

Programming Design, Spring 2015

Suggested Solution for Homework 11

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Problem 1

(a)

`atoi()` is a function that converts a C string to an integer. The parameter of this function is a constant character array representing a string, and the converted integer according to the input string content will be returned. The function is used in this way

```
int variable_name = atoi(constant character array);
```

(b)

`c_str()` is a function that creates a character array. It copies the characters in the string according to their order and adds a null-character(`'\0'`) at the end of the array. The character array is of a constant type, therefore you can't modify the values. The function has no parameter and it will return a pointer that points to the character array. You can use the function in this way `string.c_str()`.

The example of (a) and (b) is below:

```
#include <iostream>
#include <cstdlib>
#include <string>
using namespace std;

int main() {
    string problemA = "123";
    string problemB = "456";
    int int_problemAB = atoi(problemA.c_str())*
    atoi(problemB.c_str());
    cout << int_problemAB << endl;
    return 0;
}
```

The output will be 56088.

(c)

```

#include <iostream>
#include <fstream>
#include <string>
#include <cstdlib>
using namespace std;

int main() {
    string f;
    f = "/test.txt"; // file path
    ifstream fin(f.c_str()); // open the file
    string s_score=""; // store every line of score
    int max = 0; // the maximum score
    while(getline(fin,s_score,'\n')){
        // read every line a time and store the value to s_score
        int score = atoi(s_score.c_str());
        // convert the string to character array and get the integer value
        if(score > max){ // determine whether the value is larger
            max = score; // change the max to score
        }
    }
    cout << max << endl;
    return 0;
}

```

Problem 2

Please see the 151301.cpp file.

Problem 3 (bonus)

Please see the 151302.cpp file.