

Programming Design, Spring 2014

Suggested Solution for Homework 05

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Problem 1 (10 points)

(a) (5 points)

In this cases, because *MAX_S_COUNT* is accessed in *mySource.cpp*, it must also include *myHeader.h*.

(b) (5 points)

```
int maxScore (int a[])
{
    int max = a[0];
    for (int i = 1; i < MAX_S_COUNT; i++)
    {
        if (a[i] < 0 || a[i] == '\0')
            break;
        if (a[i] > max)
            max = a[i];
    }
    return max;
}
```

Problem 2 (10 points)

(a) (5 points)

The output will be 37 15 40 3 25 0 37 15 40 3.

The last three arguments do not result in a good random number generator, because the random number sequence will get repeated after six iterations.

(b) (5 points)

```
void pseudorandom (int seed, int num, int a, int b, int c, int rn[])
{
    for (int i = 0; i < num; i++)
    {
        seed = (seed * a + b) % c;
        rn[i] = seed;
        cout << seed << " ";
    }
    cout << endl;
}
```

Problem 3 (10 points)

(a) (5 points)

Algorithm isIntersect1 (a, b, u, v)

```
create a Boolean value result
set result to false
if  $a_1 = u_1$ 
  if  $\text{MAX}(u_2, v_2) > \text{MIN}(a_2, b_2)$  and  $\text{MAX}(a_2, b_2) > \text{MIN}(u_2, v_2)$ 
    set result to true
return result
```

(b) (5 points)

Algorithm isIntersect2 (a, b, u, v)

```
create a Boolean value result
set result to false
if  $a_1$  between  $[u_1, v_1]$  and  $u_2$  between  $[a_2, b_2]$ 
  set result to true
return result
```

Problem 4 (70 points)

See the file "PD14-05a.cpp".

Bonus: Problem 5 (20 points)

See the file "PD14-05b.cpp".