Homework - 5, CSO, Spring 2014

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1. **Prefix Sum Problem** The prefix sum of an array $a[1..n]$ is yet another array $psum[1..n]$ where $psum[i] = \Sigma_{j=1}^{i} a[j]$. The following C code snippet computes the prefix sum of an array. It is called an in-place computation since the prefix sum array overwrites the orginal input array.

```
#define SIZE 10000

int data[10000]

main()
{
   initializeData();

   for(i = 1; i < SIZE; ++i)
       data[i] += data[i-1];
}
```

Write an ARM assembly language program to compute the prefix sum of an array in-place. Two files *prefix-sum.s* and *initdata.c* are supplied to you. Compile them together (*gcc prefix-sum.s initdata.c*) to generate an *a.out* file.