Hands-on Activity 4.4	
Characters and Strings	
Course Code: CPE 007	**Program:** Computer Engineering
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6. Output	

cenarzxc.cpp

```cpp
#include <iostream>
using namespace std;

int main () {
    char ch[5] = "pP5!";

    for (int i = 0; i < 4; i++){
        if (islower(ch[i])){
            cout << ch[i] << " Is a Lowercase letter\n";
        }
        else{
            cout << ch[i] << " Is a Uppercase letter\n";
        }
    }




    return 0;
}
```

```
p Is a Lowercase letter
P Is a Uppercase letter
5 Is a Uppercase letter
! Is a Uppercase letter


---------------------------------
Process exited after 0.009636 seconds with return value 0
Press any key to continue . . .
```

Analysis:

On Line 5 I declared a character array (string) with a size of 5, then initialized it with "pP5!".

Line 7 I made a for loop that starts with an index of 0 and repeats until the index is less than 4.

Line 8-12 I made an If..else statement that checks the current character if it's a lowercase letter using "islower()". If it's true then it prints out that the character is a lowercase letter, if not, it uses the else statement and it will print out that it is an uppercase letter regardless if it's a number or symbol.

7. Supplementary Activity

1.

```cpp
#include <iostream>
#include <cctype>
using namespace std;

int main() {
    char ch;
    cout << "Enter a character: ";
    cin >> ch;

    if (isalnum(ch))
        cout << ch << " is alphanumeric" << endl;
    if (isalpha(ch))
        cout << ch << " is an alphabet" << endl;
    if (isdigit(ch))
        cout << ch << " is a digit" << endl;
    if (islower(ch))
        cout << ch << " is lowercase letter" << endl;
    if (isupper(ch))
        cout << ch << " is an uppercase letter" << endl;
    if (isspace(ch))
        cout << "You entered a whitespace character" << endl;
    if (isblank(ch))
        cout << "You entered a blank space character" << endl;
    if (ispunct(ch))
        cout << ch << " is a punctuation character" << endl;
    if (isprint(ch))
        cout << ch << " is printable" << endl;
    if (iscntrl(ch))
        cout << "You entered a control character" << endl;
    if (isxdigit(ch))
        cout << ch << " is a hexadecimal digit" << endl;

    cout << "Lowercase version: " << (char)tolower(ch) << endl;
    cout << "Uppercase version: " << (char)toupper(ch) << endl;


    return 0;
}
```

```
Enter a character: A
A is alphanumeric
A is an alphabet
A is an uppercase letter
A is printable
A is a hexadecimal digit
Lowercase version: a
Uppercase version: A


Process finished with exit code 0
```

```
Enter a character: y
y is alphanumeric
y is an alphabet
y is lowercase letter
y is printable
Lowercase version: y
Uppercase version: Y


Process finished with exit code 0
```

```
Enter a character: 3
3 is alphanumeric
3 is a digit
3 is printable
3 is a hexadecimal digit
Lowercase version: 3
Uppercase version: 3


Process finished with exit code 0
```

```
Enter a character: !
! is a punctuation character
! is printable
Lowercase version: !
Uppercase version: !


Process finished with exit code 0
```

Analysis:
On line 6 I created a variable "ch"
Line 7-8 Prompts the user for an input
Line 10-31 are all IF statements that checks the letter, number, or symbol that is inputted by the user if it matches their specific description.
Line 33-34 Shows or converts both the lowercase and uppercase version of the letter, number, or symbol.

2.

cenarzxc.cpp

```cpp
1    #include <iostream>
2    #include <string>
3    #include <cctype>
4    using namespace std;
5
6    int stringToInt(string s) {
7        int num = 0;
8        for (int i = 0; i < s.length(); i++) {
9            if (isdigit(s[i])) {
10               num = num * 10 + (s[i]-'0');
11           }
12       }
13       return num;
14   }
15
16
17
18   int main (){
19       string s1, s2, s3, s4;
20
21       cout << "Enter 4 numbers: ";
22       cin >> s1 >> s2 >> s3 >>
23        s4;
24
25       int n1 = stringToInt(s1);
26       int n2 = stringToInt(s2);
27       int n3 = stringToInt(s3);
28       int n4 = stringToInt(s4);
29
30       int total = n1 + n2 + n3 + n4;
31
32       cout << "The total is: " << total << endl;
33
34   return 0;
35   }
```

```
Enter 4 numbers: 5
10
15
20
The total is: 50


--------------------------------
Process exited after 12.64 seconds with return value 0
Press any key to continue . . . |
```

Analysis:
On Line 6 I initialized a function "stringToInt" to convert any string into an integer.
Line 7 I initialized "num" to 0 to store the converted number.
Line 8 is a for loop that loop through each character of the string.
Line 9 is an IF statement that checks if the characters are a digit.
Line 10 converts the numbers or characters into its integer value and add it to "num".
Line 13 it returns the final integer value.
Line 19 Declares 4 strings which are: s1, s2, s3, s4.
Line 21-22 Asks the user to input 4 numbers as a string, then reads them one by one.
Line 25-28 Is the process of converting each string to an integer by the use of "stringToInt" function.
Line 30 Adds the 4 integer values into "total".
Line 32 It prints out the result "The total is "

8. Conclusion

In this activity I learned how to use some character functions like "islower()" for checking and identifying certain letters, numbers, and symbols in a program. While doing this activity I realized that the use of each character function is to check every character there is one by one and uses If...else statements for its decision on what to print out. The supplementary activity helped me understand the different character functions more, it was a good practice for me even though I encountered a lot of errors while doing it. For this activity, I'm unsure on how I did it because I didn't fully understand how some of the character functions work, but most of it was easy to understand. I think I need to improve more on how I check or how I'll use each function before putting it in the code.