CSCI-2300
Lab 2

January 31, 2007

This lab is related to the Maximum Subsequence Sum problem you learned in class last Friday. Get help from the TAs if you are stuck. Present your completed work to a TA to get your credit for the lab.

Write three different programs to solve the following three problems. You are given an array of integers a[0], a[1], …, a[N-1].

1. A linear time algorithm that finds the minimum subsequence sum.
2. A linear time algorithm that finds the maximum of a[i]+a[j], where i≠j.
3. A linear time algorithm that finds the maximum of a[i]−a[j], where i≠j.

Choose these three sequences for each of your three programs:

1. 2, -3, 4, -4, -2, -3, 7, -6, -4
2. 7, 2, 3, 4, 4, 2, 3, 6, 4
3. -2, -3, -4, -4, -2, -3, -7, -6, -4

Optional: Do the following as a challenge.
Use the following code to generate a large list of random values:

```
std::vector<int> largeList;
const int NUM = 100000000; // number of elements
const int randMIN = -100; // min value of random elements
const int randMAX = 100; // max value of random elements
srand((unsigned)time(0)); // random seed
int random_integer;
for(int index=0; index < NUM; ++index){
  random_integer = randMIN + rand() % (randMAX - randMIN);
  largeList.push_back(random_integer);
}
```

and test this sequence for each of your three programs.