OS ALGORITHM

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```
1.#include<stdio.h>
 int main()
{
    int bt[20],p[20],wt[20],tat[20],i,j,n,total=0,pos,temp;
    float avg_wt,avg_tat;
    printf("Enter number of process:");
    scanf("%d",&n);

    printf("\nEnter Burst Time:n");
    for(i=0;i<n;i++)
    {
        printf("p%d:\n",i+1);
        scanf("%d",&bt[i]);
        p[i]=i+1;
    }

   //sorting of burst times
    for(i=0;i<n;i++)
    {
        pos=i;
        for(j=i+1;j<n;j++)
        {
            if(bt[j]<bt[pos])
                pos=j;
        }

        temp=bt[i];
        bt[i]=bt[pos];
        bt[pos]=temp;

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

    wt[0]=0;
```

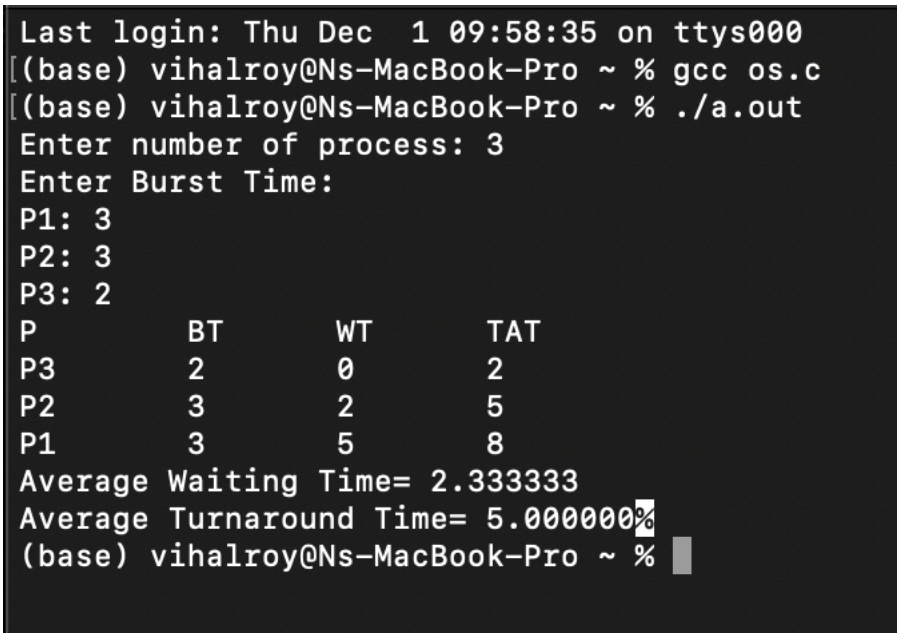
```
    for(i=1;i<n;i++)
    {
        wt[i]=0;
        for(j=0;j<i;j++)
            wt[i]+=bt[j];

        total+=wt[i];
    }

    avg_wt=(float)total/n;
    total=0;

    printf("\nProcess\tBurst Time\tWaitTime\tTurnaround Time");
    for(i=0;i<n;i++)
    {
        tat[i]=bt[i]+wt[i];
        total+=tat[i];
        printf("\np%d\t\t  %d\t\t    %d\t\t%d",p[i],bt[i],wt[i],tat[i]);
    }

    avg_tat=(float)total/n;
    printf("\n\nAverage Waiting Time=%f",avg_wt);
    printf("\nAverage Turnaround Time=%f\n",avg_tat);
}
```



```
2.#include <stdio.h>
int main()
{
    int pid[15];
    int bt[15];
    int n;
    printf("Enter the number of processes: ");
    scanf("%d",&n);

    printf("Enter process id of all the processes: ");
    for(int i=0;i<n;i++)
    {
        scanf("%d",&pid[i]);
    }

    printf("Enter burst time of all the processes: ");
    for(int i=0;i<n;i++)
    {
        scanf("%d",&bt[i]);
    }

    int i, wt[n];
    wt[0]=0;

    //for calculating waiting time of each process
    for(i=1; i<n; i++)
    {
        wt[i]= bt[i-1]+ wt[i-1];
    }


    float twt=0.0;
    float tat= 0.0;
    for(i=0; i<n; i++)
    {
        printf("Process:%d\n", pid[i]);

