ADDS – ASSIGNMENT 4 – DESIGN
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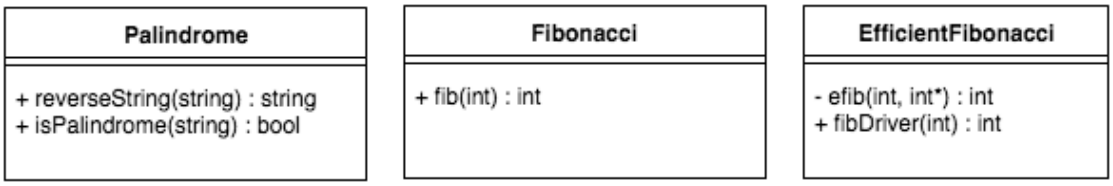

Description

Palindrome:

This is a class for reversing text and checking it against the original to see if the text is a palindrome.

reverseString() – recursively reverses the text: it returns the reversed letters after the first letter and adds the first letter on the end therefore the whole piece of text gets reversed.

isPalindrome() – Checks the given text against a reversed version of the text and returns true if it is a palindrome or false if not.

Fibonacci:

This is a class for calculating Fibonacci values.

fib() – recursively calculates the nth Fibonacci value for a given number n.

EfficientFibonacci:

This is a class for calculating Fibonacci values in an efficient way. It uses memorization techniques to eliminate the need to recalculate Fibonacci values.

fibDriver() – creates a cache to store calculated fib values then calls a function to calculate the nth fib value and returns that value.

efib() – calculates the nth fib value using recursion and memorization.

Main:

Gets a some text and a number from the user, the reversed text is output. “yes” is output if the text is a Palindrome or “no” is output if it is not, this is checked using the Palindrome class. The number is Checked to see if it is a non negative integer, if so it calculates and outputs the corresponding Fibonacci using the EfficientFibonacci class, if the input number is not valid “ERROR” is output.

Testing

Test cases:

Input:
bob 5
Expected output:
bob yes 5

Input:
racecar 6
Expected output:
racecar yes 8

Input:

(empty string)
Expected output:

(keeps prompting to enter)

Input:
a 20
Expected output:
a yes 6765

Input:
Dog god
Expected output:
goD no ERROR

Input:
20f0 jim 28h[[fn0.[8jn9w[/.]ef7hs ‘
Expected output:
0f02 no ERROR

Input:
-// B ob48
Expected output:
//- no ERROR