2024/06/06

Thursday — Multi level queue scheduling

```c
#include <stdio.h>
void main()
{
    int p[20], bt[20], su[20], wt[20], tat[20], at[20],
        ct[20], i, k, n, temp;
    float wtavg, tatavg;

    printf("Enter the number of processess---");
    scanf("%d", &n);
    for(i=0; i<n; i++) {
        p[i]=i;
        printf("Enter the Arrival time of process%d:.", i);
        scanf("%d", &at[i]);
        printf("Enter the Burst time of process%d--", i);
        scanf("%d", &bt[i]);
        printf("System/user procss (0/1) ?...", i);
        scanf("%d", &su[i]);
    }

    for(i=0; i<n; i++) {
        for(k=i+1; k<n; k++) {
            if(at[i]>at[k] || (at[i]==at[k] && su[i]>su[k]))
            {
                // swap process ids
                temp=p[i];
                p[i]=p[k];
                p[k]=temp;

                // swap burst times
                temp=bt[i];
                bt[i]=bt[k];
                bt[k]=temp;

                // swap system/user identifiers
                temp=su[i];
                su[i]=su[k];
                su[k]=temp;
```

```c
                swap arrival time
                temp = at[j];
                at[j] = at[k];
                at[k] = temp;
            }
        }
    }

    wtavg = wt[0] = 0;
    tatavg = tat[0] = bt[0];
    ct[0] = at[0] + bt[0];

    for (i = 1; i < n; i++) {
        if (ct[i-1] < at[i]) {
            ct[i] = at[i] + bt[i];
        } else {
            ct[i] = ct[i-1] + bt[i];
        }
        wt[i] = ct[i] - at[i] - bt[i];
        tat[i] = ct[i] - at[i];
        wtavg += wt[i];
        tatavg += tat[i];
    }

    printf("\n process\t\tArrival time\t System/user
    process\tBurst time\t waiting time\t turaround time");

    for (i = 0; i < n; i++) {
        printf("\n%d\t | t | t | d | t | t | d | t | t | d,
        p[i], at[i], sy[i], bt[i], wt[i], sa[i]);
    }

    printf("\n Average waiting time is --%f", wtavg/n);
    printf("\n Average turaroundtime is ---%f", tatavg/n);
}
```

Output:

| Process | Arrival time | userprocess | BT | WT |
|---------|-------------|-------------|-----|-----|
| 0 | 0 | 1 2 | 0 | 1 |
| 1 | 0 | | 1 | 3 |
| 2 | 0 | 1 | 3 | 8 |
| 3 | 0 | 2 | 8 | 9 |

Average waiting time is 3MS
Average Turnaround time is 5.25MS.

Sun
6/6/24 .