        printf("burst time:%d\n", bt[i]);
        printf("waiting time:%d\n", wt[i]);
```

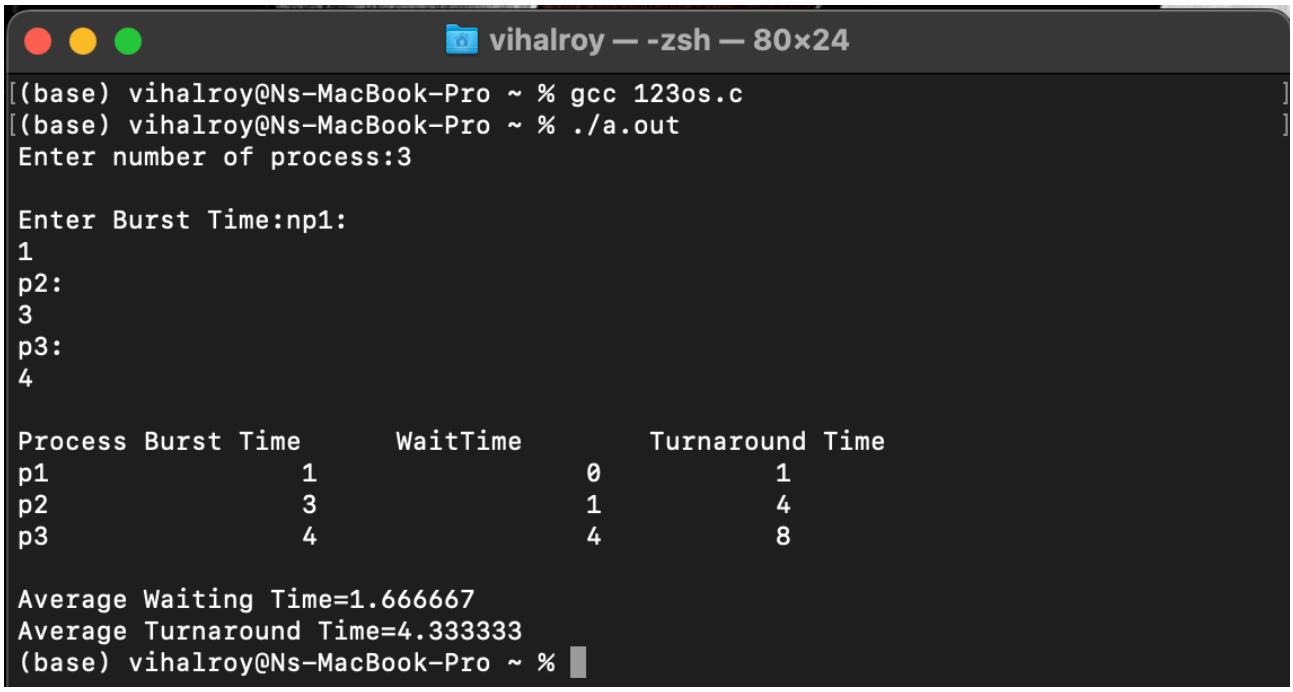
```
        //calculating and printing turnaround time of each process
        printf("turnaround time:%d\n", bt[i]+wt[i]);
        printf("\n");

        //for calculating total waiting time
        twt += wt[i];

        //for calculating total turnaround time
        tat += (wt[i]+bt[i]);
    }
    float att,awt;

    //for calculating average waiting time
    awt = twt/n;

    //for calculating average turnaround time
    att = tat/n;
    printf("Avg. waiting time= %f\n",awt);
    printf("Avg. turnaround time= %f",att);
}
```



```
3.#include <stdio.h>
int main()
{
	int A[100][4]; // Matrix for storing Process Id, Burst
				// Time, Average Waiting Time & Average
				// Turn Around Time.
	int i, j, n, total = 0, index, temp;
	float avg_wt, avg_tat;
	printf("Enter number of process: ");
	scanf("%d", &n);
	printf("Enter Burst Time:\n");
	// User Input Burst Time and alloting Process Id.
	for (i = 0; i < n; i++) {
		printf("P%d: ", i + 1);
		scanf("%d", &A[i][1]);
		A[i][0] = i + 1;
	}
	// Sorting process according to their Burst Time.
	for (i = 0; i < n; i++) {
		index = i;
		for (j = i + 1; j < n; j++)
			if (A[j][1] < A[index][1])
				index = j;
		temp = A[i][1];
		A[i][1] = A[index][1];
		A[index][1] = temp;

		temp = A[i][0];
		A[i][0] = A[index][0];
		A[index][0] = temp;
	}
	A[0][2] = 0;
	// Calculation of Waiting Times
	for (i = 1; i < n; i++) {
		A[i][2] = 0;
		for (j = 0; j < i; j++)
			A[i][2] += A[j][1];
		total += A[i][2];
	}
	avg_wt = (float)total / n;
```

```
        total = 0;
        printf("P    BT    WT    TAT\n");
        // Calculation of Turn Around Time and printing the
        // data.
        for (i = 0; i < n; i++) {
                A[i][3] = A[i][1] + A[i][2];
                total += A[i][3];
                printf("P%d      %d   %d   %d\n", A[i][0],
                        A[i][1], A[i][2], A[i][3]);
        }
        avg_tat = (float)total / n;
        printf("Average Waiting Time= %f",avg_wt);
        printf("\nAverage Turnaround Time= %f",avg_tat);
}
```