//Sorting arithmetic computation

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| --- |
| #!/bin/bash -x |
|  | read -p "Enter first value " a; |
|  | read -p "Enter second value " b; |
|  | read -p "Enter third value " c; |
|  | declare -A dict; |
|  | dict[r1]=$(( $a + ($b \* $c) )); |
|  | dict[r2]=$(( ($a \* $b) + $c )); |
|  | dict[r3]=$(( $c + ($a / $b) )); |
|  | dict[r4]=$(( ($a % $b) + $c )); |
|  | arr=( ${dict[@]} ); |
|  | echo "Array before sorting " ${arr[@]}; |
|  | for(( i=0;i<${#arr[@]};i++ )) |
|  | do |
|  | for(( j=0;j<${#arr[@]}-$i-1;j++ )) |
|  | do |
|  | if [[ ${arr[j]} -gt ${arr[$(($j+1))]} ]] |
|  | then |
|  | temp=${arr[j]}; |
|  | arr[$j]=${arr[$(($j+1))]}; |
|  | arr[$(($j+1))]=$temp; |
|  | fi |
|  | done |
|  | done |
|  | echo "Array in Ascending Order " ${arr[@]}; |
|  | for(( i=${#arr[@]}-1;i>=0;i-- )) |
|  | do |
|  | rev="$rev ${arr[i]}"; |
|  | done |
|  | echo "Array in Descending Order " $rev; |

//FlipCoinCombination Problem 2

|  |
| --- |
| #!/bin/bash -x |
|  | read -p "Enter number of flips: " n; |
|  | for(( i=0;i<$n;i++ )) |
|  | do |
|  | b=$a; |
|  | a=$toss; |
|  | toss=$(( $RANDOM%2 )); |
|  | if [[ $toss -eq 1 ]] |
|  | then |
|  | ((hcount++)); |
|  | echo -n "H "; |
|  | if [[ $a -eq 1 ]] |
|  | then |
|  | ((hhcount++)); |
|  | if [[ $b -eq 1 ]] |
|  | then |
|  | ((hhhcount++)); |
|  | else |
|  | ((hhtcount++)); |
|  | fi |
|  | else |
|  | ((htcount++)); |
|  | if [[ $b -eq 1 ]] |
|  | then |
|  | ((hthcount++)); |
|  | else |
|  | ((httcount++)); |
|  | fi |
|  | fi |
|  | else |
|  | ((tcount++)); |
|  | echo -n "T "; |
|  | if [[ $a -eq 1 ]] |
|  | then |
|  | ((thcount++)) |
|  | if [[ $b -eq 1 ]] |
|  | then |
|  | ((thhcount++)); |
|  | else |
|  | ((thtcount++)); |
|  | fi |
|  | else |
|  | ((ttcount++)); |
|  | if [[ $b -eq 1 ]] |
|  | then |
|  | ((tthcount++)); |
|  | else |
|  | ((tttcount++)); |
|  | fi |
|  | fi |
|  | fi |
|  | done |
|  | Hcount=$(( ($hcount\*100)/20 )); |
|  | Tcount=$(( ($tcount\*100)/20 )); |
|  | echo "Percentage of Heads is: " $Hcount"%"; |
|  | echo "Percentage of Tails is: " $Tcount"%"; |
|  | if [[ $Hcount -gt $Tcount ]] |
|  | then |
|  | echo "HEAD wON"; |
|  | else |
|  | echo "TAIL WON"; |
|  | fi |
|  | HHcount=$(( ($hhcount\*100)/20 )); |
|  | HTcount=$(( ($htcount\*100)/20 )); |
|  | THcount=$(( ($thcount\*100)/20 )); |
|  | TTcount=$(( ($ttcount\*100)/20 )); |
|  | echo "Percentage of HeadHead is: " $HHcount"%"; |
|  | echo "Percentage of HeadTail is: " $HTcount"%"; |
|  | echo "Percentage of TailHead is: " $THcount"%"; |
|  | echo "Percentage of TailTail is: " $TTcount"%"; |
|  | if [[ $HHcount -gt $HTcount && $HHcount -gt $THcount && $HHcount -gt $TTcount ]] |
|  | then |
|  | echo "HEAD HEAD WON"; |
|  | elif [[ $HTcount -gt $HHcount && $HTcount -gt $THcount && $HTcount -gt $TTcount ]] |
|  | then |
|  | echo "HEAD TAIL WON"; |
|  | elif [[ $THcount -gt $HHcount && $THcount -gt $HTcount && $THcount -gt $TTcount ]] |
|  | then |
|  | echo "TAIL HEAD WON"; |
|  | else |
|  | echo "TAIL TAIL WON"; |
|  | fi |
|  | HHHcount=$(( ($hhhcount\*100)/20 )); |
|  | HHTcount=$(( ($hhtcount\*100)/20 )); |
|  | HTHcount=$(( ($hthcount\*100)/20 )); |
|  | HTTcount=$(( ($httcount\*100)/20 )); |
|  | THHcount=$(( ($thhcount\*100)/20 )); |
|  | THTcount=$(( ($thtcount\*100)/20 )); |
|  | TTHcount=$(( ($tthcount\*100)/20 )); |
|  | TTTcount=$(( ($tttcount\*100)/20 )); |
|  | echo "Percentage of HeadHeadHead is: " $HHHcount"%"; |
|  | echo "Percentage of HeadHeadTail is: " $HHTcount"%"; |
|  | echo "Percentage of HeadTailHead is: " $HTHcount"%"; |
|  | echo "Percentage of HeadTailTail is: " $HTTcount"%"; |
|  | echo "Percentage of TailHeadHead is: " $THHcount"%"; |
|  | echo "Percentage of TailHeadTail is: " $THTcount"%"; |
|  | echo "Percentage of TailTailHead is: " $TTHcount"%"; |
|  | echo "Percentage of TailTailTail is: " $TTTcount"%"; |
|  | if [[ $HHHcount -gt $HHTcount && $HHHcount -gt $HTHcount && $HHHcount -gt $HTTcount && $HHHcount -gt $THHcount && $HHHcount -gt $THTcount && $HHHcount -gt $TTHcount && $HHHcount -gt $TTTcount ]] |
|  | then |
|  | echo "HEAD HEAD HEAD WON"; |
|  | elif [[ $HHTcount -gt $HHHcount && $HHTcount -gt $HTHcount && $HHTcount -gt $HTTcount && $HHTcount -gt $THHcount && $HHTcount -gt $THTcount && $HHTcount -gt $TTHcount && $HHTcount -gt $TTTcount ]] |
|  | then |
|  | echo "HEAD HEAD TAIL WON"; |
|  | elif [[ $HTHcount -gt $HHHcount && $HTHcount -gt $HHTcount && $HTHcount -gt $HTTcount && $HTHcount -gt $THHcount && $HTHcount -gt $THTcount && $HTHcount -gt $TTHcount && $HTHcount -gt $TTTcount ]] |
|  | then |
|  | echo "HEAD TAIL HEAD WON"; |
|  | elif [[ $HTTcount -gt $HHHcount && $HTTcount -gt $HHTcount && $HTTcount -gt $HTHcount && $HTTcount -gt $THHcount && $HTTcount -gt $THTcount && $HTTcount -gt $TTHcount && $HTTcount -gt $TTTcount ]] |
|  | then |
|  | echo "HEAD TAIL TAIL WON"; |
|  | elif [[ $THHcount -gt $HHHcount && $THHcount -gt $HHTcount && $THHcount -gt $HTHcount && $THHcount -gt $HTTcount && $THHcount -gt $THTcount && $THHcount -gt $TTHcount && $THHcount -gt $TTTcount ]] |
|  | then |
|  | echo "TAIL HEAD HEAD WON"; |
|  | elif [[ $THTcount -gt $HHHcount && $THTcount -gt $HHTcount && $THTcount -gt $HTHcount && $THTcount -gt $HTTcount && $THTcount -gt $THHcount && $THTcount -gt $TTHcount && $THTcount -gt $TTTcount ]] |
|  | then |
|  | echo "TAIL HEAD TAIL WON"; |
|  | elif [[ $TTHcount -gt $HHHcount && $TTHcount -gt $HHTcount && $TTHcount -gt $HTHcount && $TTHcount -gt $HTTcount && $TTHcount -gt $THHcount && $TTHcount -gt $THTcount && $TTHcount -gt $TTTcount ]] |
|  | then |
|  | echo "TAIL TAIL HEAD WON"; |
|  | else |
|  | echo "TAIL TAIL TAIL WON"; |
|  | fi |

