

Homework 8

CS10, F15, Linnell

Due Wed 11/11. See submission instructions at the end

For all problems, before writing code, please first write out pseudocode on paper. Turn in this pseudocode with your hardcopy.

1. (10 points) Another cipher, which has been historically used by the Freemasons, is removing all the vowels from a word. Write a function `string removevowels(string s)` that returns a copy of the string `s`, with vowels removed. For example, can you guess what was sent as input to the function, that resulted in: "t's mpssbl t hv t mch fn"? The only built-in string function you can use is `length`.
2. (20 points) For all 3 parts, The only built-in string function you can use is `length`. Note that much as the characters 'a'-'z' are always encoded sequentially, the characters '0'-'9' are always encoded sequentially.
 - a. Write a function `bool isdigit(char c)` that returns true if `c` is a digit 0-9 and false if it isn't.
 - b. Write a function `int convertdigit(char c)` that returns the number version of the character passed in; e.g. `convertdigit('9')` will return the number 9. Return -1 if the character passed in is not a digit. You MUST use your function from a.
 - c. Write a function `int convertmulti(string s)` that returns the number version of the string passed in; e.g. `convertmulti('253')` will return the number 253. Return -1 if any character in the string is not a digit. You MUST use your function from b. Hint: remember that $253 = 2*100 + 5*10 + 3*1$.

Note: Do not use built-in pow for this; use the pow function provided below:

```
int pow(int n, int ex){
    int ret = 1;
    for(int i=0; i<ex; i++){
        ret = ret*n;
    }
    return ret;
}
```

3. (5 points) Translate the phrase "Everybody dance now" using a Vigenere cipher with key "supercalifragilisticpealidocious".

Submission instructions: Softcopy and hardcopy are both due at the beginning of class. You will print out your code for each problem, as well as the results of running your code with some input.* You must

staple together multiple sheets (there will be deductions for unstapled homework!). You will ALSO submit all of your main.cpp files (NOT the .cbp files) as attachments, to

cs10hw@math.scu.edu

The subject line of the email should be "CS10 HW8 YourLastName YourIDNumber "

*In Code::Blocks, you can copy-paste from the terminal (the black pop-up) by right-clicking, choose "select all" then hit enter. Now you can paste into another document.