

OPERATING SYSTEM - CS23431
EXP 6(b)
SJF

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PROGRAM:

```
#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];
                at[j] = temp;

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

    for (int i = 0; i < n; i++) {
        totalwt += bt[i];
        totaltat += at[i] + bt[i];
    }

    printf("Average waiting time: %d\n", totalwt / n);
    printf("Average turnaround time: %d\n", totaltat / n);
}
```

```

        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