DPP Assignment 1

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Due: ???

Task 1

The `process` and `process_idx` functions are shown below:

```
def process [n] (xs: [n]i32) (ys: [n]i32) : i32 =
  let ds = map2 (\x y -> i32.abs (x - y)) xs ys
  in reduce i32.max 0 ds

def process_idx [n] (xs: [n]i32) (ys: [n]i32) : (i32,i64) =
  let ds = map2 (\x y -> i32.abs (x - y)) xs ys
  let is = iota n
  let op (x,ix) (y,iy) =
    if      x  > y  then (x,ix)
    else if y  > x  then (y,iy)
    else if ix > iy then (x,ix)
    else                 (y,iy)
  in zip ds is |> reduce_comm op (0,-1)
```

The result of the `process` function on `s1` and `s2` is `73i32` as the 11'th element has the largest absolute difference (4 vs. 77). As expected, the result of `process_idx` is `(73i32, 12i64)`.

The benchmarks for the two functions are shown below. Both benchmarks were done on the `gpu04-diku-apl` machine.

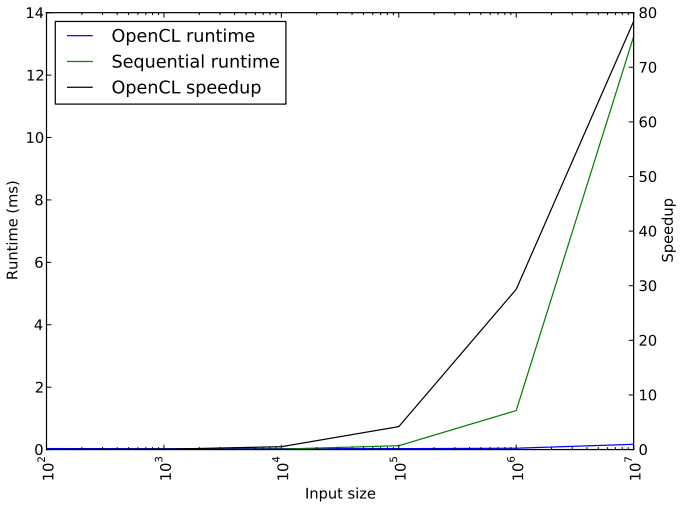

Figure 1: Benchmarks of `test_process`

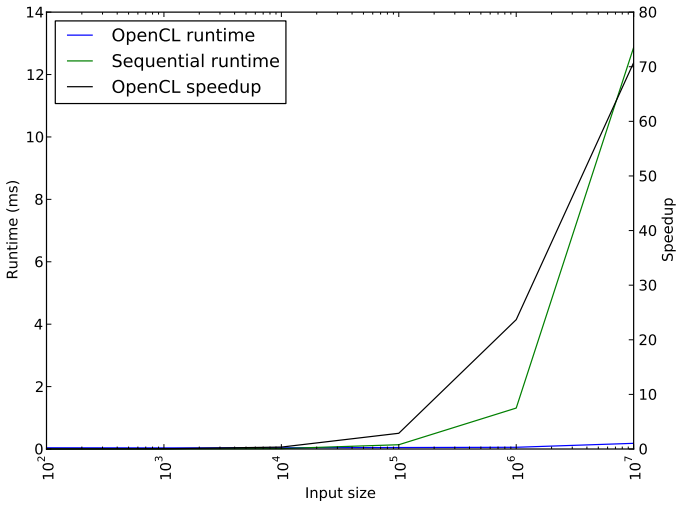

Figure 2: Benchmarks of `test_process_idx`