C++ Programming

Functions Homework

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Homework 1: Max of 6 numbers

- Write a function that reads 6 numbers and compute their maximum. Create the following functions
  - max(int a, int b, int c)
  - max(int a, int b, int c, int d)
  - max(int a, int b, int c, int d, int e)
  - max(int a, int b, int c, int d, int e, int f)
- How can
  - max(int a, int b, int c, int d) utilize max(int a, int b, int c) ? and so on

Homework 2: Reverse a string

- Develop a function that do reverse for the string. Function is:
- string reverse_str(const string & str);
    - Don’t try to change str content or you will get compilation error

Homework 3: Calculator

- Develop a function that allows user to do the following (menu options):
  - Add 2 numbers
  - Subtract 2 numbers
  - Multiply 2 numbers
  - Divide 2 numbers
  - End the program
- Consider the following functions:
  - Function to read 2 double numbers - by reference
  - 4 functions, one for each operation. Don’t divide by zero!
  - Function to display the menu of the 5 options - read number and return it.
    - User should enter number from 1 to 5. If not, display error message
    - If exit, end the program by printing how many operations were done

Homework 4: Is Palindrome Array

- Read N, then N integers for an Array. Call a function with the array to check if the array is palindrome or note
  - We already coded it before
  - Just copy code and rearrange to call function with array

Homework 5: Set-powers

- Implement this function
- void set_powers(int arr[], int len = 5, int m = 2)
- This function will fill the array of len as following:
  - The i-th position: m^i, e.g. m * m * m … i times
  - E.g. for len = 6, m = 2 ⇒ 1 2 4 8 16 32
  - E.g. for len = 4, m = 3 ⇒ 1 3 9 27
- After a return from call: print the array
  - Try it with different default value scenarios

Homework 6: Get nth-prime

- Implement the following 2 functions:
- bool is_prime(int num);
  - Return true if number is prime
- Int nth_prime(int n);
  - Return the n-th prime number. It should use is_prime function
  - E.g nth_prime(6) = 13
    - Recall: 2, 3, 5, 7, 11, **13**, 17, 19

Homework 7: Replace substring

- Implement this function
- string **replace_str**(string input, string pattern, string to)
  - Constraints: Input consists only of lower cases, len(pattern) > 0, len(to) >= 0
- The function replaces every **pattern** with **to** and return it
  - Input: “aabcabaaad”, “aa”, “x” - Return: “**x**bcab**x**ad”
  - Input: “aabcabaaad”, “aa”, “aaaa” - Return: “**aaaa**bcab**aaaa**ad”
  - Input: “aabcabaaad”, “aa”, “” - Return: “bcabad”
- Let your code makes use of another function:
  - bool **starts_with**(string input, string pattern, int pos);
  - Return true if string input has the pattern starting from pos
  - Input: “aabcabaaad”, “aa”, 0 ⇒ True
  - Input: “aabcabaaad”, “aa”, 1 ⇒ False

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."