Mawlana Bhashani Science and Technology University

Lab-Report

Report No: 09

Course code: ICT- ICT-3110

Course title: Operating Systems Lab

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Experiment no : 09

Experiment Name : Implementation of Priority Scheduling Algorithm.

Theory :

Priority scheduling is one of the most common scheduling algorithms in batch systems and it is a non-preemptive algorithm. Each process is assigned a priority. Process with highest priority is to be executed first and so on. Processes with same priority are executed on first come first served basis. Priority can be decided based on memory requirements, time requirements or any other resource requirement.

Implementation :

- Step-1: First input the processes with their burst time and priority.
- Step-2: Sort the processes, burst time and priority according to the priority.
- Step-3: Now simply apply FCFS algorithm.

Working Process :

Code for Priority Scheduling Algorithm in C –

```c
#include<stdio.h>
int main()
{
   int bt[20],p[20],wt[20],tat[20],pr[20],i,j,n,total=0,pos,temp,avg_wt,avg_tat;
   printf("Enter Total Number of Process:");
   scanf("%d",&n);
   printf("\nEnter Burst Time and Priority\n");
   for(i=0;i<n;i++)
   {
      printf("\nP[%d]\n",i+1);
      printf("Burst Time:");
      scanf("%d",&bt[i]);
      printf("Priority:");
      scanf("%d",&pr[i]);
```

```
      p[i]=i+1;
   }
   for(i=0;i<n;i++)
   {
      pos=i;
      for(j=i+1;j<n;j++)
       {
          if(pr[j]<pr[pos])
             pos=j;
       }
      temp=pr[i];
      pr[i]=pr[pos];
      pr[pos]=temp;
      temp=bt[i];
      bt[i]=bt[pos];
      bt[pos]=temp;
      temp=p[i];
      p[i]=p[pos];
      p[pos]=temp;
   }
   wt[0]=0;
   for(i=1;i<n;i++)
   {
      wt[i]=0;
      for(j=0;j<i;j++)
         wt[i]+=bt[j];
      total+=wt[i];
   }
   avg_wt=total/n;
   total=0;
```

```c
    printf("\nProcess\t    Burst Time    \tWaiting Time\tTurnaround Time");

    for(i=0;i<n;i++)

    {

        tat[i]=bt[i]+wt[i];

        total+=tat[i];

        printf("\nP[%d]\t\t  %d\t\t    %d\t\t\t%d",p[i],bt[i],wt[i],tat[i]);

    }

    avg_tat=total/n;

    printf("\n\nAverage Waiting Time=%d",avg_wt);

    printf("\nAverage Turnaround Time=%d\n",avg_tat);

        return 0;

}
```

Output :

Discussion :

The above algorithm has been implemented using C language. Implementing priority scheduling algorithm is easy. All we have to do is to sort the processes based on their priority and CPU burst time, and then apply FCFS Algorithm on it. The processes are given CPU time just on the basis of the priorities.