Bash Practice Questions for Chapter 8: Loops

These simple exercises will help you practice what you learned in the eighth chapter of the Bash Beginner Series on Linux Handbook.

Exercise 1: Looped message

Create a for loop to display a message 10 times on Bash. Execute it as a Bash script.
Difficulty level: Easy
Hint: Use `echo` to print the message within the `for` loop.

Exercise 2: List directory contents with a for loop

Output all the files and directory that exists under the `/var` directory.
Difficulty level: Intermediate
Hint: Use `/var/*` as the range of the `for` loop to increment through.

Exercise 3: Multiples of three with a while loop

Use a while loop that will print the first ten multiples of the number three.
Difficulty level: Easy
Hint: First initialize a variable to 1; then, the while loop will run as long as it is less than or equal to 10. Inside the body of the while loop, `echo` command can print the value of the variable multiplied by three and then it increments it by 1.

Exercise 4: Multiples of three with an until loop

Use an until loop that will print the first ten multiples of the number three.
Difficulty level: Easy
Hint: An until loop will keep running as long as the test condition is false, just opposite to a for loop. Negation of the test condition `[ $num -le 10 ]` (as used in for loops), is `[ $num -gt 10 ]`.

Exercise 5: Array iteration with loops

Create an array that stores the first ten prime numbers. Iterate over the array and print out each element inside it.
Difficulty level: Intermediate
Hint: If you call the array as `prime`, `${prime[@]}` can be used to find out the size of the prime array. Please refer to bash series chapter #4.
Solutions to the Exercises

Solution 1: Looped message
Create a for loop to display a message 10 times on Bash. Execute it as a Bash script.

```bash
for ((i = 0 ; i < 10 ; i++)); do
  echo "Hello World!"
done
```

Solution 2: List directory contents with a for loop
Output all the files and directory that exists under the `/var` directory.

```bash
#!/bin/bash
for i in /var/*; do
  echo $i
done
```

Solution 3: Multiples of three with a while loop
Use a while loop that will print the first ten multiples of the number three.

```bash
#!/bin/bash
num=1
while [ $num -le 10 ]; do
  echo $((num * 3))
  num=$(($num+1))
done
```

Solution 4: Multiples of three with an until loop
Use an until loop that will print the first ten multiples of the number three.

```bash
#!/bin/bash
num=1
until [ $num -gt 10 ]; do
  echo $((num * 3))
  num=$(($num+1))
done
```

Solution 5: Array iteration with loops
Create an array that stores the first ten prime numbers. Iterate over the array and print out each element inside it.

```bash
#!/bin/bash
prime=(2 3 5 7 11 13 17 19 23 29)
for i in "${prime[@]}"; do
  echo $i
done
```