//FlipCoinSimulation Proble 3

|  |
| --- |
| #!/bin/bash -x |
|  | isHead=0; |
|  | isTail=1; |
|  | heads=0; |
|  | tails=0; |
|  | while [[ $heads -lt 21 && $tails -lt 21 ]] |
|  | do |
|  | toss=$(( $RANDOM%2 )); |
|  | case $toss in |
|  | $isHead) heads=$(( $heads+1 )) ;; |
|  | $isTail) tails=$(( $tails+1 )) ;; |
|  | esac |
|  | done |
|  | echo "Heads count is " $heads; |
|  | echo "Tails count is " $tails; |
|  | if [[ $heads -gt $tails ]] |
|  | then |
|  | count=$(( $heads-$tails )); |
|  | echo "Heads won by " $count; |
|  | elif [[ $heads -lt $tails ]] |
|  | then |
|  | count=$(( $tails-$heads )); |
|  | echo "Tails won by " $count; |
|  | elif [[ $heads -eq $tails ]] |
|  | then |
|  | echo "It's a Tie"; |
|  | while [[ ($(( $heads-$tails )) -lt 2) || ($(( $tails-$heads )) -lt 2) ]] |
|  | do |
|  | toss=$(( $RANDOM%2 )); |
|  | case $toss in |
|  | $isHead) heads=$(( $heads+1 )) ;; |
|  | $isTail) tails=$(( $tails+1 )) ;; |
|  | esac |
|  | done |
|  | echo $heads; |
|  | echo $tails; |
|  | fi |