Homework: C Functions

This document defines the homework assignments from the "C Programming" Course @ Software University. Please submit as homework a single **zip / rar / 7z** archive holding the solutions (source code) of all below described problems.

Problem 1. Bigger Number

Write a function **get_max()** with two parameters that returns the bigger of two integers. Write a program that reads 2 integers from the console and prints the largest of them using the function **get_max()**. Declare a function prototype before defining the function.

Input	Output
4 -5	4

Problem 2. Last Digit of Number

Write a function that returns the last digit of a given integer as an English word. Test the function with different input values. Ensure you name the function properly. Declare a function prototype before defining the function.

Input	Output
512 1024 12309	two four nine

Problem 3. Last Occurrence of Character

Write a function that takes determines the **position** of the rightmost occurrence of a character **ch** in a string **str**. If no such character exists, the function should return **-1**.

Arguments	Return Value
Sir Stanley Royce y	14
AAAAAAA A	7
Do NOT run this command: :(){ :|: & };: q	-1

Problem 4. Reverse Number

Write a function that **reverses the digits** of a given **floating-point** number. The function should receive a **double number** and a **pointer to an integer** variable. In case of format error, it should **set error to 1** and in case of success **to 0**. Declare a function prototype before defining the function.

Sample Code	Input	Output
int error; double reversed = reverse(123.45, &error);	256 123.45 0.12 0.0x	652.000 54.321 21.000 Invalid format

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Problem 5. Array Manipulation

Declare the following functions in a **header file (.h)**. Implement them in a separate **.c** file. Include the **.h** file in your main program and demonstrate the written functions.

- **arr_min()** - returns the smallest element in the array
- **arr_max()** - returns the largest element in the array
- **arr_clear()** - sets all array elements to 0
- **arr_average()** - returns the average of all elements
- **arr_sum()** - returns the sum of all array elements
- **arr_contains()** - returns whether the array contains the specified element

* Bonus:
- **arr_merge()** - receives two arrays, merges them into one and returns **a pointer to the resulting array**

Problem 6. First Larger Than Neighbours

Write a method that returns the index of the **first element in array** that is **larger** than its **neighbours**, or **-1** if there's no such element. Declare a function prototype before defining the function

Sample Arrays	Return Value

`int sequenceOne[] = { 1, 3, 4, 5, 1, 0, 5 };`
`int sequenceTwo[] = { 1, 2, 3, 4, 5, 6, 6 };`
`int sequenceThree[] = { 1, 1, 1 };`
	3
	-1
	-1

Problem 7. Recursive String Reverse

Write a recursive string reverse function. The function should accept a source string and destination string as arguments. Do not use loops.

Input	Output
Recursion	noisruceR