

## Repetition Practice Problems with while loop

Write a program that takes a command-line argument  $n$  and prints a table of the powers of 2 that are less than or equal to  $2^n$  till 256 is reached.

```
Prudhvi@PrudhviReddy MINGW6
$ ./powersof2upto256.sh 9
2
4
8
16
32
64
128
256

#!/bin/bash
n=$1
i=1
while [ $i -le $n ]
do
    temp=$((2**$i))
    if [[ $temp -gt 256 ]]
    then
        break
    fi
    echo $temp
    ((i++))
done
```

Find the Magic Number

- Ask the user to think of a number  $n$  between 1 to 100
- Then check with the user if the number is less than  $n/2$  or greater
- Repeat till the Magic Number is reached.

```
#!/bin/bash
echo "think of a number between 1 to 100"
start=1
end=100
while [ $start -lt $end ]
do
    mid=$((($start+$end)/2))
    echo $mid
    echo "enter l if less and g if greater "
    read input
    case "$input" in
        l) end=$mid;;
        g) start=$(( $mid+1 ));;
        *) default
    esac
done

echo "your number is " $start
```

```
prudhvi@PrudhviReddy:/mnt/e/Bridgelabz/Assignments/Day6/Prob02$ ./magicnumber.sh
think of a number between 1 to 100
50
enter l if less and g if greater
l
25
enter l if less and g if greater
l
13
enter l if less and g if greater
l
7
enter l if less and g if greater
l
4
enter l if less and g if greater
l
2
enter l if less and g if greater
l
1
enter l if less and g if greater
l
your number is 1
```

Extend the Flip Coin problem till either Heads or Tails wins 11 times.

```
prudhvi@PrudhviReddy:/mnt/e/Bridgelabz/Assignments/Day6/Prob02$ ./
head_tail_11.sh
Tail
Head
Tail
Head
Head
Tail
Head
Head
Head
Tail
Tail
Head counts :6
tail counts : 5
```

```
#!/bin/bash
head=0;
tail=0;
for ((i=0;i<11;i++))
do
    if [[ $((RANDOM%2)) = 1 ]]
    then
        echo Head
        ((head++))
    else
        echo Tail
        ((tail++))
    fi
done
echo "Head counts :"$head
echo "tail counts : "$tail
```

Write a Program where a gambler starts with Rs 100 and places Re 1 bet until he/she goes broke i.e. no more money to gamble or reaches the goal of Rs 200. Keeps track of number of times won and number of bets made.

```
$ ./gamblerMoney.sh
Welcome to Gambling!
Money in Gamblers Account: ₹100
Starting bets....
```

```
Gambler Lost!
Money in Gamblers Account: ₹0
Number of Times Won: 10708
Number of bets placed: 21516
Add money and continue
Thank you!
```

```
#!/bin/bash
```

```
gambler=100
wins=0
loses=0
numBets=0
```

```
function results {
    echo -e "Number of Times Won: $wins\nNumber of bets placed: $numBets";
}
```

```
echo -e "Welcome to Gambling!\nMoney in Gamblers Account: ₹$gambler\nStarting bets...."
```

```
while :
do
    if [ $gambler -eq 200 ];then
        echo -e "\n\nGambler won!\nMoney in Gamblers Account: ₹$gambler"
        results
        break
    elif [ $gambler -eq 0 ];then
        echo -e "\n\nGambler Lost!\nMoney in Gamblers Account: ₹$gambler\n$(results)\nAdd money and continue\nThank you!";
        break
    fi

    bet=$((RANDOM%10)%2)
    ((numBets++))
    if [ $bet -eq 0 ];then
        #bet won
        ((gambler++));
        ((wins++));
    elif [ $bet -eq 1 ];then
        #bet lost
        ((gambler--));
        ((loses++));
    fi
done
```