Shell Topic 05: The Glob

Note 1. The POSIX shell has a built-in pattern matching feature for working with files. This is one of the most powerful features of the shell, but also one of the most dangerous. The glob operator `*` matches zero or more of any character, and the question operator `?` matches exactly one of any character. The `*` and `?` operators do not match a dot at the beginning of the file, and so do not match hidden files.

Problem 2. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch hello world
$ touch hola mundo
$ touch salve munde
$ rm *e*
$ ls | wc -l
```

Fraction of LLMs with correct answer: 4 / 19 = 0.21

Problem 3. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch hello world
$ touch hola mundo
$ touch salve munde
$ rm e*
$ ls | wc -l
```

Fraction of LLMs with correct answer: 2 / 19 = 0.11

Problem 4. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch hello world
$ touch hola mundo
$ touch salve munde
$ rm *e
$ ls | wc -l
```

Fraction of LLMs with correct answer: 3 / 19 = 0.16

Problem 5. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch .hello world
$ touch .hola mundo
$ touch .salve munde
$ rm *e*
$ ls -a | wc -l
```

Fraction of LLMs with correct answer: 2 / 19 = 0.11

Problem 6. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch .hello world
$ touch .hola mundo
$ touch .salve munde
$ rm .*e
$ ls -a | wc -l
```

Fraction of LLMs with correct answer: 2 / 19 = 0.11

Problem 7. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch "hello world"
$ touch "hola mundo"
$ touch "salve munde"
$ rm *d?
$ ls | wc -l
```

Fraction of LLMs with correct answer: 5 / 19 = 0.26

Problem 8. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch "hello world"
$ touch "hola mundo"
$ touch "salve munde"
$ rm *d?
$ ls | wc -l
```

Fraction of LLMs with correct answer: 4 / 19 = 0.21

Note 9. The glob does not expand within quotes. If the glob expression has no matches, then the literal expression is passed as an argument.

Problem 10. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch "hello world"
$ touch "hola mundo"
$ touch "salve munde"
$ touch *
$ ls | wc -l
```

Fraction of LLMs with correct answer: 5 / 19 = 0.26

Problem 11. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch *
$ ls | wc -l
```

Fraction of LLMs with correct answer: 3 / 19 = 0.16

Problem 12. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch *
$ ls | wc -l
```

Fraction of LLMs with correct answer: 4 / 19 = 0.21

Problem 13. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch "hello world"
$ touch "hola mundo"
$ touch "salve munde"
$ touch "*"
$ ls | wc -l
```

Fraction of LLMs with correct answer: 13 / 19 = 0.68

Problem 14. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch "hello world"
$ touch "hola mundo"
$ touch "salve munde"
$ touch "*"
$ ls | wc -l
```

Fraction of LLMs with correct answer: 16 / 19 = 0.84

Note 15. Glob expansion happens after the shell processes the spaces that separate the list of strings to loop over.

Problem 16. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch "hello world"
$ touch "hola mundo"
$ touch "salve munde"
$ for i in *; do echo $i; done | wc -l
```

Fraction of LLMs with correct answer: 15 / 19 = 0.79

Problem 17. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch hello world
$ touch hola mundo
$ touch salve munde
$ for i in *; do echo $i; done | wc -l
```

Fraction of LLMs with correct answer: 7 / 19 = 0.37

Problem 18. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ touch hello world
$ touch hola mundo
$ touch salve munde
$ for i in "*"; do echo $i; done | wc -l
```

Fraction of LLMs with correct answer: 6 / 19 = 0.32

Problem 19. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ for i in *; do echo $i; done | wc -l
```

Fraction of LLMs with correct answer: 1 / 19 = 0.05

Note 20. Glob expansion happens in the shell, before the parameters are sent to the program. This can have unintended side effects. If you are working in a directory where someone else is allowed to create files, they can create files that will be expanded by `*` into command line arguments. This problem can be mitigated by using `./*` instead of `*`. Command line arguments that appear after a `--` will never be interpreted as command line arguments.

Problem 21. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ mkdir test
$ rm *
$ ls
```

Fraction of LLMs with correct answer: 9 / 19 = 0.47

Problem 22. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ mkdir test
$ echo evil > -rf
$ rm *
$ ls
```

Fraction of LLMs with correct answer: 5 / 19 = 0.26

Problem 23. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ mkdir test
$ echo evil > -rf
$ rm ./*
$ ls
```

Fraction of LLMs with correct answer: 5 / 19 = 0.26

Problem 24. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ mkdir test
$ rm -- -rf *
$ ls
```

Fraction of LLMs with correct answer: 11 / 19 = 0.58

Problem 25. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ mkdir test
$ rm -rf -- *
$ ls
```

Fraction of LLMs with correct answer: 19 / 19 = 1.00

Problem 26. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ mkdir -- -a
$ echo evil > -a/evil
$ ls *
```

Fraction of LLMs with correct answer: 1 / 19 = 0.05

Problem 27. Write the output of the final command in the following shell script.

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ mkdir -- -a
$ echo evil > -a/evil
$ ls -- *
```

Fraction of LLMs with correct answer: 6 / 19 = 0.32

LLM Model Performance