Exercise 4: Palindrome

Date due: April 27th, 2015

Write a program that uses a dynamic stack data structure (implemented with linked list) to determine if a string is a *palindrome*.

A *simple palindrome* is a character string that spells identically backward and forward, for example "rotor". If you look up *palindrome* in Wikipedia (http://en.wikipedia.org/wiki/Palindrome), you will find examples such as

> *Madam, I'm Adam.*

Such an example is not a *simple palindrome* as we would need to ignore spaces and punctuation marks. For this assignment, a *palindrome* is defined to be a character string in which all characters other than alphabetic characters are ignored, upper-case and lower-case versions of the same letter are counted as equal, and this character string is the same as its reverse. An alphabetic character is a character between 'A' and 'Z" (inclusive) or between 'a' and 'z' inclusive. Thus punctuation marks, digits, space, tab, carriage return, hyphens, underscores, and other characters are not alphabetic characters.

The following is a list of some examples that you could use to test your program (*Hint: use input file*):

```
racecar
RACEcar                       // uppercase equals lowercase
rotator
rotor
civic
Red rum, sir, is murder!      // punctuation and spaces are neglected
Rats live on no evil star.
Neil, a trap! Sid is part alien!
Step on no pets.
Dammit, I'm mad!
Madam, I'm Adam.
Madam, in Eden, I'm Adam.
Rise to vote, sir.
Never odd or even
If I had a hi-fi
Yo, banana boy!
Do geese see God?
No devil lived on."
Ah, Satan sees Natasha."
A dog, a panic in a pagoda
Was it a cat I saw?",
Was it a car or a cat I saw?
No lemons, no melon",
"A dog, a plan, a canal, pagoda,
A man,a plan, a canal-- Panama!"
```

Note the punctuation marks are there on purpose! Please make sure that your program evaluates all these examples as palindromes.

Your program should prompt the user to either enter a phrase or read input from a file. In either case the program should output the following to the screen:

String	isPalindrome
A man, a plan, a canal, Panama!!!	Y
Hello World!	N
Radar	Y

The 1st column should contain the string (unformatted), followed by either a "Y" or "N" (upper-case) to indicate if a string is a palindrome.