

# Assignment 1: C

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# Question 1

- How a **struct** is **passed** as a parameter to a function and how it is **returned**?
- How is this implemented at the assembly-level?
- Give examples.



# Question 2

- How to **create libraries** (**static** and **dynamic**) in C and how do we link our code to them?
- Give examples.



# Question 3

- What is, and how does **variadic functions** work in C?
- How is this implemented in the low-level?
- Give examples.



# Question 4

- Explain the differences among:

```
static const int a = 10;
```

```
#define a 10
```

```
enum { a = 10 };
```

- How are the instructions above implemented in the low-level?



# Question 5

- What is **#pragma pack** and how **structure padding** and **packing** works?
- How can we use them?
- Give examples.



# Question 6

- How to call **C functions from C++ code?**
- Show how it works at the assembly level.
- Give examples.



# Question 7

- What is **Valgrind**?
- How it can be used to check memory leaks?
- Give examples.





# Question 8

- What is **Valgrind**?
- How it can be used to profile code?
- Give examples.



# Question 9

- What is a **Lint**?
- How it can be used to check code?
- Give examples: clang scan-build



# Question 10

- What is **type promotion** and how it can become a **nightmare**?
- Give examples.



# Question 11

- What is **OpenMP** and how it works?
- Give some examples.



# Question 12

- What is **fork** and how it works?
- Give some examples.



# Question 13

- What is **cmake** and how it works?
- Give some examples.

