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Report for Project 3: Scram, spam!

a. While writing the code for Project , I encountered many obstacles but the two most notable involved writing the function isGibberishWord and writing Spam Rule#5.

The first issue I came across was that my isGibberish word function was returning true for inputs that did not contain more than three consecutive consonants. This was because I was using the test "if(text[k] != 'a' && text[k] != 'e' && text[k] != 'i' && text[k] != 'o' && text[k] != 'u' && text[k] != 'A' && text[k] != 'E' && text[k] != 'I' && text[k] != 'O' && text[k] != 'U')" to test whether to increase numberConsonants. After scrutinizing my code, I realized my problem was in my if statement. I was increasing "numberConsonants" whenever a character was not a vowel. This would make sense if all the characters were letters, but it was incorrect in my code because it was counting spaces and symbols as consonants as well. I fixed this error by changing the if statement to "if(isalpha(text[k]) && text[k] != 'a' && text[k] != 'e' && text[k] != 'i' && text[k] != 'o' && text[k] != 'u' && text[k] != 'A' && text[k] != 'E' && text[k] != 'I' && text[k] != 'O' && text[k] != 'U')."

The second obstacle I overcame was writing a statement that would check for the special words listed under the description for Spam Rule #5. The first statement I wrote was "if(extractWord(body) == "buy" && extractWord(body) == "cheap" && extractWord(body) == "click" ..." which caused my program to scratch. I had made the careless mistake of placing the "&&" instead of the "||" in the if statement. So I changed the statement to read "if(extractWord(body) == "buy" || extractWord(body) == "cheap" || extractWord(body) == "click"...". This correctly checked to see if if the first word in the body was on of the "special words." To check each word in the body, I nested the if statement inside the for loop " for(size_t k = 0; k < subject.size(); k++)."

b. Pseudocode:

declare libaries and namespace,
declare variables,
declare external functions,

input subject and body,

test if each word in subject are all uppercase,
increment number of uppercase words,
if subject contains at least one word and more than 90% are all uppercase,
increase spamScore by 30,

if last word in subject has more than three consecutive consonants,

increase spamScore by 4,

if subject has 3 or more consecutive exclamation points,
increase spamScore by 20,

test if each word in body is all uppercase,
increment number of uppercase words,
if body contains at least one word and more than 50% are all uppercase,
increase spamScore by 40,

test if each word in body is equal to a special word,
if so increase spamScore by 5,

if spamScore is greater than 100,
say that the email is spam,
if not say the email is legitimate,

repeatedly ask if the user would like to classify another email until y or n is inputted,
classify another email or terminate program

c.
To test external functions:

```
assert(getFirstWord("hello there") == "hello");
assert(getFirstWord(" $@#%!!") == "");
assert(getLastWord("MAKE MONEY FAST!!") == "FAST");
string s = "***hello there";
assert(extractWord(s) == "hello" && s == " there");
assert(extractWord(s) == "there" && s == "");
assert(isUppercase("WOW!!"));
assert(!isUppercase("WoW!!"));
assert(makeUppercase("Earn *big* MONEY at home!!") == "EARN *BIG* MONEY
AT HOME!!");
assert(hasMultipleExclamations("Wow!!!"));
assert(hasMultipleExclamations("Congrats!!!! Good luck"));
assert(!hasMultipleExclamations("W!I!N!"));
assert(!hasMultipleExclamations("!! !"));
assert(isGibberishWord("AGPQrxab"));
assert(isGibberishWord("xxxxozzzz"));
assert(!isGibberishWord("mortgage"));
assert(!isGibberishWord("discount prescriptions"));
```