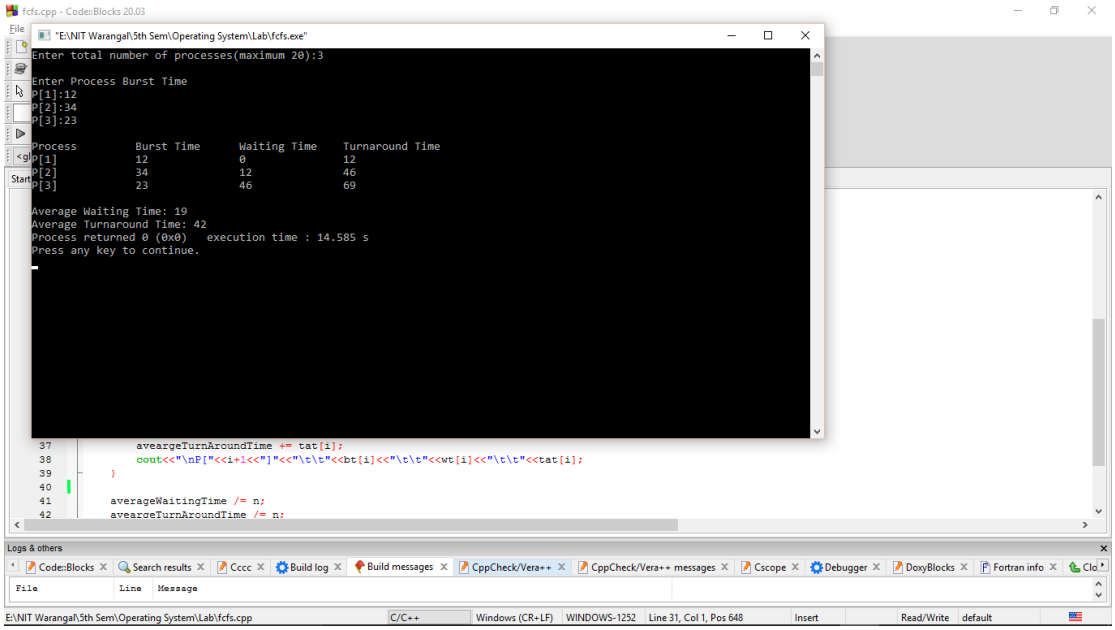
1. First come first serve (FCFS)

Code:

```
#include<iostream>
using namespace std;

int main()
{
	int n, bt[20], wt[20], tat[20], averageWaitingTime = 0,
aveargeTurnAroundTime = 0;
	cout<<"Enter total number of processes(maximum 20):";
	cin>>n;

	cout<<"\nEnter Process Burst Time\n";
	for(int i=0;i<n;i++)
	{
		cout<<"P["<<i+1<<"]:";
		cin>>bt[i];
	}

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

	cout<<"\nProcess\t\tBurst Time\tWaiting
Time\tTurnaround Time";


	//calculating turnaround time
	for(int i=0;i<n;i++)
```

```
        {
                tat[i] = bt[i] + wt[i];
                averageWaitingTime += wt[i];
                aveargeTurnAroundTime += tat[i];

cout<<"\nP["<<i+1<<"]"<<"\t\t"<<bt[i]<<"\t\t"<<wt[i]<<"\t\t"<
<tat[i];
        }

        averageWaitingTime /= n;
        aveargeTurnAroundTime /= n;
        cout<<"\n\nAverage Waiting Time:
"<<averageWaitingTime;
        cout<<"\nAverage Turnaround Time:
"<<aveargeTurnAroundTime;
        return 0;
}
```

Output:



2. Priority Scheduling

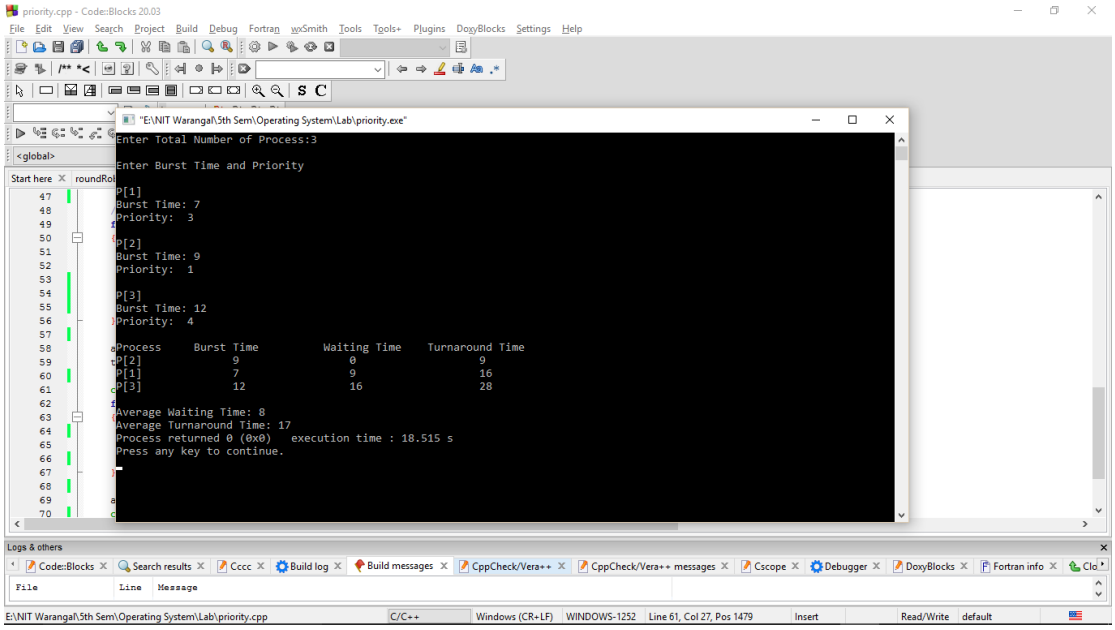
Code:

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

```
struct process{
	int burstTime;
	int priority;
	int process_number;
};
typedef struct process *prc;
bool comp(prc A, prc B)
{
	return A->priority < B->priority;
}
int main()
{
	int n;
	cout<<"Enter Total Number of Process:";
	cin>>n;
	vector<prc>vec;
	cout<<"\nEnter Burst Time and Priority\n";
	for(int i=0;i<n;i++)
	{
		int a, b;
		cout<<"\nP["<<i+1<<"]\n";
		cout<<"Burst Time: ";
		cin>>a;
		cout<<"Priority:    ";
		cin>>b;
		prc p = new process;
		p->burstTime = a;
		p->priority = b;
		p->process_number = i + 1;
		vec.push_back(p);
				//contains process number
	}
	// less number, higher priority
	sort(vec.begin(), vec.end(), comp);
```

```
	int wt[n], tat[n];
	wt[0]=0;
	int total = 0, pos, temp, avg_wt, avg_tat, i, j;
//waiting time for first process is zero

	for(i=1;i<n;i++)
	{
		wt[i]=0;
		for(j=0;j<i;j++)
			wt[i] += vec[j]->burstTime;

		total += wt[i];
	}

	avg_wt = total/n;
	total = 0;

	cout<<"\nProcess\t	Burst Time	\tWaiting
Time\tTurnaround Time";
	for(i=0;i<n;i++)
	{
		tat[i] = vec[i]->burstTime + wt[i];
		total += tat[i];
		cout<<"\nP["<<vec[i]->process_number<<"]\t\t
"<<vec[i]->burstTime<<"\t\t	"<<wt[i]<<"\t\t\t"<<tat[i];
	}

	avg_tat = total/n;		//average turnaround time
	cout<<"\n\nAverage Waiting Time: "<<avg_wt;
	cout<<"\nAverage Turnaround Time: "<<avg_tat;

	return 0;
}
```

Output:



3. Shortest Job First

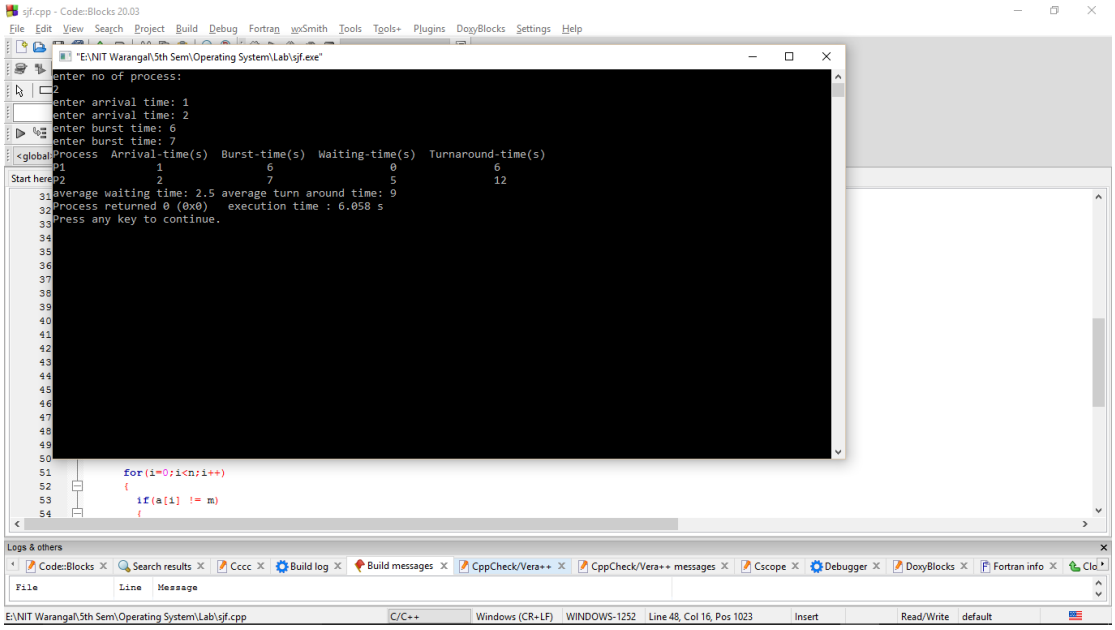
Code:

```
#include<iostream>
using namespace std;
int main()
{
        int n, temp, tt = 0, m, d = 0, i, j;
        float atat = 0, awt = 0, stat = 0, swt = 0;

        cout<<"enter no of process:"<<endl;
        cin>>n;
        int a[n], b[n], e[n], tat[n], wt[n];

        for(i=0;i<n;i++)
        {
                cout<<"enter arrival time: ";
                cin>>a[i];
        }
        for(i=0;i<n;i++)
        {
```

```
            cout<<"enter burst time: ";
            cin>>b[i];
}

for(i=0;i<n;i++)
{
      for(j=i+1;j<n;j++){
            if(b[i] > b[j])
            {
                  temp = a[i];
                  a[i] = a[j];
                  a[j] = temp;
                  temp = b[i];
                  b[i] = b[j];
                  b[j] = temp;
            }
    }
}
m = a[0];
for(i=0;i<n;i++)
{
            if(m > a[i])
            {
                  cout<<"hi";
                  m = a[i];
                  d = i;
            }
}
tt = m;
e[d] = tt + b[d];
tt = e[d];

for(i=0;i<n;i++)
{
    if(a[i] != m)
```

```
            {
                e[i] = b[i] + tt;
                tt = e[i];
            }
        }
        for(i=0;i<n;i++)
        {
            tat[i] = e[i] - a[i];
            stat = stat + tat[i];
            wt[i] = tat[i] - b[i];
            swt = swt + wt[i];
        }
        atat = stat/n;
        awt = swt/n;
        cout<<"Process    Arrival-time(s)    Burst-time(s)
Waiting-time(s)    Turnaround-time(s)\n";

    for(i=0;i<n;i++)
    {
    cout<<"P"<<i+1<<"                    "<<a[i]<<"
"<<b[i]<<"                    "<<wt[i]<<"
"<<tat[i]<<endl;
    }

    cout<<"average waiting time: "<<awt<<" average turn
around time: "<<atat;
    return 0;
}
```

Output:



4. Round Robin Algorithm

Code:

```
#include<iostream>
using namespace std;

// Function to find the waiting time for all
void findWaitingTime(int processes[], int n, int bt[], int wt[], int quantum)
{
    int rem_bt[n];
    for (int i = 0 ; i < n ; i++)
        rem_bt[i] = bt[i];

    int t = 0; // Current time
    while (1) {
        bool done = true;
        for (int i = 0 ; i < n; i++)
        {
            if (rem_bt[i] > 0)
            {
                done = false; // There is a pending process
                if (rem_bt[i] > quantum)
```

```
                {
                    t += quantum;
                    rem_bt[i] -= quantum;
                }
                else
                {
                    t = t + rem_bt[i];
                    wt[i] = t - bt[i];
                    rem_bt[i] = 0;
                }
            }
        }
        if (done == true)
        break;
    }
}

// Function to calculate turn around time
void findTurnAroundTime(int processes[], int n, int bt[], int wt[],
int tat[])
{
    for (int i = 0; i < n ; i++)
        tat[i] = bt[i] + wt[i];
}

// Function to calculate average time
void findavgTime(int processes[], int n, int bt[], int quantum)
{
    int wt[n], tat[n], total_wt = 0, total_tat = 0;
    findWaitingTime(processes, n, bt, wt, quantum);
    findTurnAroundTime(processes, n, bt, wt, tat);
    cout << "Processes "<< " Burst time "
        << " Waiting time " << " Turn around time\n";

    for (int i=0; i<n; i++)
```

```
    {
        total_wt = total_wt + wt[i];
        total_tat = total_tat + tat[i];
        cout << " " << i+1 << "\t\t" << bt[i] <<"\t "<< wt[i] <<"\t\t
" << tat[i] <<endl;
    }
    cout << "Average waiting time = "<< (float)total_wt /
(float)n;
    cout << "\nAverage turn around time = "<< (float)total_tat /
(float)n;
}
int main()
{
    int processes[] = { 4, 5, 6};
    int n = sizeof processes / sizeof processes[0];
    int burst_time[] = {10, 15, 20};
    int quantum = 3;
    findavgTime(processes, n, burst_time, quantum);
    return 0;
}
```

Output: