

Quiz Practice: POSIX Shell 1

Note 1. I will generate new problems by: (1) changing the type of quotation mark, (2) removing/adding quotation marks.

1 Pipes

Problem 1. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ echo 'hello world' >> README
3 $ echo 'hola mundo' >> README
4 $ echo 'salve munde' >> README
5 $ cat README | grep 'hello'
```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gpt-4, gpt-4o, gpt-4o-mini,
 groq-llama3.1-70b, o1-preview

Failing LLMs: gemini-2.0-flash-thinking-exp-1219, groq-llama3.1-8b, o1-mini

Problem 2. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ echo 'hello world' >> README
3 $ echo 'hola mundo' >> README
4 $ echo 'salve munde' >> README
5 $ cat README | grep 'h'
```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gpt-4, gpt-4o, groq-llama3.1-70b,
 o1-preview

Failing LLMs: gemini-2.0-flash-thinking-exp-1219, gpt-4o-mini,
 groq-llama3.1-8b, o1-mini

Problem 3. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ echo 'hello world' >> README
3 $ echo 'hola mundo' >> README
4 $ echo 'salve munde' >> README
5 $ cat README | grep 'h' | wc -l
```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022, gpt-4,
 gpt-4o, groq-llama3.1-70b, o1-preview

Failing LLMs: gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219,
 gpt-4o-mini, groq-llama3.1-8b, o1-mini

Problem 4. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```

1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ echo 'hello world' >> README
3 $ echo 'hola mundo' >> README
4 $ echo 'salve munde' >> README
5 $ cat README | grep 'h.*a'

```

Passing LLMs: claude-3-5-sonnet-20241022, gpt-4, gpt-4o, o1-preview
 Failing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-001,
 gemini-1.5-flash-8b-001, gemini-2.0-flash-exp,
 gemini-2.0-flash-thinking-exp-1219, gpt-4o-mini,
 groq-llama3.1-70b, groq-llama3.1-8b, o1-mini

Problem 5. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```

1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ echo 'hello world' >> README
3 $ echo 'hola mundo' >> README
4 $ echo 'salve munde' >> README
5 $ cat README | grep -E 'h|a'

```

Passing LLMs: claude-3-5-sonnet-20241022, gemini-1.5-flash-001,
 gemini-1.5-flash-8b-001, gemini-2.0-flash-exp, gpt-4, gpt-4o,
 gpt-4o-mini, groq-llama3.1-70b, o1-preview
 Failing LLMs: claude-3-5-haiku-latest, gemini-2.0-flash-thinking-exp-1219,
 groq-llama3.1-8b, o1-mini

Problem 6. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```

1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ touch hello_world
3 $ touch hola_mundo
4 $ touch salve_munde
5 $ ls | wc -l

```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gpt-4, gpt-4o, gpt-4o-mini,
 groq-llama3.1-70b, groq-llama3.1-8b, o1-mini, o1-preview
 Failing LLMs: gemini-2.0-flash-thinking-exp-1219

Problem 7. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```

1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ touch hello_world
3 $ touch hola_mundo
4 $ touch salve_munde
5 $ ls | grep 'h.*a' | wc -l

```

Passing LLMs: claude-3-5-sonnet-20241022, o1-preview
 Failing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-001,
 gemini-1.5-flash-8b-001, gemini-2.0-flash-exp,
 gemini-2.0-flash-thinking-exp-1219, gpt-4, gpt-4o, gpt-4o-mini,
 groq-llama3.1-70b, groq-llama3.1-8b, o1-mini

Problem 8. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```

1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ touch hello_world
3 $ touch hola_mundo
4 $ touch salve_munde
5 $ ls | grep -E 'h|a' | wc -l

```

Passing LLMs: gemini-2.0-flash-exp, gpt-4, gpt-4o, gpt-4o-mini,
 groq-llama3.1-70b, ol-mini, ol-preview
 Failing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-thinking-exp-1219, groq-llama3.1-8b

Problem 9. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```

1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ touch hello world
3 $ touch hola mundo
4 $ touch salve munde
5 $ ls | grep 'h.*a' | wc -l

```

Passing LLMs:
 Failing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219,
 gpt-4, gpt-4o, gpt-4o-mini, groq-llama3.1-70b, groq-llama3.1-8b,
 ol-mini, ol-preview

Problem 10. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```

1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ touch hello world
3 $ touch hola mundo
4 $ touch salve munde
5 $ ls | grep -E 'h|a' | wc -l

