SEQUENCES PRACTICE PROBLEM

1. Use Random function (( RANDOM )) to get Single Digit

**Shell Script:**

echo "

#!/bin/bash -x

echo $(( RANDOM%10 ));

**Output:**

Admin@DESKTOP-NKJD0J6 MINGW64 ~/Desktop/Linux Bootcamp/linux-content (master)

$ ./PS3.sh

+ echo 5

1. Use Random to get Dice Number between 1 to 6.

**Shell Script:**

#!/bin/bash -x

echo $((RANDOM%6 +1));

**Output:**

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$ ./PS4.sh

+ echo 2

2

1. Add two Random Dice Number and Print the Result.

**Shell Script:**

#!/bin/bash -x

echo $((RANDOM%6+1))

Dice1=$((RANDOM%6+1))

Dice2=$((RANDOM%6+1))

Addition=$(( $Dice1 + $Dice2 ))

echo $Addition

**Output:**

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$ ./PS5.sh

+ echo 3

3

+ Dice1=4

+ Dice2=1

+ Addition=5

+ echo 5

5

1. Write a program that reads 5 Random 2Digit Values, the find their sum and the avg.

**Shell Script:**

#!/bin/bash -x

A=$((RANDOM%99+1))

B=$((RANDOM%99+1))

C=$((RANDOM%99+1))

D=$((RANDOM%99+1))

E=$((RANDOM%99+1))

Addition=$(($A+$B+$C+$D+$E))

echo $Additon

Average=$(($Addition/5))

echo $Average

**Output:**

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$ ./PS6.sh

+ A=76

+ B=70

+ C=95

+ D=48

+ E=38

+ Addition=327

+ echo

+ Average=65

+ echo 65

65

1. Unit Conversion:
2. 1ft=12 in then 42 in= ?ft
3. Rectangular Plot of 60feet\*40feet in meters
4. Calculate area of 25 such plots in acres
5. **Shell Script:**

#!/bin/bash -x

read -p "Enter the inch value :" in

ft=$(( $in/12 ))

echo "$in inch:Value in feet $ft"

**Output:**

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$ ./PS7.sh

+ read -p 'Enter the inch value :' in

Enter the inch value :60

+ ft=5

+ echo '60 inch:Value in feet 5'

60 inch:Value in feet 5

1. **Shell Script:**

#!/bin/bash -x

read -p "Enter length of plot in feet :" n1

read -p "Enter width of plot in feet :" n2

n1=`echo "scale=$n1/3.28"|bc`

n2=`echo "scale=$n2/3.28"|bc`

area=`echo "scale=$n1\*$n2"|bc`

echo "Rectangle plot of $n1 feet \* $n2 feet=$area sqmeters"

**Output:**

Enter the width in feet= 40

Enter the length in feet=60

Rectangle plot of 12.195 feet \* 18.292 feet= 223.070 sqmeters

1. **Shell Script:**

#!/bin/bash -x

acres=`echo "scale=5;25\*$area"|bc`

echo $acres

**Output:**

5576.750

**Selection Practice Problem with if,elif and else:**

1. Write a program that reads 5 random 3 digit values and then outputs the minimum and the maximum value.

Shell Script:

#!/bin/bash -x

d1=$((RANDOM%100))

echo "Enter the first number:" $d1

d2=$((RANDOM%100))

echo "Enter the second number:" $d2

d3=$((RANDOM%100))

echo "Enter the third number:" $d3

d4=$((RANDOM%100))

echo "Enter the fourth number:" $d4

d5=$((RANDOM%100))

echo "Enter the fifth number:" $d5

if [ "$d1" -gt "$d2" -a "$d1" -gt "$d3" -a "$d1" -gt "$d4" -a "$d1" -gt "$d5" ]

then

echo "The max value is:" $d1

elif [ "$d2" -gt "$d1" -a "$d2 -gt "$d3" -a "$d2" -gt "$d4" -a "$d2 -gt "$d5"]

then

echo "The max value is:" $d2

elif [ "$d3" -gt "$d1" -a "$d3" -gt "$d2" -a "$d3" -gt "$d4" -a "$d3" -gt "$d5" ]

