

## Topic 02: Environment Variables

**Note 1.** Environment variables are a method for passing parameters from a parent program to all of its descendants. They are commonly used to store sensitive information like passwords or API keys.

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ message="hello world"
3 $ cat > quiz.sh <<EOF
4 echo $message
5 EOF
6 $ sh quiz.sh
```

Fraction of LLMs with correct answer:  $43 / 57 = 0.75$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ message="hello world"
3 $ cat > quiz.sh <<'EOF'
4 echo $message
5 EOF
6 $ sh quiz.sh
```

Fraction of LLMs with correct answer:  $57 / 57 = 1.00$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ message="hello world"
3 $ cat > quiz.sh <<EOF
4 echo '$message'
5 EOF
6 $ sh quiz.sh
```

Fraction of LLMs with correct answer:  $21 / 57 = 0.37$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ export message="hello world"
3 $ cat > quiz.sh <<EOF
4 echo $message
5 EOF
6 $ sh quiz.sh
```

Fraction of LLMs with correct answer:  $49 / 57 = 0.86$

**Note 6.**

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ export message="hello world"
3 $ cat > quiz.sh <<'EOF'
4 echo $message
5 EOF
6 $ sh quiz.sh
```

Fraction of LLMs with correct answer:  $40 / 57 = 0.70$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ cat > quiz.sh <<EOF
3 echo $message
4 EOF
5 $ message="hello world" sh quiz.sh
```

Fraction of LLMs with correct answer:  $57 / 57 = 1.00$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ cat > quiz.sh <<'EOF'
3 echo $message
4 EOF
5 $ message="hello world" sh quiz.sh
```

Fraction of LLMs with correct answer:  $45 / 57 = 0.79$

**Note 10.** Variables never get passed from children to their parents. For a script to set a variable, the script must be *sourced*.

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ message="hello world"
3 $ cat > quiz.sh <<EOF
4 message="hola mundo"
5 EOF
6 $ sh quiz.sh
7 $ echo "$message"
```

Fraction of LLMs with correct answer:  $41 / 57 = 0.72$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ message="hello world"
3 $ cat > quiz.sh <<EOF
4 message="hola mundo"
5 EOF
6 $ source quiz.sh
7 $ echo "$message"
```

Fraction of LLMs with correct answer:  $1 / 57 = 0.02$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ message="hello world"
3 $ cat > quiz.sh <<EOF
4 export message="hola mundo"
5 EOF
6 $ sh quiz.sh
7 $ echo "$message"
```

Fraction of LLMs with correct answer:  $41 / 57 = 0.72$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ message="hello world"
3 $ cat > quiz.sh <<EOF
4 export message="hola mundo"
5 EOF
6 $ . quiz.sh
7 $ echo "$message"
```

Fraction of LLMs with correct answer:  $0 / 57 = 0.00$

**Note 15.** In python, the function `os.getenv` is used to get the value of an environment variable. The first parameter is the name of the variable, and the second parameter is a default value to use if the environment variable has not been set.

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ cat > quiz.py <<'EOF'
3 import os
4 print(os.getenv('message', 'hola mundo'))
5 EOF
6 $ message="hello world" python3 quiz.py
```

Fraction of LLMs with correct answer:  $49 / 57 = 0.86$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ message="hello world"
3 $ cat > quiz.py <<EOF
4 import os
5 print(os.getenv('message', 'hola mundo'))
6 EOF
7 $ python3 quiz.py
```

Fraction of LLMs with correct answer:  $32 / 57 = 0.56$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ message="hello world"
3 $ cat > quiz.py <<'EOF'
4 import os
5 print(os.getenv('message', 'hola mundo'))
6 EOF
7 $ python3 quiz.py
```

Fraction of LLMs with correct answer:  $33 / 57 = 0.58$

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

```
1 $ cd; rm -rf quiz; mkdir quiz; cd quiz
2 $ export message="hello world"
3 $ cat > quiz.py <<EOF
4 import os
5 print(os.getenv('message', 'hola mundo'))
6 EOF
7 $ python3 quiz.py
```

Fraction of LLMs with correct answer:  $51 / 57 = 0.89$

**Problem 20.** Write the output of the final command in the following shell script.

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

Fraction of LLMs with correct answer:  $0 / 57 = 0.00$

## LLM Model Performance

