Name: TRIDIB SARKAR | Section: I
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1.
```
#!/bin/bash
arr=(123 456 789)
sum=0
for num in "${arr[@]}"; do
    while [ $num -gt 0 ]; do
        digit=$((num % 10))
        sum=$((sum + digit))
        num=$((num / 10))
    done
done
echo "The sum of the digits is: $sum"
```

2.
```
#!/bin/bash
wc -w notes.txt
```

3.
```
#! bin/bash
wc -l records.txt
```

4.
```
#!/bin/bash
sed -i 's/error/issue/g' log.txt
```

5.
```
#!/bin/bash
we -w names.txt
```

6.
```
#!/bin/bash
a=0
b=1
sum=0
for ((i=0; i<10; i++)); do
    sum=$((sum + a))
    temp=$((a + b))
    a=$b
    b=$temp
done
echo "The sum of the first 10 Fibonacci numbers is: $sum"
```

7.
```
#!/bin/bash
read -p "Enter a number: " num
factorial=1
for ((i=1; i<=num; i++)); do
    factorial=$((factorial * i))
done
echo "The factorial of $num is: $factorial"
```

8.
```
#!/bin/bash
head -10 info.txt
```

9.
```
#!/bin/bash
arr=(1 2 3 3 4 5 1)
unique=($(echo "${arr[@]}" | tr ' ' '\n' | sort -u))
echo "Number of unique elements: ${#unique[@]}"
```

10. #!/bin/bash
tail -5 data.txt

11. #!/bin/bash
grep -O "INFO" output.txt | wc -l

12. #!/bin/bash
tac log.txt

13. #!/bin/bash
grep "priority" words.txt

14. #!/bin/bash
read -p "Enter the value of N: " N
product=1
number=1
for ((i=1; i<=N; i++)); do
product=$((product * number))
number=$((number * 10 + 1))
done
echo "The product is: $product"

15.
```
#!/bin/bash
read -p "Enter the value of N: " N
product=1
number=10
for ((i=1; i<=N; i++)); do
    product=$((product * number))
    number=$((number * 10))
done
echo "The product is: $product"
```

16.
```
#!/bin/bash
arr=(3 5 7 2 8 9 1)
max=${arr[0]}
for num in "${arr[@]}"; do
    if [ $ -gt $max ]; then
        max=$num
    fi
done
echo "The Largest element is: $max"
```

17.
```
#!/bin/bash
arr=(1 2 3 4 5)
sum=0
for num in "${arr[@]}"; do
    sum=$((sum + num * num))
done
echo "The sum of squares is: $sum"
```

18. #!/bin/bash
grep -q "completed" task.txt && echo "The word exists." || echo "The word does not exist."

19. #!/bin/bash
while IFS=' ' read -r first middle last; do
    echo "$last, $middle, $first"
done <names.txt

20. #!/bin/bash
read -p "Enter the world to search: " word
grep -o "$word" notes.txt | wc -l

21. #!/bin/bash
sed -i '/^$/d' log.txt

22. #!/bin/bash
read -p "Enter filenames: " files
for file in $files; do
    sort "$file"
done

23. #!/bin/bash
stat -c%s data.txt

24.
```
#!/bin/bash
arr=(5 12 18 7 25)
sum=0
for num in "${arr[@]}"; do
    if [ $num -gt 10 ]; then
        sum=$((sum + num))
    fi
done
echo "The sum of numbers greater than 10 is: $sum"
```

25.
```
#!/bin/bash
read -p "Enter your full name: " fullname
first=$(echo $fullname | awk '{print $1}')
last=$(echo $fullname | awk '{print $NF}')
echo "First Name: $first"
echo "Last Name: $last"
```

26.
```
#!/bin/bash
read -p "Enter the word to replace: " old
read -p "Enter the new word: " new
sed -i "s/$old/$new/g" document.txt
```

27.
```
#!/bin/bash
date >> logfile.txt
```

28.
```
#!/bin/bash
arr=(10 20 30 40 50)
sum=0
for num in "${arr[@]}"; do
    sum=$((sum + num))
done
avg=$((sum/ ${#arr[@]}))
echo "The average is: $avg"
```

29.
```
#!/bin/bash
files=$(ls -l | grep ^- | wc -l)
dirs=$(ls -l | grep ^d | wc -l)
echo "Number of files: $files"
echo "Number of directories: $dirs"
```

30.
```
#!/bin/bash
sort -r data.txt
```