then

echo "The max value is:" $d3

elif [ "$d4" -gt "$d1" -a "$d4" -gt "$d2" -a "$d4" -gt "$d3" -a "$d4" -gt "$d5" ]

then

echo "The max value is:" $d4

else

echo "The max value is:" $d5

fi

d1=$((RANDOM%100))

echo "Enter the first number:" $d1

d2=$((RANDOM%100))

echo "Enter the second number:" $d2

d3=$((RANDOM%100))

echo "Enter the third number:" $d3

d4=$((RANDOM%100))

echo "Enter the fourth number:" $d4

d5=$((RANDOM%100))

echo "Enter the fifth number:" $d5

if [ "$d1" -lt "$d2" -a "$d1" -lt "$d3" -a "$d1" -lt "$d4" -a "$d1" -lt "$d5" ]

then

echo "The min value is:" $d1

elif [ "$d2" -lt "$d1" -a "$d2 -lt "$d3" -a "$d2" -lt "$d4" -a "$d2 -lt "$d5"]

then

echo "The min value is:" $d2

elif [ "$d3" -lt "$d1" -a "$d3" -lt "$d2" -a "$d3" -lt "$d4" -a "$d3" -lt "$d5" ]

then

echo "The min value is:" $d3

elif [ "$d4" -lt "$d1" -a "$d4" -lt "$d2" -a "$d4" -lt "$d3" -a "$d4" -lt "$d5" ]

**Output:**

$ ./p1.sh

+ d1=24

+ echo 'Enter the first number:' 24

Enter the first number: 24

+ d2=57

+ echo 'Enter the second number:' 57

Enter the second number: 57

+ d3=76

+ echo 'Enter the third number:' 76

Enter the third number: 76

+ d4=3

+ echo 'Enter the fourth number:' 3

Enter the fourth number: 3

+ d5=66

+ echo 'Enter the fifth number:' 66

Enter the fifth number: 66

+ '[' 24 -gt 57 -a 24 -gt 76 -a 24 -gt 3 -a 24 -gt 66 ']'

+ '[' 57 -gt 24 -a '57 -gt 76 -a 57 -gt 3 -a 57' -gt '66]'

./p1.sh: line 15: [: missing `]'

+ '[' 76 -gt 24 -a 76 -gt 57 -a 76 -gt 3 -a 76 -gt 66 ']'

+ echo 'The max value is:' 76

The max value is: 76

+ d1=33

+ echo 'Enter the first number:' 33

Enter the first number: 33

+ d2=0

+ echo 'Enter the second number:' 0

Enter the second number: 0

+ d3=85

+ echo 'Enter the third number:' 85

Enter the third number: 85

+ d4=88

+ echo 'Enter the fourth number:' 88

Enter the fourth number: 88

+ d5=47

+ echo 'Enter the fifth number:' 47

Enter the fifth number: 47

+ '[' 33 -lt 0 -a 33 -lt 85 -a 33 -lt 88 -a 33 -lt 47 ']'

+ '[' 0 -lt 33 -a '0 -lt 85 -a 0 -lt 88 -a 0' -lt '47]'

./p1.sh: line 40: [: missing `]'

+ '[' 85 -lt 33 -a 85 -lt 0 -a 85 -lt 88 -a 85 -lt 47 ']'

+ '[' 88 -lt 33 -a 88 -lt 0 -a 88 -lt 85 -a 88 -lt 47 ']'

+ echo 'The min value is:' 47

The min value is: 47

1. Write a program that takes a day and month from the command line and prints true if day of month is between march 20 and June 20, false otherwise.

**Shell Script:**

#!/bin/bash -x

read -p "Enter the date:" d

read -p "Enter the month :" m

if [$m -eq "3" && $d -gt "20" || $m -gt "3" ]

then

True"

else

echo "False"

fi

else

echo "False $m/$d"

fi

**Output:**

Enter the Date=3

Enter the Month=6

True

1. Write a program that takes a year as input and outputs the year is a leap year or not a leap year. A leap year checks for 4 digit no. divisible by 4 and not 100 unless divisible by 400.

