**Linux Programming: Assignment-9:**

**21. Write a shell script using if…else to check if a number is even or odd.**

Ans. #! /bin/bash

echo "Enter an integer:"

read n

if [ $((n % 2)) -eq 0];

then

echo "The number $n is Even."

else

echo "The number $n is Odd."

fi

**22. Explain the difference between if and case statements in bash.**

Ans.

|  |  |
| --- | --- |
| **if** | **case** |
| It is a conditional statement that executes a block of code if the statement is true | It matches a single expression within multiple expression and executes the corresponding block of code |
| Used when there is variety of conditions | Used instead of if-elseif-else ladder |
| Used if complexity is less | Used if complexity is more |

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

Ans. #! /bin/bash

echo "Enter the first number (A):"

read A

echo "Enter the second number (B):"

read B

echo "Enter the third number (C):"

read C

LARGEST=$A

if (($(echo "$B > $LARGEST" | bc -l)));

then

LARGEST=$B

fi

if (($(echo "$C > $LARGEST" | bc -l)));

then

LARGEST=$C

fi

echo "The largest number is: $LARGEST"

**24. How do you use a for loop to traverse an array in bash? Give an example. The array is defined as arr= (123, “Abs”, -2.3, ‘A’, 23.56, 0).**

Ans. #! /bin/bash

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

for i in "${arr [@]}";

do

echo "Element: $i"

done

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

Ans. #! /bin/bash

for i in \*;

do

if [ -f "$i”];

then

echo "$i"

fi

done

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

Ans.

|  |  |
| --- | --- |
| **While loop** | **Until loop** |
| Executes a block of code as long as condition is true | Executes a block of code until the condition is false |
| Terminates when the condition is false | Terminates when the condition is true |
| Ex: while [condition];  do | Ex: until [condition];  do |

**27. Write a countdown timer script using a while loop.**

Ans. #! /bin/bash

# Prompt the user to enter the countdown start number

echo "Enter the countdown start number:"

read count

echo "Starting countdown from $count"

while [ "$count" -gt 0];

do

echo "Countdown: $count"

count=$((count - 1))

done

echo "Countdown complete"

**28. How do you use break and continue statements in loops? Give examples.**

Ans. break - for i in range (1, 10):

if i == 5:

break

print(i)

fi

continue - for i in range (1, 6):

if i == 3:

continue

print(i)

fi

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

Ans. #! /bin/bash

fpath="/path/to/your/file.txt"

if [ -f "$fpath”];

then

echo "The file '$fpath' exists."

else

echo "The file '$fpath' does not exist."

fi

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

Ans. #! /bin/bash

echo "Enter a number:"

read num

fact=1

if ((num < 0));

then

echo "Factorial is not defined for negative numbers."

elif ((num == 0));

then

echo "Factorial of 0 is 1."

else

for ((i=1; i<=num; i++));

do

fact=$((fact \* i))

done

echo "Factorial of $num is $fact."

fi