12/04/23

Multilevel Queue Scheduling

Write a C program to schedule Multilevel Queue proc
using system process queue & users process queue.

```
#include<stdio.h>
#include<stdlib.h>

int spat[10], upat[10], p, n1, n2, p1[10], p2[10];
int spt[10], upt[10], time=0, op=0, y, z, pt;
int sptat[10], uptat[10], spwt[10], upwt[10];
float spatat=0, spwt=0, upatat=0, upwt=0;

void process(int x, int isSystem){
    if(isSystem){
        op+ = spt[x];
        sptat[x] = op - spat[x];
        spt[x] = 0;
        spwt[x] = sptat[x] - p1[x];
        spatat += spat[x];
        spwt += spwt[x];
    }
    else{
        op+= upt[x];
        uptat[x] = op - upat[x];
        upt[x] = 0;
        upwt[x] = uptat[x] - p2[x];
        upatat += uptat[x];
        upwt += upwt[x];
    }
}
```

```
int main(){
    printf("Enter the no of
    scanf("%d", &n1);
    printf("Enter the no
    scanf("%d", &n2);
    printf("Enter the
    for(i=0; i<n1; i++)
        scanf("%d", &spat
    printf("Enter the burst
    for(i=0; i<n1; i
        scanf("%d", &sp
    printf("Enter the
    for(i=0; i<n2; i+
        scanf("
    printf("Enter the Burst
    for(i=0; i<n2; i
        scanf("%d",
    for(i=0; i<n1; i++
        time += spat[i
    for(i=0; i<n1; i+
        p1[i] = spat[i
    for(i=0; i<n2
        ] = up
```

```
int main() {
    printf("Enter the no of System Process : ");
    scanf("%d", &n1);

    printf("Enter the no of User Process : ");
    scanf("%d", &n2);
    printf("Enter the arrival time for System Process : \n");
    for(i = 0; i<n1; i++)
        scanf("%d", &spt[i]);
    printf("Enter the burst time of system Process : \n");
    for(i=0; i<n1; i++)
        scanf("%d", &spt[i]);

    printf("Enter the arrival time of User Processes : \n");
    for(i=0; i<n2; i++)
        scanf("%d", &upt[i]);

    printf("Enter the Burst time of process : \n");
    for(i=0; i<n2; i++)
        scanf("%d", &upt[i]);

    for(i=0; i<n1; i++)
        time += spt[i];

    for(i=0; i<n1; i++)
        p1[i] = spt[i];

    for(i=0; i<n2; i++)
        p2[i] = upt[i];

    printf("\n");
```

```
while (opctime){
    y=-1;
    z=-1;
for (i=0; i<n1; i++){
        if(op>=spat[i] && spat[i]!=0){
            y=i;
            break;
        }
    }

for(i=0; i<n2; i++){
    if (op>=upat[i] && upat[i]!=0){
        z=i;
        break;
    }
}

if (y!=-1){
    printf("%d SP %d ", op, y+1);
    process(y,1);
} else if (z!=-1){
    printf("%d UP %d ", op, z+1);
    process(z,0);
} else{
    op++;
}
}
printf("%d", op);
printf("\n");
```

```
printf("SystemProcess:\n");
for (i=0; i<n1; i++)
    printf("SP %d %d %d\n
printf("Average TurnAround
        Spatat[n1]);
printf("Average Waiting Ti
printf("\n");

printf("User Processes\n");
for(i=0; i<n2; i++)
    printf("UP %d %d %d
printf("Average turn Aro
    upatat[n2]);
printf("Average Waiting Ti

return 0;
}
```

```
printf("System Processes:\n");
for (i=0; i<n1; i++)
    printf("SP %d %d %d\n", i+1, sptat[i], sput[i]);
printf("Average Turn Around Time (System Process): %.2f\n",
        sptat/n1);
printf("Average Waiting Time (SP): %f\n", sput/n1);
printf("\n");

printf("User Processes\n");
for(i=0; i<n2; i++)
    printf("UP %d %d %d\n", i+1, uptat[i], uput[i]);
printf("Average turn Around time (UP): %.2f\n",
    uptat/n2);
printf("Average Waiting Time (UP): %.2f\n", uput/n2);
return 0;
}
```

Output

Enter no of syste proces : 3
Enter no of use proc : 1
Enter arrival time of SP: 0 0 10
Enter proce tim : 4 3 5
Enter arrival time of UP: 0
Ente proce tim : 8

Syste Process

SP	4	0
SP2	7	4
SP3	10	5

AWAT(SP) = 3
ATAT(SP) = 7

Userproce

UP1	15	7

ATAT = 15
AWT = 7