**Shell Script:** **#!/bin/bash -x**

read -p "Enter the year:" y

echo $y

if [ $((y%400)) -eq 0 ]

then

echo "$y is a leap year :"

elif [ $((y%100)) -eq 0 ]

then

echo "$y is not a leap year:"

elif [$((y%4)) -eq 0 ]

then

echo "$y is a leap year:"

else

echo "$y is not a leap year:"

fi

**Output:**

Enter the year: 2016

2016 is a leap year.

1. Write a program to simulate a coin flip and print out “Heads” or “Tails” accordingly.

Shell Script:

#!/bin/bash -x

x=$(($(($RANDOM%10))%2))

if [ $x -eq 1 ]

then

echo "Heads"

else

echo "Tails"

fi

Output:

$ ./p4.sh

+ x=1

+ '[' 1 -eq 1 ']'

+ echo Heads

Heads

**Selection Problems with case statement.**

1. Read a single digit number and write the no. in word using case

Shell Script: #!/bin/bash -x

read -p "Enter the number:" num

case $num in

0)

echo "Zero"

;;

1)

echo "One"

;;

2)

echo "Two"

;;

3)

echo "Three"

;;

4)

echo "Four"

;;

5)

echo "Five"

Output:

O$ ./p5.sh

+ read -p 'Enter the number:' num

Enter the number:5

+ case $num in

+ echo Five

Five

1. Read a number and display the week day (Sunday,Monday,…)

Shell Script:

#!/bin/bash -x

read -p "Enter the number:" num

case $num in

0)

echo "Sunday"

;;

1)

echo "Monday"

;;

2)

echo "Tuesday"

;;

3)

echo "Wednesday"

;;

4)

echo "Thursday"

;;

5)

echo "Friday"

Output:

$ ./p6.sh

+ read -p 'Enter the number:' num

Enter the number:2

+ case $num in

+ echo Tuesday

Tuesday

1. Read a number 1,10,100,1000, etc and display unit,ten,hundred,….

Shell Script:

#!/bin/bash -x

read -p "Enter the number:" num

if [[ $num -gt "1" && $num -lt "10" ]]

then

echo "Ones"

elif [[ $num -gt "10" && $num -lt "100" ]]

then

echo "Tens"

elif [[ $num -gt "100" && $num -lt "1000" ]]

then

echo "Hundred"

elif [[ $num -gt "1000" && $num -lt "10000" ]]

then

echo "Thousands"

else

echo "Nothing"

fi

Output:

$ ./p8.sh

+ read -p 'Enter the number:' num

Enter the number:101

+ [[ 101 -gt 1 ]]

+ [[ 101 -lt 10 ]]

+ [[ 101 -gt 10 ]]

+ [[ 101 -lt 100 ]]

+ [[ 101 -gt 100 ]]

+ [[ 101 -lt 1000 ]]

+ echo Hundred

Hundred

1. Write a program that takes user inputs and does unit conversion of different length units:
2. Feet to inch
3. Feet to Meter
4. Inch to Feet
5. Meter to Feet

Shell Script:

#!/bin/bash -x

echo "1. Converting feet to inch: "

echo "2. Converting inch to feet: "

echo "3. Converting feet to meter: "

echo "4. Converting meter to feet: "

read -p "Enter the number:" num

case $num in

1)

echo "Converting feet to inch"

echo "Enter feet"

read a

inch=$(( $a\*12 ))

echo "$a feet=$inch inch"

;;

2)

echo "Converting feet to meter"

echo "Enter feet"

read b

meter=`echo "scale=3;$b/3.28"|bc`

echo "$b feet=$meter meter"

;;

3)

echo "Converting inch to feet"

echo "Enter inch"

read c

feet=`echo "scale=3;$c/12"|bc`

echo "$c inch=$feet feet"

;;

4) echo "Converting meter to feet"

echo "Enter meter"

read d

feet=$(( $d\*3.280 ))

echo "$d meter=$feet feet"

;;

\*)

echo "Invalid"

esac