Report on Innovative Assignment

Data Structure and Algorithms

Topic:

Job Scheduling

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Contents:

Introduction :

We created a job scheduling programme for this project. Here, we'll accept the manager's decision on the precise time he wants to schedule the job. Then, based on the employees availability , our programme will accept those free time slots of the employee and give them work time for a particular time slot on hourly basis. The entire job scheduling task with the employee's name and the time slot given as a part of their job is displayed at the of the programme.

The Job schedule can be created by our programme, in two different ways. One in which the job is scheduled in a way that the maximum number of workers possible are given the job. This is effective when the number of workers is fixed and the task must be distributed so that each worker is given the same amount of work to complete and all the employees experience the same workload.

Secondly, our programme will be able to create the job schedule so that the task is assigned to the minimum number of employees possible. This is helpful when the new employees are to work for a certain company so they can do their work by hiring a small number of people.

To execute all this we have used various data structures linked lists. Priority queue, concept of pointers etc. We have made our program using the C **language.**

Features used :

- Linked list
- Concept of priority Queue
- User Defined function
- Concept of pointers
- Basis selection and case function of “C”
- Use of labels

Execution:

1.Requirement of Manager:

```
JOB Scheduling Programm..

Manager..

Enter Starting Time:-
choose  1. to enter from AM
        2. to enter from PM..
What to do:1

Enter in AM : 7


Enter End Time:-
choose  1. to enter from AM
        2. to enter from PM..
What to do:2

Enter in PM : 6

ENTER
1 to Add the details of the employee
2 to Generate the schedule for the job with minimum employees
3 to Generate the schedule for the job with maximum employees
4 to Exit
1

ENTER
Enter the name of the employee
Keyaba Gohil
Enter 1: If the time is specific
        0:if the time is not specific1
```

```
ENTER
Enter the name of the employee
Keyaba Gohil
Enter 1: If the time is specific
        0:if the time is not specific1

Enter the starting hours
1.to enter in am
2.to enter in pm1
9

Enter the end hours
1.to enter in am
2.to enter in pm1
10
```

```
ENTER
1 to Add the details of the employee
2 to Generate the schedule for the job with minimum employees
3 to Generate the schedule for the job with maximum employees
4 to Exit
3
The list of employees employed are as follows:
Time slot                                                Employee name:
7 a.m   to 8 a.m                                         ------------
8 a.m   to 9 a.m                                         ------------
9 a.m   to 10 a.m                                        Keyaba Gohil
10 a.m   to 11 a.m                                       ------------
11 a.m   to 12 noon                                      ------------
12 noon to 1 p.m                                         ------------
1 p.m   to 2 p.m                                         ------------
2 p.m   to 3 p.m                                         ------------
3 p.m   to 4 p.m                                         ------------
4 p.m   to 5 p.m                                         ------------
5 p.m   to 6 p.m                                         ------------
```

```
ENTER
1 to Add the details of the employee
2 to Generate the schedule for the job with minimum employees
3 to Generate the schedule for the job with maximum employees
4 to Exit
1

ENTER
Enter the name of the employee
Tanmay
Enter 1: If the time is specific
        0:if the time is not specific1

Enter the starting hours
1.to enter in am
2.to enter in pm1
9

Enter the end hours
1.to enter in am
2.to enter in pm1
12
```

```
ENTER
1 to Add the details of the employee
2 to Generate the schedule for the job with minimum employees
3 to Generate the schedule for the job with maximum employees
4 to Exit
3
The list of employees employed are as follows:
Time slot                                                Employee name:
7 a.m   to 8 a.m                                         ------------
8 a.m   to 9 a.m                                         ------------
9 a.m   to 10 a.m                                        Keyaba Gohil
10 a.m   to 11 a.m                                       Tanmay
11 a.m   to 12 noon                                      Tanmay
12 noon to 1 p.m                                         ------------
1 p.m   to 2 p.m                                         ------------
2 p.m   to 3 p.m                                         ------------
3 p.m   to 4 p.m                                         ------------
4 p.m   to 5 p.m                                         ------------
5 p.m   to 6 p.m                                         ------------

ENTER
1 to Add the details of the employee
2 to Generate the schedule for the job with minimum employees
3 to Generate the schedule for the job with maximum employees
4 to Exit
2
The list of employees employed are as follows:
Time slot                                                Employee name:
7 a.m   to 8 a.m                                         ------------
8 a.m   to 9 a.m                                         ------------
9 a.m   to 10 a.m                                        Tanmay
10 a.m   to 11 a.m                                       Tanmay
11 a.m   to 12 noon                                      Tanmay
12 noon to 1 p.m                                         ------------
1 p.m   to 2 p.m                                         ------------
2 p.m   to 3 p.m                                         ------------
3 p.m   to 4 p.m                                         ------------
```

```
4 p.m   to 5 p.m                                        -------------
5 p.m   to 6 p.m                                        -------------

ENTER
1 to Add the details of the employee
2 to Generate the schedule for the job with minimum employees
3 to Generate the schedule for the job with maximum employees
4 to Exit
1

ENTER
Enter the name of the employee
Harsh
Enter 1: If the time is specific
        0:if the time is not specific0
Number of hours of sevice
5
```

```
ENTER
1 to Add the details of the employee
2 to Generate the schedule for the job with minimum employees
3 to Generate the schedule for the job with maximum employees
4 to Exit
3
The list of employees employed are as follows:
Time slot                                                Employee name:
7 a.m   to 8 a.m                                         Harsh
8 a.m   to 9 a.m                                         Harsh
9 a.m   to 10 a.m                                        Keyaba Gohil
10 a.m   to 11 a.m                                       Tanmay
11 a.m   to 12 noon                                      Tanmay
12 noon to 1 p.m                                         Harsh
1 p.m   to 2 p.m                                         Harsh
2 p.m   to 3 p.m                                         Harsh
3 p.m   to 4 p.m                                         ------------
4 p.m   to 5 p.m                                         ------------
5 p.m   to 6 p.m                                         ------------

ENTER
1 to Add the details of the employee
2 to Generate the schedule for the job with minimum employees
3 to Generate the schedule for the job with maximum employees
4 to Exit
2
The list of employees employed are as follows:
Time slot                                                Employee name:
7 a.m   to 8 a.m                                         Harsh
8 a.m   to 9 a.m                                         Harsh
9 a.m   to 10 a.m                                        Harsh
10 a.m   to 11 a.m                                       Harsh
11 a.m   to 12 noon                                      Harsh
12 noon to 1 p.m                                         ------------
1 p.m   to 2 p.m                                         ------------
2 p.m   to 3 p.m                                         ------------
3 p.m   to 4 p.m                                         ------------
```

Conclusion:

Through this assignment we aim to learn different aspects of programming, to build an ability that allows us to apply our knowledge of computer and mathematics in problem solving. We also learned to implement different data structures that we learned throughout the semester in our daily life problems.