EXPERIMENT - 4

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CODE-

```cpp
#include <bits/stdc++.h>
using namespace std;

int main(){

    int n;
    cout<<"Enter the Number of Processes: ";
    cin>>n;

    int at[n],bt[n],rt[n],wt[n],tat[n];

    vector<int> ct;

    //Arrival Time

    for(int i=0;i<n;i++){
        cin>>at[i];
    }

    //Burst Time

    for(int i=0;i<n;i++){
        cin>>bt[i];
        rt[i]=bt[i];
    }

    //Store the AT and BT of all process together

    vector<pair<int,pair<int,int>>> v;
    for(int i=0;i<n;i++){
        v.push_back({i+1,{at[i],bt[i]}});
    }

    int complete = 0, time = 0, mini = INT_MAX;
    int index = 0;
    bool check = false;
```

```
    //check until all the prcess gets executed

    while(complete!=n){
        for(int i=0;i<n;i++){
            if(v[i].second.first<=time && rt[i]<mini && rt[i]>0){
                mini = rt[i];
                index = i;
                check = true;
            }
        }

        if(check==false){
            time++;
            continue;
        }

        rt[index]--;

        if(rt[index]==0){
            mini = INT_MAX;
            complete++;
            check = false;

            ct.push_back(time+1);

            wt[index] = time+1-v[index].second.first-v[index].second.second;

            if(wt[index]<0){
                wt[index]=0;
            }
        }
        time++;
    }

    for(int i=0;i<n;i++){
        tat[i] = v[i].second.second + wt[i];
    }

    cout << " P\t\t" << "BT\t\t" << "WT\t\t" << "TAT\t\t\n";

    int total_wt=0,total_tat=0;

    for(int i=0;i<n;i++){
        total_wt += wt[i];
        total_tat += tat[i];

        cout<<v[i].first<<"\t\t"<<v[i].second.second<<"\t\t"<<wt[i]<<"\t\t"<<t
at[i]<<endl;
```

```
    }

    cout << "\nAverage waiting time = " << (float)total_wt / (float)n;
    cout << "\nAverage turn around time = " << (float)total_tat / (float)n;

    return 0;
}
```

Output -

```
PS C:\Users\sinha\Desktop\PROGRAMMING> cd "c:\Users\sinha\Desktop\PR
nnerFile.cpp -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFil
Enter the Number of Processes: 4
0 15 30 45
20 25 10 15
 P              BT              WT              TAT
1               20              0               20
2               25              15              40
3               10              0               10
4               15              10              25

Average waiting time = 6.25
Average turn around time = 23.75
PS C:\Users\sinha\Desktop\PROGRAMMING\C++ PROGRAMMING>
```