CS201- Data Structures
Programming Assignment No. 3

Problem 1- Determining compatible set of intervals for media channel

One of the main application of Binary Search Trees are for handling a dynamically changing datasets. This can be very efficient choice for deciding many compatible issues. One of the media channel is looking to decide a non-overlapping intervals for their transmission. Each program from the channel is comprises of a start time, duration and commercial time for the program. For an example an Interval I (start_time, duration, ctime) = (2, 6, 3) implies that the program starts at 2 and can be finish by 11 with commercial time included for on airing the show. The program managers collect all programs information is a single file. There are 5 program managers and each provides program information in a file. All you need to maintain a combine data structures that maintain a non-overlapping compatible set of programs for the channel and maintain a separate file for all those program that are conflicting in time. For example, consider the files from the 2 programs managers:

Program Manager #1	Program Manager #2
5 2 3 2 54 5 2 9 10 1 26 10 4 65 5 4	3 16 4 4 7 5 3 3 3 1

The channel does not want a silent period of transmission and select a program that is close to reduce the silent time.

Compatible Programs	Conflicting programs
2 3 2 7 5 3 16 4 4 26 10 4 54 5 2 65 5 4	3 3 1 9 10 1

You need to maintain a BST for maintaining a set of compatible programs. The searching and finding a conflict in program can be perform in log n time.

Input

The input is provided by a set of files; the processing order can be random order of files. As there are 5 program managers you can have five input files. The convention is A3P1ProgMgr1.txt The first line of each file contains number of programs with three consecutive positive integers.

Output

There will be 2 output files. One with set of all compatible programs in ascending order of start time. Second file contains all conflicting programs again ascending order of start time.