

Homework 01

1. The use of the function pointer. Please make sure you understand the algorithm you used below.
 - a. Write a function that can do **bubble sort** with all values of int type stored in a std::vector or array
 - b. Write a function that can do **insertion sort** with all values of int type stored in a std::vector or array
 - c. Write a function sort to sort the vector<int> (or array), and allow the use of function pointer to select between **bubble sort** and **insertion sort** you designed in a and b, and call the sort function with two function pointers as arguments in main function.
2. Write a class name Engine
 - a. with three private member variables: CC, type, weight
 - b. Write a default and a non default constructor
 - c. Write all five special member functions, and invoke each special member function with the messages to confirm.
 - i. for example: in move constructor: cout<< "invoking move constructor!"<<std::endl;
3. Write a class name Car.
 - a. with a private member variable, my_engine, of type Engine.
 - b. In the constructor or assignment operator, give my_engine a value.
 - c. Write a global function: void check_engine(Car&) to print the information of engine in main function.(Try to use friend)
 - d. Write a public member function of Car: void check_my_engine(void) to print the information of engine in main function.
4. Write a class name Police, no member variable.
 - a. Write a static member function: void check_car(Car&) to print engine information of Car. Call this function by Police::check_car(Car&) in main function.