HW11 - Function Pointers and Virtual Functions [50 pts]

Answer the following questions by modifying the hw11.cpp source file and/or answering the question directly:

1. [read learncpp.com - function pointers, read cprogramming.com - function pointers] Answer Q#1 related questions listed in *main*. Indicate if an operation is not allowed and explain why.
2. [read learncpp.com - function pointers, read cprogramming.com - function pointers] Complete the implementation of the *selectionSort* function and associated *ascending, descending* comparison functions. Complete the implementation of your own *custom_sort* sorting algorithm Explain how *custom_sort* sorts array components. Answer Q#2 related questions listed in *main*.
3. [read learncpp.com – the virtual table, read wikipedia – virtual method table] Complete Q#3 written answer. Refer to *Base, D1, D2 & D3* classes. Fill out missing details for class vtables.
4. [read learncpp.com – the virtual table, read wikipedia – virtual method table] Complete Q#4 written answer. Refer to *main* [Q#4].
5. [read geeksforgeeks.org – object slicing, read wikipedia – object slicing] Complete Q#5 written answer. Refer to *main* [Q#5].

Include comments in your code to indicate which code segment answers which question. Appended written answers to the bottom of the hw11.cpp source file (as source comments via //).

Use the command script to capture your interaction compiling and running the program, including all operations, as shown below:

CS1C Spring 2023 TTH HW11 50 pts **Due: Th 3/30/2023**

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cs1c@cs1c-VirtualBox ~/cs1c/hw/11 $ script hw11.scr
Script started, file is hw11.scr
cs1c@cs1c-VirtualBox ~/cs1c/hw/11 $ date
...
cs1c@cs1c-VirtualBox ~/cs1c/hw/11 $ ls -l
...
cs1c@cs1c-VirtualBox ~/cs1c/hw/11 $ make all
...
cs1c@cs1c-VirtualBox ~/cs1c/hw/11 $ ls -l
...
cs1c@cs1c-VirtualBox ~/cs1c/hw/11 $ ./hw11

... // print out output from steps 1 thru 5

cs1c@cs1c-VirtualBox ~/cs1c/hw/11 $ exit
Script done, file is hw11.scr
cs1c@cs1c-VirtualBox ~/cs1c/hw/11 $ make tar
...
Submit the tar package file hw11.tar to by Thursday March 30, 2023.