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S4 MCA
Roll no - 09

Internal End Semester
LAB Examination

System Design Lab.

1) Algorithm:
→ Enter Both arrays with some values.
→ Sort each arrays
→ Combine/merge Sorted arrays
→ then find its Median value.

Script/Code:

```
Echo "Enter the number of elements of first array"
read n1
echo "enter number of elements of second array"
read n2
n3=`expr $n1 + $n2`
echo "enter elements of 1st array
for ((i=1;i<=$n1;i++))
 do
  echo -n "enter element $i:"
  read arr1[$i]
 done
  echo "enter elements of second array"
  for ((i=1; i<=$n2; i++))
  do
  echo -n "enter elements $i:"
 read arr2[$i]
 done
 i=1
 j=1
 k=1
 while [$i -le $n1] && [$j -le $n2]
 do
  if [${arr1[$i]} -lt ${arr2[$j]}]
  then
   arr3[$k]=${arr1[$i]}
   i=`expr $i+1`
   k=`expr $k+1`
  else
  arr3[$k]=${arr2[$i]}
```

```
    j='expr $j+1'
    k='expr $k+1'
  fi
done
  while [$i -le $n1]
  do
  arr3[$k]=${arr1[$i]}
  i='expr $i+1'
  k='expr $k+1'
  done
while [$j -le $n2]
do
  arr3[$k]=${arr2[$j]}
  j='expr $j+1'
  k='expr $k+1'
done
echo "The merged array is
for((i=1;i<=$n3;i++))
do
  echo ${arr3[$i]}
  done
  nel=${#arr3[@]}
  if (($nel%2==1));
  then
  val="${arr3[$((($nel/2+1)))]}"
  else
  ((j=nel/2))
  ((k=j-1))
  ((val=(${arr3[j]}+${arr3[k]})/2))
  fi
echo "Median is" $val.
```

Result

Output verified correctly.

2) Write a Shell Script to read a file containing a set of numbers, store the even and odd numbers among them in two different files-

Algorithm:
→ Read the entered file.
→ If the number is odd number then move on to the odd number file, if it is even number then move to the even number file.

Code | shell script:

```
Cat numbers.txt | while read num
do
   if ['echo "${num} %2 " | bc' -eq 0]
   then
      echo ${num} >> even.numbers.txt
   else
      echo ${num} >> odd.numbers.txt
   fi
done.
```