

Problem 1: Find Number (40 Points)

Please turn in `findnum.cpp` that contains your implementation of the `find_num` function. In particular,

- I provided `findnum.h` which declares the function `find_num`. You should not edit this file!
- In `findnum.cpp`, you should implement the above function, i.e. provide the detailed definition.
- I provided `findnum.main.cpp`, you should not edit this file, but you will run this and it will test your implementation.

The function `findnum` finds the first occurrence of the integer `num` in the array `arr` (recall that `arr` is also a pointer), and returns a pointer with the address of that element. If there does not exist an element in `arr` with value `num`, then return `nullptr`.

Just to repeat, the pointer that is returned from the function should contain the address of the first occurrence of the element in `arr` that has the same value as `num`, but if none exists then the function should return `nullptr`.

- **Note:** There will be no user input. Just run the `findnum.main.cpp` and check your answers.

Problem 2: Department (40 Points)

Please turn in `department.cpp` that contains your implementation of the constructors and member functions of class `Employee` and `Department`.

- I provided `department.h` that declares class `Employee` and `Department`. You should not change this file! I also gave the instructions for the member functions in the comments in this file.
- In `department.cpp`, implement the constructors and member functions of class `Employee` and `Department`.
- I provided `department.main.cpp`, you should not change this file, but you will run this to test your implementations. The expected outputs are given in the comments in this file. Your outputs should be exactly same as the expected outputs!
- Note that your code should not only work for the examples I gave, but also work for other different examples.

Instructions

- All code must be written originally by yourself. You are not allowed to (even partially) copy code from anyone else. Incident of cheating or plagiarism will be reported to the Dean's office and results in a zero grade in this assignment.
- (5pt) Submit the files with exactly the name `findnum.cpp`, `department.cpp`, and only submit it to Gradescope.

- (5pt) Declare the ownership in the beginning of **each file**. See details in HW1.
- (80pt) Implement the program correctly.
- (10pt) Write your code with good coding practices, including commenting your code, using descriptive variable names, using constant variables, etc.
- Code compiles with Visual Studio 2022 and solves the questions. Students may lose the majority of points if their code doesn't compile with VS 2022. To receive full credits, the output must look EXACTLY the same as instructed above, including words, spaces, symbols, etc. Your code should not only work for the above examples, but also work for other different inputs.