```

Passing LLMs:
 Failing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219,
 gpt-4, gpt-4o, gpt-4o-mini, groq-llama3.1-70b, groq-llama3.1-8b,
 ol-mini, ol-preview

2 Variables

Problem 11. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```

1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var="hello world"
3 $ touch $var
4 $ ls | wc -l

```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-8b-001, groq-llama3.1-70b, o1-preview
 Failing LLMs: gemini-1.5-flash-001, gemini-2.0-flash-exp,
 gemini-2.0-flash-thinking-exp-1219, gpt-4, gpt-4o, gpt-4o-mini,
 groq-llama3.1-8b, o1-mini

Problem 12. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var="hello world"
3 $ touch "$var"
4 $ ls
```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gpt-4, gpt-4o, gpt-4o-mini,
 groq-llama3.1-70b, o1-mini, o1-preview
 Failing LLMs: gemini-2.0-flash-thinking-exp-1219, groq-llama3.1-8b

Problem 13. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var="hello world"
3 $ touch '$var'
4 $ ls
```

Passing LLMs: claude-3-5-sonnet-20241022, gemini-2.0-flash-exp, gpt-4,
 gpt-4o, gpt-4o-mini, o1-preview
 Failing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-001,
 gemini-1.5-flash-8b-001, gemini-2.0-flash-thinking-exp-1219,
 groq-llama3.1-70b, groq-llama3.1-8b, o1-mini

Problem 14. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var=`echo hello world`
3 $ touch "$var"
4 $ ls | wc -l
```

Passing LLMs: claude-3-5-sonnet-20241022, gemini-1.5-flash-001, gpt-4,
 gpt-4o, gpt-4o-mini, groq-llama3.1-70b, o1-preview
 Failing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219,
 groq-llama3.1-8b, o1-mini

Problem 15. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var=$(echo hello world)
3 $ touch "$var"
4 $ ls | wc -l
```

Passing LLMs: claude-3-5-sonnet-20241022, gemini-1.5-flash-001, gpt-4, gpt-4o, gpt-4o-mini, groq-llama3.1-70b, groq-llama3.1-8b, o1-preview

Failing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-8b-001, gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219, o1-mini

Problem 16. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var=$(echo echo echo)
3 $ touch "$var"
4 $ ls | wc -l
```

Passing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-001, gpt-4, gpt-4o, gpt-4o-mini, groq-llama3.1-70b, groq-llama3.1-8b, o1-preview

Failing LLMs: claude-3-5-sonnet-20241022, gemini-1.5-flash-8b-001, gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219, o1-mini

Problem 17. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var="$(echo echo echo) "
3 $ touch "$var"
4 $ ls
```

Passing LLMs: claude-3-5-haiku-latest, gpt-4o-mini, o1-preview

Failing LLMs: claude-3-5-sonnet-20241022, gemini-1.5-flash-001, gemini-1.5-flash-8b-001, gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219, gpt-4, gpt-4o, groq-llama3.1-70b, groq-llama3.1-8b, o1-mini

Problem 18. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var='$(echo echo echo) '
3 $ touch "$var"
4 $ ls
```

Passing LLMs: claude-3-5-sonnet-20241022, gpt-4, gpt-4o, o1-preview

Failing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-001, gemini-1.5-flash-8b-001, gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219, gpt-4o-mini, groq-llama3.1-70b, groq-llama3.1-8b, o1-mini

Problem 19. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var=$(echo $(echo echo))
3 $ touch "$var"
4 $ ls | wc -l
```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-2.0-flash-exp, gpt-4, gpt-4o,
 gpt-4o-mini, groq-llama3.1-70b, o1-mini, o1-preview
 Failing LLMs: gemini-1.5-flash-8b-001, gemini-2.0-flash-thinking-exp-1219,
 groq-llama3.1-8b

Problem 20. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var=$(echo $(echo echo))
3 $ touch "$var"
4 $ ls
```

Passing LLMs: claude-3-5-sonnet-20241022, gemini-1.5-flash-001, gpt-4,
 groq-llama3.1-70b
 Failing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219,
 gpt-4o, gpt-4o-mini, groq-llama3.1-8b, o1-mini, o1-preview

Problem 21. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var=$(echo $(echo $(echo)))
3 $ touch "$var"
4 $ ls | wc -l
```

Passing LLMs:
 Failing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219,
 gpt-4, gpt-4o, gpt-4o-mini, groq-llama3.1-70b, groq-llama3.1-8b,
 o1-mini, o1-preview

Problem 22. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var=$(echo $(echo) echo)
3 $ touch "$var"
4 $ ls | wc -l
```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-2.0-flash-exp, gpt-4, gpt-4o-mini,
 groq-llama3.1-70b, o1-mini, o1-preview
 Failing LLMs: gemini-1.5-flash-8b-001, gemini-2.0-flash-thinking-exp-1219,
 gpt-4o, groq-llama3.1-8b

Problem 23. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ var=echo echo echo
3 $ touch "$var"
4 $ ls | wc -l
```

Passing LLMs:

Failing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219,
 gpt-4, gpt-4o, gpt-4o-mini, groq-llama3.1-70b, groq-llama3.1-8b,
 o1-mini, o1-preview

3 For Loops

Problem 24. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ for file in a b c d e f; do touch $file; done
3 $ ls | wc -l
```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gpt-4, gpt-4o, gpt-4o-mini,
 groq-llama3.1-70b, groq-llama3.1-8b, o1-preview

Failing LLMs: gemini-2.0-flash-thinking-exp-1219, o1-mini

Problem 25. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ for file in 'a b' 'c d' 'e f'; do touch $file; done
3 $ ls | wc -l
```

Passing LLMs: claude-3-5-sonnet-20241022, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, groq-llama3.1-70b, o1-preview

Failing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-001,
 gemini-2.0-flash-thinking-exp-1219, gpt-4, gpt-4o, gpt-4o-mini,
 groq-llama3.1-8b, o1-mini

Problem 26. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ for file in 'a b' 'c d' 'e f'; do touch "$file"; done
3 $ ls | wc -l
```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gpt-4, gpt-4o, gpt-4o-mini, o1-preview

Failing LLMs: gemini-1.5-flash-8b-001, gemini-2.0-flash-exp,
 gemini-2.0-flash-thinking-exp-1219, groq-llama3.1-70b,
 groq-llama3.1-8b, o1-mini

Problem 27. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ for file in 'a b' 'c d' 'e f'; do touch '$file'; done
3 $ ls | wc -l
```

Passing LLMs: claude-3-5-sonnet-20241022, o1-preview
Failing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-001,
 gemini-1.5-flash-8b-001, gemini-2.0-flash-exp,
 gemini-2.0-flash-thinking-exp-1219, gpt-4, gpt-4o, gpt-4o-mini,
 groq-llama3.1-70b, groq-llama3.1-8b, o1-mini

Problem 28. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ for file in a b c $(echo hello world) d e f; do touch "$file"; done
3 $ ls | wc -l
```

Passing LLMs: claude-3-5-sonnet-20241022, gpt-4, gpt-4o, o1-mini, o1-preview
Failing LLMs: claude-3-5-haiku-latest, gemini-1.5-flash-001,
 gemini-1.5-flash-8b-001, gemini-2.0-flash-exp,
 gemini-2.0-flash-thinking-exp-1219, gpt-4o-mini,
 groq-llama3.1-70b, groq-llama3.1-8b

Problem 29. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ for file in 'a b' 'c' $(echo hello world) d' 'e f'; do touch "$file"; done
3 $ ls | wc -l
```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022, gpt-4,
 gpt-4o, gpt-4o-mini, o1-preview
Failing LLMs: gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219,
 groq-llama3.1-70b, groq-llama3.1-8b, o1-mini

Problem 30. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ for file in "a b" "c" $(echo hello world) d" "e f"; do touch "$file"; done
3 $ ls | wc -l
```

Passing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022, gpt-4,
 gpt-4o, gpt-4o-mini, o1-mini, o1-preview
Failing LLMs: gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219,
 groq-llama3.1-70b, groq-llama3.1-8b

Problem 31. Write the output of the final command in the following terminal session. Do not provide any additional information, such as explanations. If the command has no output, then do not write anything.

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ for file in "a b" "c" $(echo hello world) d" "e f"; do touch $file; done
3 $ ls | wc -l
```

Passing LLMs: o1-preview
Failing LLMs: claude-3-5-haiku-latest, claude-3-5-sonnet-20241022,
 gemini-1.5-flash-001, gemini-1.5-flash-8b-001,
 gemini-2.0-flash-exp, gemini-2.0-flash-thinking-exp-1219,
 gpt-4, gpt-4o, gpt-4o-mini, groq-llama3.1-70b, groq-llama3.1-8b,
 o1-mini

LLM Model Performance

