**Sequence Practice Problems**

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

#!/bin/bash -x

singleDigit=$((RANDOM%10));

echo $singleDigit;

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

#!/bin/bash -x

diceNumber=$((RANDOM%6+1));

echo $diceNumber;

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

#!/bin/bash -x

firstDiceNumber=$((RANDOM%6+1));

secondDiceNumber=$((RANDOM%6+1));

addDiceNumber=$(( $firstDiceNumber + $secondDiceNumber ));

echo $addDiceNumber;

1. Write a program that reads 5 Random 2 Digit values, then finds their sum and the average.

#!/bin/bash -x

sum=0;

for((i=0;i<5;i++));

do

random=$((RANDOM%90+10));

sum=$(( $sum+$random ));

done

echo $sum;

avrg=$(( $sum/5 ));

echo $avrg;

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

#!/bin/bash -x

inch=1;

oneFeet=$(($inch \* 12));

toFeets=`echo $inch | awk '{div = $inch\*42/12; printf "%f", div}'`

squareFeet=`echo $oneFeet | awk '{div = 60\*40; printf "%f", div}'`

squareMeter=`echo $squareFeet | awk '{div = $squareFeet\*0.0929; printf "%f", div}'`

rectangularPlotAreaInMeter=$squareMeter;

rectangularPlotInAcres=`echo $rectangularPlotAreaInMeter | awk '{div = (($rectangularPlotAreaInMeter\*25))\*0.000247; printf "%f", div}'`

**Selection Practice Problems with if & else**

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

#!/bin/bash -x

for (( count=0;count<5;count++))

do

random=$((RANDOM%900 + 100));

array[$count]="$random";

done

echo ${array[@]}

arrayLength=${#array[@]}

for (( i=0;i<$arrayLength;i++ ))

do

for (( j=i+1;j<$arrayLength;j++ ))

do

if [ ${array[i]} -gt ${array[j]} ];

then

temp=${array[i]};

array[$i]=${array[j]};

array[$j]=$temp;

fi

done

done

echo "Minimum Number" ${array[0]};

echo "Maximum Number" ${array[$(($arrayLength-1))]};

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

#!/bin/bash -x

read -p "Enter a Day:" day;

read -p "Enter a Month:" month;

if [[ 20 -le $day && $day -le 31 && 3 -eq $month ]]

then

echo "True";

elif [[ $day -le 31 && 4 -le $month && $month -le 5 ]]

then

echo "True";

elif [[ $day -le 20 && $month -eq 6 ]];

then

echo "True";

else

echo "False";

fi

1. Write a program that takes a year as input and outputs the Year is a Leap Year or not a Leap Year. ALeap Year checks for 4 Digit Number, Divisible by 4 and not 100 unless divisible by 400.

#!/bin/bash -x

read -p "Enter Year:" year;

if [ $(($year%4)) -eq 0 ];

then

if [ $(($year%100)) -eq 0 ];

then

if [ $(($year%400)) -eq 0 ];

then

echo "leap year";

else

echo "Not leap year";

fi

else

echo "leap year";

fi

else

echo "Not leap year"

fi

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

#!/bin/bash -x

isHead=1;

headTailCheck=$((RANDOM%2));

if [ $isHead -eq $headTailCheck ]

then

echo "Heads"

else

echo "Tails"

Fi

**Selection Practice Problems With if, elif & else**

1. Read a Single digit number and write the number in word.

#!/bin/bash -x

read -p "Enter Single Digit Number:" number;

if [ $number -eq 0 ];

then

echo "Zero";

elif [ $number -eq 1 ];

then

echo "One";

elif [ $number -eq 2 ];

then

echo "Two";

elif [ $number -eq 3 ];

then

echo "Three";

elif [ $number -eq 4 ];

then

echo "Four";

elif [ $number -eq 5 ];

then

echo "Five";

elif [ $number -eq 6 ];

then

echo "Six";

elif [ $number -eq 7 ];

then

echo "Seven";

elif [ $number -eq 8 ];

then

echo "Eight"

elif [ $number -eq 9 ];

then

echo "Nine";

fi

1. Read a Number and Display the weekday (Sunday, Monday,...).

#!/bin/bash -x

read -p "Enter a Single Digit Number between 0 to 6:" number;

if [ $number -eq 0 ];

then

echo "Sunday";

elif [ $number -eq 1 ];

then

echo "Monday";

elif [ $number -eq 2 ];

