ASSIGNMENT NO:7 **DATE:23/03/2016**

PROGRAM TITLE:Implement Round Robin Scheduling.

THEORY:

Round Robin Scheduling allocates a time slice of the processor to each process until it completes all the processes. Waiting time of a process is the amount of time it has to wait in the waiting queue. Turnaround time equals the waiting time of the process added to its burst time.

PROGRAM CODE:

```
#Shell Program to perform Round Robin Scheduling
read -p "Enter the no. of processes:" n
i=0
tot=0
while [ $i -lt $n ]
do
      echo -n "Enter the burst time for the process" `expr $i + 1` ":"
      read b[$i]
      tl[$i]=${b[$i]}
      wt[$i]=0
      i=`expr $i + 1`
done
read -p "Enter the time slice:" ts
flag=1
while [ $flag -eq 1 ]
do
      flag=0
      i=0
      while [ $i -lt $n ]
      do
            if [ ${tl[$i]} -gt $ts ]
            then
                  x=$ts
            else
                  x=${tl[$i]}
            fi
            if [ $x -ne 0 ]
            then
                  flag=1
                  tl[$i]=`expr ${tl[$i]} - $x`
                  j=0
                  while [ $j -lt $n ]
                  do
                        if [ $j -ne $i -a ${tl[$j]} -ne 0 ]
                        then
                              wt[$j]=`expr ${wt[$j]} + $x`
                        fi
                        j=`expr $j + 1`
                  done
            fi
            i=`expr $i + 1`
      done
done
echo "PROCESS | BURST TIME | WAITING TIME | TURNAROUND TIME"
```

```
i=0
sw=0
st=0
while [ $i -lt $n ]
do
      echo -e "P"`expr $i + 1`"\t\t"${b[$i]}"\t\t"${wt[$i]}"\t\t"`expr ${b[$i]}
+ ${wt[$i]}`
      sw=`expr $sw + ${wt[$i]}`
      st=`expr $st + ${wt[$i]} + ${b[$i]}`
      i=`expr $i + 1`
done
echo "The average waiting time:" `expr "scale=2;$sw / $n"|bc` "ms"
echo "The average turnaround time:" `expr "scale=2;$st / $n"|bc` "ms"
```

OUTPUT:

```
Enter the no. of processes:4
Enter the burst time for the process 1 :11
Enter the burst time for the process 2 :4
Enter the burst time for the process 3 :16
Enter the burst time for the process 4 :10
Enter the time slice:3
PROCESS | BURST TIME | WAITING TIME | TURNAROUND TIME
P1         11         22         33
P2         4          12         16
P3         16         25         41
P4         10         27         37
The average waiting time: 21.50 ms
The average turnaround time: 31.75 ms
```

DISCUSSION:

1. The burst time of each process has to be specified from before along with the time slice.
2. The waiting time of each process has to be carefully updated after checking that if it is still in the waiting queue or not.