HW 9 Part 3 Coding Result

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1. Check Writer (10%)

1.cpp > Number > ty

```cpp
#include <iostream>
#include <iomanip>
#include <string.h>
#include <sstream>
using namespace std;
class Number{
    private:
        double number;
        const string lessThan20[20] = {
            "zero", "one", "two", "three", "four", "five", "six", "seven",
            "eight", "nine", "ten", "eleven", "twelve", "thirteen", "fourteen",
            "fifteen", "sixteen", "seventeen", "eighteen", "nineteen" };
        const string ty[10] = {"", "",
            "twenty", "thirty", "forty", "fifty",
            "sixty", "seventy", "eighty", "ninety" };
        const string hundred = "hundred";
        const string thousand = "thousand";
    public:
    Number(double num){
        this->number = num;
    }
    string translate(double fnum){
        int num = fnum;
        string rtn;
        double F = fnum - num;
        int S = num%10, T = (num%100 - S)/10;
        int Th = (num%10000 - num%1000)/1000, H = (num%1000 - T)/100;
        if( Th > 0){
            rtn += this->lessThan20[Th];
            rtn += " ";
            rtn += this->thousand;
            rtn += " ";
        }
        if( H > 0){
            rtn += this->lessThan20[H];
            rtn += " ";
            rtn += this->hundred;
            rtn += " ";
        }
        if( T > 0){
            if( T >= 2){
                rtn += this->ty[T];
                rtn += " ";
            }
            else {
                rtn += this->lessThan20[num%100];
                rtn += " ";
            }
        }
        if(S > 0){
            rtn += lessThan20[S];
            rtn += " ";
        }
        if(F > 0){
            int f = F*100;
            string numf;
            stringstream ss;
            ss<<f;
            ss>> numf;
            ss.clear();
            rtn += "and " + numf + " cents\n";
        }
        return rtn;
    }
};

int main(int argc, char* argv[]){
    double num = -1;
    string  date, name;
    cout<<"Please enther the date. ( DD/MM/YYYY )  ";
    getline(cin,date);
    cout<<"Please enter the payee's name. ";
    getline(cin,name);
    while(num<0||num>10000){
        cout<<"Please enter the amount of the check. ( <10000 )  ";
        cin>>num;
        cout<<endl;
    }
    Number number(num);
    cout<<"                              Date: "<<date<<endl;
    cout<<"Pay to the Order of:     "<<name<<"     $"
        <<fixed<<setprecision(2)<<num<<endl;
    cout<<number.translate(num)<<endl;
    return 0;
}
```

Output

```
Please enther the date. ( DD/MM/YYYY )  13/06/2020
Please enter the payee's name. Wen
Please enter the amount of the check. ( <10000 )  9487.87

                        Date: 13/06/2020
Pay to the Order of:     Wen     $9487.87
nine thousand four hundred eighty seven and 87 cents
```

2. Word Counter (10%)

2.cpp > main(int, char * [])

```cpp
#include <iostream>
#include <cstring>
#include <cctype>
using namespace std;
int  wordCounter(const char* c_string, int L){
    int count = 0;
    for(int i = 0; i < L; i++){
        if( isalnum(c_string[i]) && !isalnum(c_string[i+1])) count++;
    }
    return count;
}
int main(int argc, char* argv[]){
    string sin;
    cout<<"===== How many words? =====\n"
        <<"Enter ur sentence.\n";
    getline(cin,sin);
    cout<<"============================\n";
    cout<<"Words: "<<wordCounter(sin.c_str(), sin.length())<<endl;
    return 0;
}
```

Output:

```
===== How many words? =====
Enter ur sentence.
Be a good person, shall we?
============================
Words: 6
```

3. Word Separator (10%)

```cpp
3.cpp > main(int, char * [])
#include <iostream>
#include <cstring>
#include <cctype>
using namespace std;
string  wordSeperator(const char* c_string, int L){
    string rtn ;
    rtn += c_string[0];
    for(int i = 1; i < L; i++){
        if( isupper(c_string[i]) ){
            rtn += " ";
            rtn += tolower(c_string[i]);
        }
        else rtn += c_string[i];
    }
    return rtn;
}
int main(int argc, char* argv[]){
    string sin;
    cout<<"===== Word  Separator =====\n"
        <<"Enter ur sentence.\n";
    getline(cin,sin);
    cout<<"============================\n";
    cout<<wordSeperator(sin.c_str(), sin.length())<<endl;
    return 0;
}
```

Output:

```
===== Word  Separator =====
Enter ur sentence.
Hey,WhoAreU
============================
Hey, who are u
```