then

echo "Tuesday";

elif [ $number -eq 3 ];

then

echo "Wensday";

elif [ $number -eq 4 ];

then

echo "Thursday";

elif [ $number -eq 5 ];

then

echo "Friday";

elif [ $number -eq 6 ];

then

echo "Saturday";

fi

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

#!/bin/bash -x

read -p "Enter Number 1 and multiple of 10:" number;

if [ $number -eq 1 ];

then

echo "One";

elif [ $number -eq 10 ];

then

echo "Ten";

elif [ $number -eq 100 ];

then

echo "Hundred";

elif [ $number -eq 1000 ];

then

echo "Thousand";

elif [ $number -gt 1000 ];

then

echo "Invalid number";

fi

1. Enter 3 Number do Following arithmetic operation and find the one that is maximum and minimum.

1) a + b \* c 3) c + a / b

2) a % b + c 4) a \* b + c

#!/bin/bash -x

echo "Enter Three-Number"

read firstNumber;

read secondNumber;

read thirdNumber;

operationFirst=$(($firstNumber+$secondNumber\*$thirdNumber));

operationSecond=$(($firstNumber%$secondNumber+$thirdNumber));

operationThird=$(($thirdNumber+$firstNumber/$secondNumber));

operationFourth=$(($firstNumber\*$secondNumber+$thirdNumber));

result[0]="$operationFirst"

result[1]="$operationSecond"

result[2]="$operationThird"

result[3]="$operationFourth"

echo ${result[@]}

arrayLength=${#result[@]}

for (( i=0;i<$arrayLength;i++ ))

do

for (( j=i+1;j<$arrayLength;j++ ))

do

if [ ${result[i]} -gt ${result[j]} ];

then

temp=${result[i]};

result[$i]=${result[j]};

result[$j]=$temp;

fi

done

done

echo "Minimum Number" ${result[0]};

echo "Maximum Number" ${result[$(($arrayLength-1))]};

**Selection Practice Problem with case Statement**

1. Read a Single digit number and write the number in word using Case.

#!/bin/bash -x

read -p "Enter Single Digit Number:" number;

case $number in

0)

echo "Zero"

;;

1)

echo "One"

;;

2)

echo "Two"

;;

3)

echo "Three"

;;

4)

echo "Four"

;;

5)

echo "Five"

;;

6)

echo "Six"

;;

7)

echo "Seven"

;;

8)

echo "Eight"

;;

9)

echo "Nine"

;;

\*)

echo "Please enter single Number"

;;

esac

1. Read a Number and Display the weekday (Sunday, Monday,...).

#!/bin/bash -x

read -p "Enter a Single Digit Number:" number;

case $number in

0)

echo "Sunday"

;;

1)

echo "Monday"

;;

2)

echo "Tuesday"

;;

3)

echo "Wensday"

;;

4)

echo "Thursday"

;;

5)

echo "Friday"

;;

6)

echo "Saturday"

;;

\*)

echo "Please Enter number between 0 to 6"

;;

esac

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

#!/bin/bash -x

read -p "Enter number 1 and multiple of 10:" number;

case $number in

1)

echo "One"

;;

10)

echo "Ten"

;;

100)

echo "Hundred"

;;

1000)

echo "Thousand"

;;

\*)

echo "Invalid number"

;;

esac

1. Write a program that takes User Inputs and does Unit Conversion of different Length units.

1) Feet to Inch 3) Inch to Feet

2) Feet to Meter 4) Meter to Feet

#!/bin/bash -x

echo "1) Feet to Inch";

echo "2) Feet to Meter";

echo "3) Inch to Feet";

echo "4) Meter to Feet";

read -p "Enter a Choice:" choice;

case $choice in

1)

read -p "Enter Feet:" feet

inch=`echo $feet | awk '{div = $feet\*12; printf "%f", div}'`

echo "Inches "$inch

;;

2)

read -p "Enter Feet:" feet

meter=`echo $feet | awk '{div = $feet/3.28; printf "%f", div}'`

echo "Feets "$meter

;;

3)

read -p "Enter Inch:" inch

feet=`echo $inch | awk '{div = $inch/12; printf "%f", div}'`

echo "Feets "$feet

;;

4)

read -p "Enter Meter:" meter

feet=`echo $meter | awk '{div = $meter\*3.28; printf "%f", div}'`

echo "Feets "$feet

;;

\*)

echo "Invald Input"

;;

esac