Schedule Creator

Introduction:

Scheduling is the process of arranging, controlling and optimizing work and workloads in a production process or manufacturing process. Timetabling concerns all activities with regard to producing schedules that must be subjective to different constraints. The problem is to manage a time table of all events of an organization, for any organization scheduling management is a very complex and time consuming task. The organization used the manual way of preparing the schedule. With these problems, the project team will propose a project of creating an automated scheduling system that uses its own algorithm to assign resources in the most efficient and accurate manner. This schedule management system module automatically creates schedules for the events.

Logic:

How to Schedule breaks between events?

Step 1: Input start time,end time,number of event, number of breaks

Step 2: First we calculate total time duration in minutes

total_duration=(end time-start time)*60

Step 3: Then we evenly divided total duration in (number_of_event +1) slots extra 1 is use for total breaks time i.e total break time equal to one_ event_time

Step 4: one_break _time = one_event_time/number_of_breaks

Step 5: Then we arrange breaks between events using the formula

event_scheduled=number_of_event/(break_left+1)

number_of_event=number_of_event-event_schedule

break_left=break_left-1

initially break_left=total_breaks

repeat step 5 until break_left is greater than 0

Step 6: At last schedule all the left events at the end.

Example:

Input:

start_time=09:00 AM
end_time=05:00 PM
no_of_events=10
no_of_breaks=3

total_duration=(5:00 PM - 9:00 AM)*60=480 minutes
one_event_slot_time=480/(10+1)=43(approx)
one_break_time=43/3=14(approx)

while(no_of_breaks>0)
first iteration:
event_schedule=10/(3+1)=ceil(2.5)=3
number_of_event=10-3=7
break_left=3-1=2
second iteration:
event_schedule=7/(2+1)=ceil(2.33)=3
number_of_event=7-3=4
break_left=2-1=1
third iteration:
event_schedule=4/(1+1)=ceil(2.0)=2
number_of_event=4-2=2
break_left=1-1=0
number_of_event=2 // left event which are not schedule

Output: E,E, E, B, E, E, E, B, E, E, B, E, E
E=Event
B=Break

Note:Last Break duration can be greater than one_break_duration.

Assumptions:

- ➢ All events are of the same duration.
- ➢ All brakes are of the same duration except the last break.
- ➢ No two breaks will be scheduled back together.
- ➢ Breaks will not be scheduled at the start and end of the schedule.
- ➢ Number of events and breaks should be at least 1.
- ➢ Number of breaks should be less than No of events.

Approach:

For this first we have created a npm package with the help of native javascript with name as schedule_creator_ssd_team_28.

With the help of html and css we integrate schedule_creator_ssd_team_28 library in our project.

Library usage:

We made this project as a public npm library.
How to use this library?

Library Installation

To use our npm package `schedule_creator_ssd_team_28` these are the instructions

```
npm install schedule_creator_ssd_team_28
```

Library Usage

- `create_schedule()` function is exported from the above library.
- Arguments for the above function is an object with start_time, end_time, no_events, breaks, output_format, schedule_name, schedule_date as keys

Demo Instructions

- The demo of using the npm package is present in `frontend_new` folder.

- To run the demo follow these instructions:

```
cd frontend_new
npm install
npm run dev
```

Scope of the project :

Most organizations perform an event schedule management system using the manual processing system. However, the manual processing has its own problems, so the organization requires automatic event scheduling to perform their task efficiently.

➢ System can generate schedules in a csv file.
➢ System can generate schedules in a json file.
➢ We can edit the event name.
➢ We can create multiple day schedules.

Use Case:

Where we can use:
Schedule events and meetings in Organizations.
Schedule class timetable in schools and colleges.
Schedule events for personal use.

Team Members:

1) Abhishek Reddy Gaddam (2022201025)
2) Udrasht Pal (2022201020)
3) Nikhil Khemchandani (2022201042)
4) Vivek Kirpan (2022201071)