Lab # 16: Arrays and Strings – Part 3

EC-102 – Computer Systems and Programming

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Outline

Copying a String – The Hard Way

```
1  #include<iostream>
2  #include<cstring>
3  using namespace std;
4
5  int main()
6  {
7    char str1[] = "Oh, Captain, my Captain! "
8      "our fearful trip is done.";
9
10   const int MAX = 80;
11   char str2[MAX];
12
13   for(int j = 0; j < strlen(str1); j++)
14     str2[j] = str1[j];
15
16   str2[-1] = '\0';
17   cout << str2 << endl;
18   return 0;
19 }
```

Copying a String – The Hard Way

- A string constant `str1` and a string variable `str2`
- A `for` loop to copy the string constant to the string variable
- A cstring library function `strlen` used to find the length of a C-string
- The copied version of the string must be terminated with a null

```
str2[j] = '\0';
```

Copying a String – The Easy Way

```
1  #include<iostream>
2  #include<cstring>
3  using namespace std;
4
5  int main()
6  {
7    char str1[] = "Tiger, tiger, burning bright\n"
8      "In the forests of the night.";
9
10   const int MAX = 80;
11   char str2[MAX];
12
13     strcpy(str2, str1);
14
15   cout << str2 << endl;
16   return 0;
17 }
```

Note that we are calling `strcpy` function with **destination first**.

Arrays of Strings

```
1  #include<iostream>
2  #include<cstring>
3  using namespace std;
4
5  int main()
6  {
7      const int DAYS = 7;
8      const int MAX = 10;
9
10     char star[DAYS][MAX] = {"Sunday", "Monday", "Tuesday",
11     "Wednesday", "Thursday", "Friday", "Saturday"};
12
13     for(int j = 0; j < DAYS; j++)
14         cout << star[j] << endl;
15     return 0;
16 }
```

Exercise 1

Start with a program that allows the user to input a number of integers, and then stores them in an int array.
Write a function called `maxint()` that:

- Goes through the array, element by element, looking for the largest one.
- The function should take as arguments the array and the number of elements in it, and
- Return the index number of the largest element.

The program should call this function and then display the largest element and its index number.

Exercise 2

Write a function called `reversit()` that reverses a C-string (an array of char).

- Use a for-loop that swaps the first and last characters, then the second and next-to-last characters, and so on.
- The string should be passed to `reversit()` as an argument.
- Write a program to exercise `reversit()`. The program should get a string from the user, call `reversit()`, and print out the result.

Use an input method that allows embedded blanks. Test the program with Napoleon's famous phrase, "Able was I ere I saw Elba."