MCS 253P - Lab 8 - ***No need to display case testing in report, but your program should handle various test-cases that may be given!!!***

**Lab 8 - Truck Delivery (100 pts)**

A truck company routinely receives delivery requests for their truck. The truck travels on a straight path and makes deliveries at scheduled times. The company usually receives more requests than is possible for their truck to accommodate. Therefore, they need to determine which deliveries to accept and which not to accept.

Each delivery needs to be made precisely at the scheduled time or there may not be someone to accept it. The different delivery requests have different values. Needless to say, the company wants to maximize their profit.

Design an algorithm that will determine which deliveries the company should accept so that they make the most profit.

Information about the truck's route:

* The truck starts at position 0 and either travels east-bound or west-bound.
  + Positive position values indicate the number of km east-bound the truck needs to travel from the starting position to reach the destination.
  + Negative position values indicate the number of km west-bound the truck needs to travel from the starting position to reach the destination.
* The truck travels at a maximum speed of 100 km/hr.
  + You can assume the truck can travel at this speed for as long as necessary
* For convenience, we will assume any stopping and resting is already accounted for in the speed of the truck. Namely, the truck can travel at an 100 km/hr for as many hours as necessary.

Input:

* the total number of delivery requests, n
* three arrays of size n:
  + time[] - (the scheduled time of each delivery. the time is in hours relative to the starting time of the truck (ie. the truck starts at t=0))
  + position[] - (the position location of each delivery)
  + value[] - (the revenue the company will gain from each delivery)

Output:

* the specific deliveries the truck will make (numbers ranging from 1 to n)
* the total revenue collected by the truck

Example:

input:

n <-- 8

time[] <-- { 1, 4, 4, 7, 8, 10, 11, 12 }

position [] <-- { 100, -400, -100, 500, -400, 700, -200, 200 }

value[] <-- { 800, 9000, 2500, 1000, 2200, 900, 2100, 2000 }

output:

Optimal Deliveries = 2, 5, 7

Total Revenue = 13300