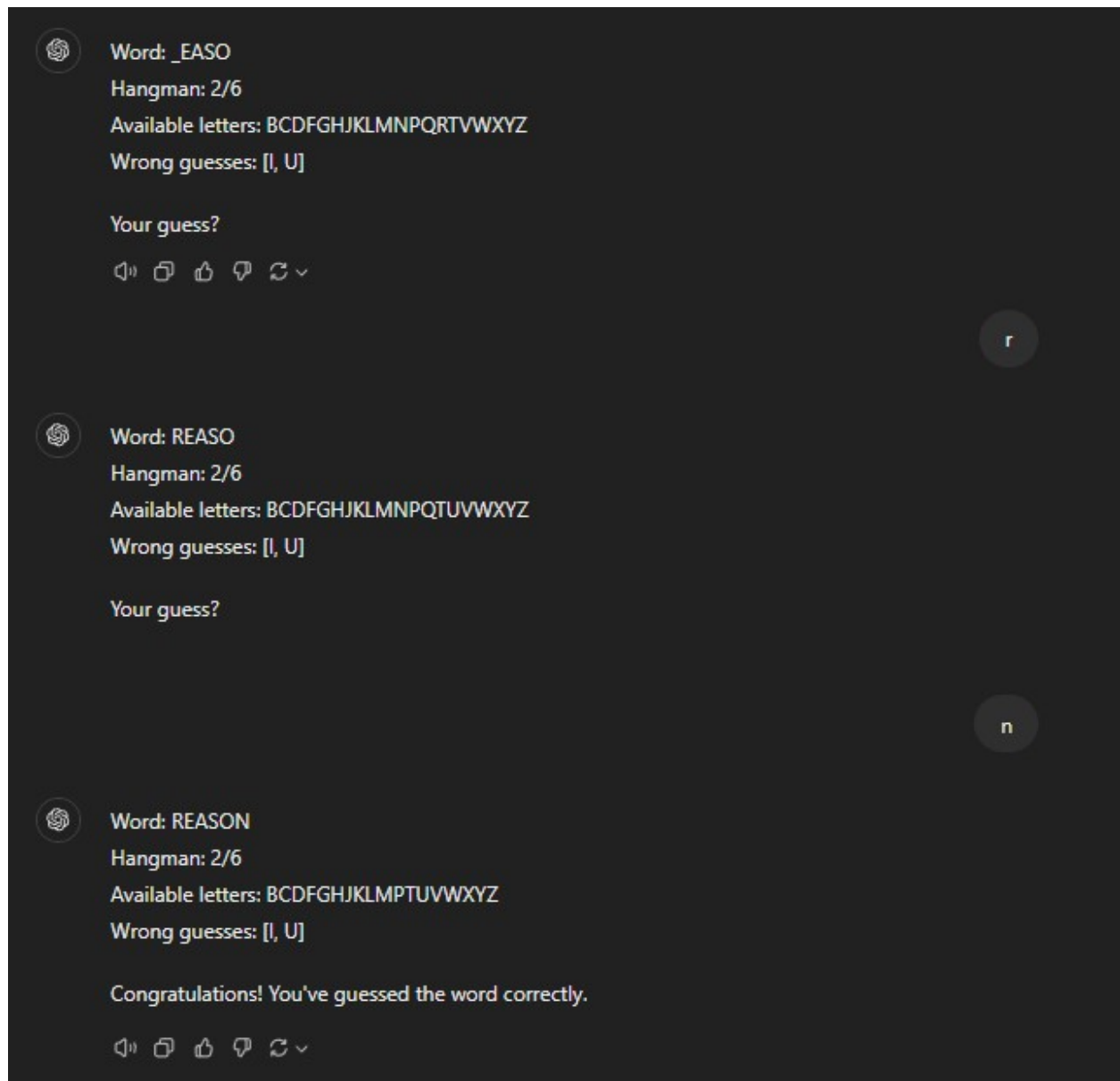
Do not provide any additional commentary or hints unless explicitly asked.

Start the game now by choosing a word and displaying the initial state.

It eventually led me to the correct answer: ARISE



While it worked, there was still some formatting issues (A_RISE, why was there still an underscore?), so I tried to update the prompt one final time by adding a line about the formatting (- Display the word as underscores, but once the word is completed, no underscores should remain (e.g., "____"))



This sort of fixed the problem, but you can see that it stopped showing the underscore at all on the second to last iteration. Clever prompting could fix this issue, but the game itself seems to be worked fine with the more details prompting that goes beyond “lets play hangman”.