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**Aim -**  Implementation of Shortest job first scheduling Algorithm.

**Program :-**

import java.util.\*;

class Sjf {

static int[][] matrix = new int[10][6];

static void arrangeArrivalValue(int num, int[][] matrix) {

for (int i = 0; i < num; i++) {

for (int j = 0; j < num - i - 1; j++) {

if (matrix[j][1] > matrix[j + 1][1]) {

for (int k = 0; k < 5; k++) {

int temp = matrix[j][k];

matrix[j][k] = matrix[j + 1][k];

matrix[j + 1][k] = temp;

}

}

}

}

}

static void completionTime(int num, int[][] matrix) {

int temp, value = -1;

matrix[0][3] = matrix[0][1] + matrix[0][2];

matrix[0][5] = matrix[0][3] - matrix[0][1];

matrix[0][4] = matrix[0][5] - matrix[0][2];

for (int i = 1; i < num; i++) {

temp = matrix[i - 1][3];

int low = matrix[i][2];

for (int j = i; j < num; j++) {

if (temp >= matrix[j][1] && low >= matrix[j][2]) {

low = matrix[j][2];

value = j;

}

}

matrix[value][3] = temp + matrix[value][2];

matrix[value][5] = matrix[value][3] - matrix[value][1];

matrix[value][4] = matrix[value][5] - matrix[value][2];

for (int k = 0; k < 6; k++) {

int tem = matrix[value][k];

matrix[value][k] = matrix[i][k];

matrix[i][k] = tem;

}

}

}

public static void main(String[] args) {

int num;

Scanner sc = new Scanner(System.in);

System.out.println("Enter number of Process: ");

num = sc.nextInt();

for (int i = 0; i < num; i++) {

System.out.println("...Process " + (i + 1) + "...");

System.out.println("Enter Process Id: ");

matrix[i][0] = sc.nextInt();

System.out.println("Enter Arrival Time: ");

matrix[i][1] = sc.nextInt();

System.out.println("Enter Burst Time: ");

matrix[i][2] = sc.nextInt();

}

System.out.println("Before Arrange...");

System.out.println("Process ID\tArrivalTime\tBurst Time");

for (int i = 0; i < num; i++) {

System.out.printf("%d\t\t%d\t\t%d\n",

matrix[i][0], matrix[i][1], matrix[i][2]);

}

arrangeArrivalValue(num, matrix);

completionTime(num, matrix);

System.out.println("Final Result...");

System.out.println("Process ID\tArrival Time\tBurst" +

" Time\tWaiting Time\tTurnaround Time");

for (int i = 0; i < num; i++) {

System.out.printf("%d\t\t%d\t\t%d\t\t%d\t\t%d\n",

matrix[i][0], matrix[i][1], matrix[i][2], matrix[i][4], matrix[i][5]);

}

}

}

**Output:-**

Enter number of Process:

4

...Process 1...

Enter Process Id:

1

Enter Arrival Time:

0

Enter Burst Time:

8

...Process 2...

Enter Process Id:

2

Enter Arrival Time:

1

Enter Burst Time:

1

...Process 3...

Enter Process Id:

3

Enter Arrival Time:

3

Enter Burst Time:

4

...Process 4...

Enter Process Id:

4

Enter Arrival Time:

4

Enter Burst Time:

2

Before Arrange...

Process ID ArrivalTime Burst Time

1 0 8

2 1 1

3 3 4

4 4 2

Final Result...

Process ID Arrival Time Burst Time Waiting Time Turnaround Time

1 0 8 0 8

2 1 1 7 8

4 4 2 5 7

3 3 4 8 12