

Aim- write a program to demonstrate load balancing in distributed system

Theory-

Load Balancing is a way of distributing load unit across a set of processes that are connected to a n/w & may be distributed across the globe

Depending on the threshold value on loads the excess load or remaining unexecuted load from a processor is migrated to other processor. The processor where the load is migrated will have load below the threshold load value.

Heavily loaded processor are where enough jobs are waiting for execution, in lightly loaded processor have no jobs to execute.

The basic aim is to make every processor equally busy & to finish the works approximately at the same time - this can be achieved by load balancing concept.

Benefits of load Balancing

- 1) Improves the performance of each node & hence the overall system performance
- 2) It reduces the job idle time
- 3) It gives higher reliability
- 4) It gives higher throughput.

Teacher's Sign.: \_\_\_\_\_

## Load Balancing approaches

- 1) Static load Balancing :- The processes are assigned to processor at the compile time, depending on the performance of node
- 2) Dynamic load Balancing :- The assignment of jobs is done at runtime. Jobs are reassigned at runtime, depending upon the situation

### Conclusion -

The goal of the load Balancing algorithm is to maintain the load to each processing element such that all the processing elements become neither overloaded nor ~~to~~ idle that means each processing element ideally has equal load at any moment of time during execution to obtain the maximum performance of system.

Teacher's Sign.: \_\_\_\_\_

PROGRAM:-

```
s=int(input("Enter no of nodes: "))
n=int(input("Enter no of processes: "))
a=[]
r=int(n/s)
for i in range(s):
    a.append(r)
extra=n%s
i=0
while(extra!=0):
    a[i]+=1
    i+=1
    extra-=1
for i in range(s):
    print("Node ",chr(64+i+1)," has ", a[i],"Processes")
print("\n")
c=0
while(c!=5):
    c=int(input("Enter your choice: 1.Add processes 2.Remove processes 3.Add Nodes
4.Remove Nodes 5.Exit: "))
    if(c==1):
        y=int(input("Enter no of processes to be added: "))
        n+=y
    elif(c==2):
        y=int(input("Enter no of processes to be removed: "))
        n-=y
    elif(c==3):
        y=int(input("Enter no of nodes to be added: "))
        s+=y
    elif(c==4):
        y=int(input("Enter no of nodes to be removed: "))
        s-=y
    else:
        break
    a=[]
    r=int(n/s)
    for i in range(s):
        a.append(r)
    extra=n%s
    i=0
    while(extra!=0):
        a[i]+=1
```

```
i+=1
extra-=1
for i in range(s):
    print("Node ",chr(64+i+1)," has ", a[i],"Processes")
```

OUTPUT:

```
===== RESIARI: C:\Users\Student\Downloads\LoadBalance.py =====
Enter no of nodes: 4
Enter no of processes: 15
Node A has 4 Processes
Node B has 4 Processes
Node C has 4 Processes
Node D has 3 Processes

Enter your choice: 1.Add processes 2.Remove processes 3.Add Nodes 4.Remove Nodes 5.Exit: 2
Enter no of processes to be removed: 3
Node A has 3 Processes
Node B has 3 Processes
Node C has 3 Processes
Node D has 3 Processes

Enter your choice: 1.Add processes 2.Remove processes 3.Add Nodes 4.Remove Nodes 5.Exit: 1
Enter no of processes to be added: 1
Node A has 4 Processes
Node B has 3 Processes
Node C has 3 Processes
Node D has 3 Processes

Enter your choice: 1.Add processes 2.Remove processes 3.Add Nodes 4.Remove Nodes 5.Exit: 5
>>>
```