OPERATING SYSTEM - CS23431

EXP 6(B)

SHORTEST JOB FIRST

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PROGRAM:

```c
#include <stdio.h>

int main() {
    int n, totalwt = 0, totaltat = 0;

    printf("Enter number of processes: \n");
    scanf("%d", &n);

    int p[n], at[n], bt[n], ct[n], tat[n], wt[n];

    printf("Enter process numbers: \n");
    for (int i = 0; i < n; i++) {
        scanf("%d", &p[i]);
    }

    printf("Enter arrival times: \n");
    for (int i = 0; i < n; i++) {
        scanf("%d", &at[i]);
    }

    printf("Enter burst times: \n");
    for (int i = 0; i < n; i++) {
        scanf("%d", &bt[i]);
    }

    int temp;
    for (int i = 0; i < n - 1; i++) {
        for (int j = i + 1; j < n; j++) {
            if ((bt[j] < bt[i]) || (bt[j] == bt[i] && at[j] < at[i])) {
                temp = at[i];
                at[i] = at[j];
```

```c
            at[j] = temp;

            temp = bt[i];
            bt[i] = bt[j];
            bt[j] = temp;

            temp = p[i];
            p[i] = p[j];
            p[j] = temp;
        }
    }
}

ct[0] = at[0] + bt[0];
for (int i = 1; i < n; i++) {
    if (at[i] > ct[i - 1]) {
        ct[i] = at[i] + bt[i];
    } else {
        ct[i] = ct[i - 1] + bt[i];
    }
}

for (int i = 0; i < n; i++) {
    tat[i] = ct[i] - at[i];
    totaltat += tat[i];

    wt[i] = tat[i] - bt[i];
    totalwt += wt[i];
}

printf("P\tAT\tBT\tCT\tTAT\tWT\n");
for (int i = 0; i < n; i++) {
    printf("%d\t%d\t%d\t%d\t%d\t%d\n", p[i], at[i], bt[i], ct[i], tat[i], wt[i]);
}

printf("Average waiting time: %.1f\n", (float)(totalwt) / n);
printf("Average turnaround time: %.1f\n", (float)(totaltat) / n);

return 0;
}
```

OUTPUT:

```
Enter number of processes:
5
Enter process numbers:
1
2
3
4
5
Enter arrival times:
0
1
2
3
4
Enter burst times:
4
3
1
2
6
P        AT        BT        CT        TAT       WT
3        2         1         3         1         0
4        3         2         5         2         0
2        1         3         8         7         4
1        0         4         12        12        8
5        4         6         18        14        8
Average waiting time: 4.0
Average turnaround time: 7.2
```