GPU Programming
Assignment 4
Deadline : July 17, 2022, 23:55

1 Problem Statement

There are N students, K laptops, K is much smaller than N. Each student wants to use a laptop for one unit of time.The arrival time of a particular student is given by A_i where i the index of student. Can we come up with a schedule of 0..N-1 students to use the laptops 0..K-1? Print the total usage for each laptop.

2 Input and Output

2.1 Input

* First line contains N and K (Space separated)
* Next N space separated integers consisting of students
* Next N space separated integers consisting of Arrival time
* 4 2
  0 1 2 3
  0 1 3 4

2.2 Output

* Total usage of k laptop (space separated)

2.3 Constraints

* $2 \leq N \leq 2^{10}$
* $2 \leq K <$N

3 Sample TestCase

* 4 2
  0 1 2 3
  0 1 3 4
  output will be usgae of the given 2 laptops as 4 0

4 Points to be noted

* Do not write any print statements inside the kernel.
* Don't write code having race condition.
* Do not upload anything other than the **full_name.cu** file.

* You are free to use any number of function/kernel.

5 Submission Guidelines

* Submit your file with your **full_name.cu** which contains the implementation of the above-described functionality
* After submission, download the file and make sure it was the one you intended to submit.
* Kindly adhere strictly to the above guidelines.

6 Learning Suggestions

* Write a CPU-version of code achieving the same functionality. Time the CPU code and GPU code separately for large inputs and compare the performances.
* Usage of synchronisation