Topic 01: Basic Variable Usage

Note 1. Variables and quotation marks have subtle interactions in the shell, and these interactions are a common source of bugs. The dollar sign `$` is the *variable expansion operator*. Variables get expanded before determining the arguments to executables, and so if a variable has a space then it will result in multiple arguments. Variable expansion does not happen within single quotes `'`, but does happen within double quotes `"` and backticks `` ` ``. Double quotation marks cause spaces to be ignored when determining arguments to an executable. Backticks cause the contents to be executed by a *subshell*. Backticks are equivalent to the *command expansion operator* `$()`.

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

```
$ cd; rm -rf quiz; mkdir quiz; cd quiz
$ var="hello world"
$ touch $var
$ ls | wc -l
```

Fraction of LLMs with correct answer: 10 / 19 = 0.53

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

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

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

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

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

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

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

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

Fraction of LLMs with correct answer: 12 / 19 = 0.63

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

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

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

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

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

Fraction of LLMs with correct answer: 12 / 19 = 0.63

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

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

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

Problem 9. Write the output of the final command in the following shell script.

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

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

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

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

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

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

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

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

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

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

Fraction of LLMs with correct answer: 17 / 19 = 0.89

LLM Model Performance