

C++ Programming

Functions Homework

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Teaching, Training and Coaching since more than a decade!

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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 not
 - 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. $m * m * m \dots i$ times
 - E.g. for `len = 6, m = 2` \Rightarrow 1 2 4 8 16 32
 - E.g. for `len = 4, m = 3` \Rightarrow 1 3 9 27
- After a return from call: print the array
 - Try it with different default value scenarios

(1, 2)

1² 2² 3² 4³

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, $\text{len}(\text{pattern}) > 0$, $\text{len}(\text{to}) \geq 0$
- The function replaces every **pattern** with **to** and return it
 - Input: "aabcabaaad", "aa", "x" - Return: "x~~bcab~~xad"
(Handwritten: 0 1 2 3 4 5 6 7 8 9, 0 1)
 - Input: "aabcabaaad", "aa", "aaaa" - Return: "aaaa~~bcab~~aaaaad"
 - 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 \Rightarrow True
(Handwritten: / / /)
 - Input: "aabcabaaad", "aa", 1 \Rightarrow False
(Handwritten: a)

x~~bcab~~x

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”