

LINUX ASSIGNMENT - 9

NAME : VARSHA K

USN : ENG24CY0066

1. Write a shell script using if...else to check if a number is even or odd

Ans:

```
echo "Enter a number :"  
read num  
if (( num % 2 == 0 ))  
then  
    echo "$num is even ."  
else  
    echo "$num is odd ."  
fi
```

Output

```
Enter a number:  
5  
5 is odd
```

2. Explain the difference between if and case statements in bash

Ans:

Feature	if statement	case statement
• Usage	used for logical conditions	used for pattern matching
• Syntax	if {[condition]}; then...fi	case variable in Pattern Commands ;;esac
• Best for	numerical or string comparisons	multiple possible Values of variable

Example

Using if

```
if [ "$day" == "Mon" ]; then  
    echo "Start of the week"  
fi
```

Using case

```
case $day in  
    Mon) echo "Start of the week" ;;  
    Fri) echo "Weekend coming!" ;;  
esac
```

3. Write a script to find the largest of three numbers entered by the user

Ans:

```
echo "Enter three numbers:"
read a b c
```

```
if (( a >= b && a >= c ))
then
    echo "$a is the largest"
elif (( b >= a && b >= c ))
then
    echo "$b is the largest"
else
    echo "$c is the largest"
fi
```

4. How do you use a for loop to traverse an array in bash? Give an example

Ans:

```
arr=(123 "Abs" -2.3 'A' 23.56 0)
```

```
#!/bin/bash
arr=(123 "Abs" -2.3 'A' 23.56 0)
```

```
for element in "${arr[@]}"
do
    echo "$element"
done
```

5. Write a shell script to loop through all files in the current directory and display their names

Ans:

```
echo "Files in current directory:"
```

```
for file in *
do
    if [ -f "$file" ]; then
        echo "$file"
    fi
done
```

```
Output:
script.sh
notes.txt
data.csv
```

6. What is the difference between while and until loops in bash ?

Ans:

Feature	while loop	until loop
Condition	executes while condition is true	executes until Condition becomes true

Syntax

while[condition]; do....done

until [condition]; do...
Done

Example :

```
# while loop
count=1
while [ $count -le 3 ]
do
    echo "Count = $count"
    ((count++))
done
```

```
# until loop
count=1
until [ $count -gt 3 ]
do
    echo "Count = $count"
    ((count++))
done
```

7. Write a countdown timer script using a while loop

Ans:

```
echo "Enter countdown time (in seconds):"
read n

while [ $n -gt 0 ]
do
    echo "Time left: $n"
    sleep 1
    ((n--))
done

echo "Time's up!"
```

8. How do you use break and continue statements in loops ? give examples

Ans: examples with break

```
for i in {1..5}
do
    if [ $i -eq 3 ]; then
        break
    fi
    echo $i
done
# Output: 1 2
```

Examples with continue statement

```
for i in {1..5}
do
    if [ $i -eq 3 ]; then
        continue
    fi
    echo $i
done
# Output: 1 2 4 5
```

9. Write a script to check if a file exists or not using the if and else loop

Ans:

```
echo "Enter filename:"
read filename

if [ -f "$filename" ]
then
    echo "File '$filename' exists."
else
    echo "File '$filename' does not exist."
fi
```

10. Write a script to calculate factorial of a number using for loop

Ans: #!/bin/bash

```
echo "Enter a number:"
read num

fact=1

for (( i=1; i<=num; i++ ))
do
    fact=$((fact * i))
done

echo "Factorial of $num is $fact"
```

Output:

```
Enter a number:
5
Factorial of 5 is 120
```