4. replaceSubstring Function (10%)

4.cpp > replaceSubstring(string, string, string)

```cpp
#include <iostream>
#include <cstring>
#include <cctype>
using namespace std;
string replaceSubstring(string str, string find, string replace){
    string rtn;
    int position;
    while((position = str.find(find)) != string::npos){
        rtn += str.substr(0,position);
        rtn += replace;
        str = str.substr(position + find.length());
    }
    rtn += str;
    return rtn;
}
int main(int argc, char* argv[]){
    string sin, find, replace;
    cout<<"===== Replace Substring  =====\n"
        <<"Enter ur sentence.\n";
    getline(cin,sin);
    cout<<"Enter the sentence u want to find.\n";
    getline(cin,find);
    cout<<"Enter the sentence u want to replace.\n";
    getline(cin,replace);
    cout<<"============================\n";
    cout<<replaceSubstring(sin, find, replace)<<endl;
    return 0;
}
```

Output:

```
===== Replace Substring  =====
Enter ur sentence.
I love you, you love me.
Enter the sentence u want to find.
you
Enter the sentence u want to replace.
everybody
============================
I love everybody, everybody love me.
```

5. Password Verifier (10%)

5.cpp > passwordVerifier(const char *, int)

```cpp
#include <iostream>
#include <cstring>
#include <cctype>
using namespace std;
string passwordVerifier(const char* c_string, int L){
    string rtn ;
    bool hasLower = false, hasUpper = false,
         hasLength6 = false, hasDigit = false;
    for(int i = 0; i < L; i++){
        if( isupper(c_string[i]) ) hasUpper = true;
        if( islower(c_string[i]) ) hasLower = true;
        if( isdigit(c_string[i]) ) hasDigit = true;
    }
    if( L < 6 ) rtn += "Password lenth should be at least six.\n";
    if( !hasLower ) rtn += "Password should contain at least one lowercase.\n";
    if( !hasUpper ) rtn += "Password should contain at least one uppercase.\n";
    if( !hasDigit ) rtn += "Password should contain at least one digit.\n";
    if( L >= 6 && hasLower && hasLower && hasDigit ) rtn += "Successfully seted !!!\n";
    return rtn;
}
int main(int argc, char* argv[]){
    string sin;
    cout<<"===== Password Verifier =====\n"
        <<"Enter ur password.\n";
    getline(cin,sin);
    cout<<"============================\n";
    cout<<passwordVerifier(sin.c_str(), sin.length())<<endl;
    return 0;
}
```

Output 1:

```
===== Password Verifier =====
Enter ur password.
IloveU4ever21
============================
Successfully seted !!!
```

Output for no input:

```
===== Password Verifier =====
Enter ur password.

============================
Password lenth should be at least six.
Password should contain at least one lowercase.
Password should contain at least one uppercase.
Password should contain at least one digit.
```

6. Phone Number List (10%)

```cpp
#include <iostream>
#include <cstring>
#include <cctype>
using namespace std;
const string phoneNumberList[] = {
    "Becky Warren, 678-1223",  "Joe Looney, 586-0097",
    "Geri Palmer, 223-8787",   "Bob Kain, 586-8712",
    "Holly Gaddis, 223-8878",  "Sam Wiggins, 486-0998",
    "Lynn Presnell, 887-1212", "Tim Haynes, 586-7676",
    "Warren Gaddis, 223-9037", "Jean James, 678-4939",
    "Ron Palmer, 486-2783"   , "Tianna Wen, 520-1314"    };
string findPhoneNumberList(string find){
    string rtn;
    int sizeOfList = sizeof(phoneNumberList)/sizeof(string);
    for(int i = 0; i < sizeOfList; i++){
        string name = phoneNumberList[i].substr(0, phoneNumberList[i].find(",") - 1);
        if( name.find(find) != string::npos ) rtn += phoneNumberList[i] + "\n";
    }
    return rtn;
}
int main(int argc, char* argv[]){
    string sin, find, replace;
    cout<<"======= Phone Number List =========\n";
    cout<<"Enter the name part u want to find.\n";
    getline(cin,find);
    cout<<"==================================\n";
    cout<<findPhoneNumberList(find)<<endl;
    return 0;
}
```

Output1 : find L

```
======= Phone Number List =========
Enter the name part u want to find.
L
==================================
Joe Looney, 586-0097
Lynn Presnell, 887-1212
```

Output 2 : no result for finding number

```
======= Phone Number List =========
Enter the name part u want to find.
12
==================================
```