BOTSYNC PROGRAMMING CHALLENGE

(CONFIDENTIAL - DO NOT SHARE)

Thanks for applying to our internship program. To proceed to the next round we'll need you to present solutions to the coding challenges below. Please attach the solutions in a zipped file along with any explanation for your work in a README file. Please note that you are allowed to code in any language of your preference. We'll be considering your approach used for the solutions. So try and code neatly! Please send us your solution to recruitment@botsync.sg within **one week**. Happy Coding!

1) TASK ALLOCATION CHALLENGE

Find the minimum time taken for a fleet of robots to complete a list of tasks.

You are given X robots and Y tasks to complete. Each robot takes T units of time to complete 1 task. A robot can only be assigned continuous tasks. So a robot cannot be assigned tasks 1 and 3 without 2. Two robots cannot share one task.

Input:

X -> Number of robots

T -> Time taken to complete one task

Y -> Array representing time requirements of each task.

Output:

Minimum time taken to complete the job

E.g.:

1. INPUT:
   X -> 2
   T -> 5
   Y -> [4,5,10]
   OUTPUT:
   50
   EXPLANATION:
   Assign one robot to the tasks requiring times {4,5} and one robot to the task requiring time {10}
2. INPUT:
   X -> 3
   T -> 10
   Y -> [10,2,3,6,5]
   OUTPUT:
   110
   EXPLANATION:
   Assign one robot to the task of 10, one robot to task of [2,3] and one robot to the task of [6,5]

2) DESIGN CHALLENGE

Design a simple webpage using HTML, CSS and JS integrating the mapbox API(Use the free tier) to display a map. Providing a list of 10 latitude/longitude pairs(Pick any ten pairs of your choice), connect these points with a line. Add an animation to trim the line at every 1 second interval by removing the top most latitude/longitude pair. Add a reset button that resets the line. A sample output is shown in the GIF below.