

DASL-100.2

C++ Programming and Linux

Midterm – Due 03/04/2023

1. Suppose you are working with a team to build a program for a robotic system. This program consists of multiple dynamic libraries to perform various tasks. However, your responsibility only focuses on reading the servo motors' voltage and amperage. You wish to modify your codes to make the program reading the values more accurately. Since the program is set up with dynamic libraries, your works do not interfere with other teammates. You are given the program (executable file) and a header file. Create a dynamic library file consist of:
 - A. A function file (function.cpp):
 - i. Declare `myServo::myServo(int inputID)` and set the class id to the inputID.
 - ii. In the `get_voltage` function, the reading for servo motor's voltage based on their id as follow:

ID	Voltage value
1	5.0
2	4.9
3	5.1

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iii. In the `get_amperage` function, the reading for servo motor's amperage based on their id as follow:

ID	Amperage value
1	2.0
2	1.0
3	1.5

B. Navigate to DASL wiki page ([Link](#)) and download "midterm" and "header.h" files.

C. Build your dynamic library as "libfunction.so".

D. Link your dynamic library to the given executable file (midterm). When you run the executable file, you should expect:

```
ubuntu20@ubuntu:~/Documents/midterm$ ./midterm
Servo motor 1, voltage: 5, amp: 2
Servo motor 2, voltage: 4.9, amp: 1
Servo motor 3, voltage: 5.1, amp: 1.5
ubuntu20@ubuntu:~/Documents/midterm$
```

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Note: Part A, B, C and D worth point 10 each.

Hint: Your set up should be something like this:

