Operating Systems – Lab#3 SOLUTIONS

```c
/* ROUND ROBIN ALGORITHM*/
#include<stdio.h>
main()
{
    int i, j, n, bu[10], wa[10], tat[10], t, ct[10], max;
    float awt = 0, att = 0, temp = 0;

    printf("Enter the no of processes -- ");
    scanf_s("%d", &n);
    for (i = 0; i < n; i++)
    {
        printf("\nEnter Burst Time for process %d -- ", i + 1);
        scanf_s("%d", &bu[i]);
        ct[i] = bu[i];
    }
    printf("\nEnter the size of time slice -- ");
    scanf_s("%d", &t);
    max = bu[0];
    for (i = 1; i < n; i++)
        if (max < bu[i])
            max = bu[i];
    for (j = 0; j < (max / t) + 1; j++)
        for (i = 0; i < n; i++)
            if (bu[i] != 0)
                if (bu[i] <= t) {
                    tat[i] = temp + bu[i];
                    temp = temp + bu[i];
                    bu[i] = 0;
                }
                else {
                    bu[i] = bu[i] - t;
                    temp = temp + t;
                }
    for (i = 0; i < n; i++) {
        wa[i] = tat[i] -
            ct[i]; att += tat[i];
        awt += wa[i];
    }
    printf("\nThe Average Turnaround time is -- %f", att / n);
    printf("\nThe Average Waiting time is -- %f ", awt / n);
    printf("\n\tPROCESS\t BURST TIME \t WAITING TIME\tTURNAROUND TIME\n");
    for (i = 0; i < n; i++)
        printf("\t%d \t %d \t\t %d \t\t %d \n", i + 1, ct[i], wa[i], tat[i]);

}
```

```
Microsoft Visual Studio Debug Console
Enter the no of processes -- 4

Enter Burst Time for process 1 -- 25

Enter Burst Time for process 2 -- 45

Enter Burst Time for process 3 -- 82

Enter Burst Time for process 4 -- 34

Enter the size of time slice -- 40

The Average Turnaround time is -- 123.500000
The Average Waiting time is -- 77.000000
        PROCESS  BURST TIME      WAITING TIME    TURNAROUND TIME
        1        25              0               25
        2        45              99              144
        3        82              104             186
        4        34              105             139
```

Operating Systems – Lab#3 SOLUTIONS

```c
/* PRIORITY ALGORITHM */
#include<stdio.h>
int main()
{
    int p[20], bt[20], pri[20], wt[20], tat[20], i, k, n, temp;
    float wtavg, tatavg;
    //cls();
    printf("Enter the number of processes --- ");
    scanf_s("%d", &n);
    for (i = 0; i < n; i++) {
        p[i] = i;
        printf("Enter the Burst Time & Priority of Process %d --- ", i);
        scanf_s("%d %d", &bt[i], &pri[i]);
    }
    for (i = 0; i < n; i++)
        for (k = i + 1; k < n; k++)
            if (pri[i] > pri[k]) {
                temp = p[i];
                p[i] = p[k];
                p[k] = temp;
                temp = bt[i];
                bt[i] = bt[k];
                bt[k] = temp;
                temp = pri[i];
                pri[i] = pri[k];
                pri[k] = temp;
            }
    wtavg = wt[0] = 0;
    tatavg = tat[0] = bt[0];
for (i = 1; i < n; i++)
{
    wt[i] = wt[i - 1] + bt[i - 1];
    tat[i] = tat[i - 1] + bt[i];
    wtavg = wtavg + wt[i];
    tatavg = tatavg + tat[i];
}
printf("\nPROCESS\t\tPRIORITY\tBURST TIME\tWAITING TIME\tTURNAROUND TIME");
for (i = 0; i < n; i++)
    printf("\n%d \t\t %d \t\t %d \t\t %d \t\t %d ", p[i], pri[i], bt[i], wt[i], tat[i]);
printf("\nAverage Waiting Time is --- %f", wtavg / n); printf("\nAverage Turnaround Time is-- - % f", tatavg / n);

}
```

```
Microsoft Visual Studio Debug Console
Enter the number of processes --- 5
Enter the Burst Time & Priority of Process 0 --- 10
3
Enter the Burst Time & Priority of Process 1 --- 1
1
Enter the Burst Time & Priority of Process 2 --- 2
4
Enter the Burst Time & Priority of Process 3 --- 1
5
Enter the Burst Time & Priority of Process 4 --- 5
2

PROCESS         PRIORITY        BURST TIME      WAITING TIME    TURNAROUND TIME
1                1              1               0               1
4                2              5               1               6
0                3              10              6               16
2                4              2               16              18
3                5              1               18              19
Average Waiting Time is --- 8.200000
Average Turnaround Time is-- -  12.000000
```