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CPSC 1011-100 and CPSC 1010-002  
Lab09–Part2  
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Collaboration Statement: Erin Litzler, CPSC 1010-002

Define roman Numeral Struct

define data member string roman Numeral

define data member integer numeral as decimal

Boolean function prototype Prompt

Boolean function prototype Proper Roman

Integer function prototype Value of Roman digit

Struct type function protype Convert Roman

Void function prototype print Roman

Main function:

Variable initialization of roman Numeral my Roman;

while a valid roman numeral is entered

set struct my Roman equal to output of Convert Roman function;

print output of Print Roman function using my Roman struct as input

Print "Thank you for using the Roman Numeral to Decimal calculator.

Print a new line and “Goodbye!

End main function

Boolean function Prompt Command(parameter string roman Numeral[], parameter integer max Size);

declare Boolean variable valid

while valid is not true:

Print: Please input a value in Roman Numerals or EXIT to quit:

Scan string into roman Numeral

Check if length of roman numeral string is less than max size

If not equal valid is false

Print too many characters error

Call to proper Roman function

If proper Roman is true

Valid equals true

return true

roman Numeral string is equal to EXIT

Return False

If proper command is false

Valid = false

Print “Illegal characters”

Boolean function Proper Roman(parameter string roman Numeral[]);

for each index in roman numeral string

if a character is not M D C L X V or I, return false

If loop completes return true

Roman Numeral function Convert Roman( parameter roman Numeral roman Numeral To Convert string);

define integer value of roman numeral sum, set equal to 0

for each character in roman numeral string

If the call to function value of roman digit for character is greater than or equal to value of roman digit at the next index:

Add value of roman digit to numeral sum

Else

Add the value of the roman digit at the next index – the value of the roman digit at current index to the numeral sum

integer numeral as decimal from struct equals the numeral sum

return integer numeral as decimal from struct

Void function Print Roman(parameter roman Numeral roman Numeral To Convert struct);

print roman Numeral To Convert numeral string = roman Numeral To Convert integer

integer function value of roman digit (takes character from numeral string as input)

switch statements (looks at character parameter)

returns the value of the character based on roman numeral value