**Lab Assignment 5 Aim: To create C programs for the different scheduling algorithms.**

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**1. First Come First Serve (FCFS)**

#include <stdio.h>

int main() {

int n, i;

int bt[20], wt[20], tat[20];

float avg\_wt = 0, avg\_tat = 0;

printf("Enter number of processes: ");

scanf("%d", &n);

printf("Enter burst time for each process:\n");

for (i = 0; i < n; i++) {

printf("P%d: ", i + 1);

scanf("%d", &bt[i]);

}

wt[0] = 0;

for (i = 1; i < n; i++)

wt[i] = wt[i - 1] + bt[i - 1];

for (i = 0; i < n; i++) {

tat[i] = wt[i] + bt[i];

avg\_wt += wt[i];

avg\_tat += tat[i];

}

avg\_wt /= n;

Name – Abhinav Bagri

Roll no. – 23I4102

avg\_tat /= n;

printf("\nProcess\tBT\tWT\tTAT\n");

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

printf("P%d\t%d\t%d\t%d\n", i + 1, bt[i], wt[i], tat[i]);

printf("\nAverage Waiting Time: %.2f", avg\_wt);

printf("\nAverage Turnaround Time: %.2f\n", avg\_tat);

return 0;

}

**2. Shortest Job First (SJF)**

#include <stdio.h>

int main() {

int n, bt[20], p[20], wt[20], tat[20], i, j, temp;

float avg\_wt = 0, avg\_tat = 0;

printf("Enter number of processes: ");

scanf("%d", &n);

for (i = 0; i < n; i++) {

printf("Enter burst time for P%d: ", i + 1);

scanf("%d", &bt[i]);

p[i] = i + 1;

}

Name – Abhinav Bagri

Roll no. – 23I4102

for (i = 0; i < n; i++) {

for (j = i + 1; j < n; j++) {

if (bt[i] > bt[j]) {

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

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

}

}

}

wt[0] = 0;

for (i = 1; i < n; i++)

wt[i] = wt[i - 1] + bt[i - 1];

for (i = 0; i < n; i++) {

tat[i] = wt[i] + bt[i];

avg\_wt += wt[i];

avg\_tat += tat[i];

}

avg\_wt /= n;

avg\_tat /= n;

printf("\nProcess\tBT\tWT\tTAT\n");

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

printf("P%d\t%d\t%d\t%d\n", p[i], bt[i], wt[i], tat[i]);

printf("\nAverage Waiting Time: %.2f", avg\_wt);

Name – Abhinav Bagri

Roll no. – 23I4102

printf("\nAverage Turnaround Time: %.2f\n", avg\_tat);

return 0;

}

**3. Round Robin Scheduling**

#include <stdio.h>

int main() {

int i, n, time, remain, tq;

int wt = 0, tat = 0, bt[10], rt[10];

printf("Enter number of processes: ");

scanf("%d", &n);

remain = n;

for (i = 0; i < n; i++) {

printf("Enter Burst Time for P%d: ", i + 1);

scanf("%d", &bt[i]);

rt[i] = bt[i];

}

printf("Enter Time Quantum: ");

scanf("%d", &tq);

int t = 0;

printf("\nProcess\tTurnaround Time\tWaiting Time\n");

while (remain != 0) {

Name – Abhinav Bagri

Roll no. – 23I4102

for (i = 0; i < n; i++) {

if (rt[i] > 0) {

if (rt[i] > tq) {

t += tq;

rt[i] -= tq;

} else {

t += rt[i];

printf("P%d\t%d\t\t%d\n", i + 1, t, t - bt[i]);

wt += t - bt[i];

tat += t;

rt[i] = 0;

remain--;

}

}

}

}

printf("\nAverage Waiting Time = %.2f", (float)wt / n);

printf("\nAverage Turnaround Time = %.2f\n", (float)tat / n);

return 0;

}