

Assignment Date : 16/4/2024
Due Date : 30/4/2024 at 23:59

- Student must do the homework without any collaboration or help.
- Automatic plagiarism detection software will be used for scanning and checking the submitted files.
- If significant similarities are found between submitted files, it will be considered as plagiarism, and those homework grades will be zero.
- File should be submitted to Ninova only, email submission is not accepted.
- Program should be compiled without syntax errors.
- It should work efficiently and generate correct results as expected.
- Solution should be according to the class specifications given below. Any other methods will not be graded.

CLASSES

Write C++ codes for UML class diagrams below. (+ public, # protected, - private).

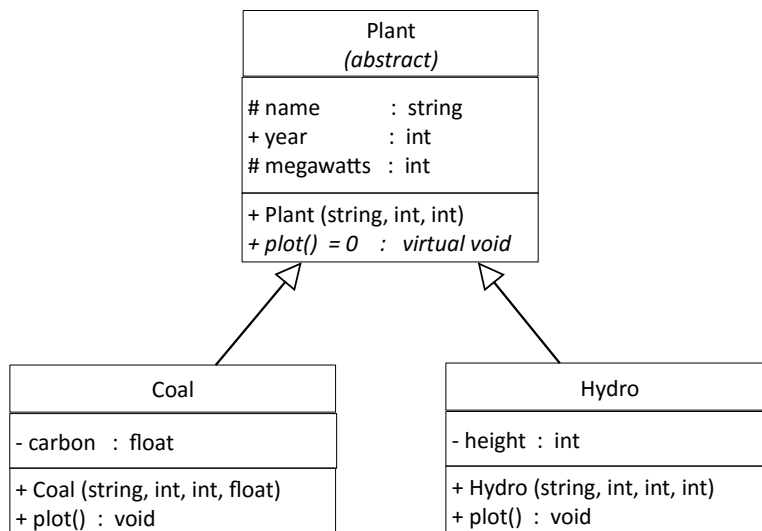
Base class Plant is an abstract class which represents all kinds of **electric power plants**.

Derived Coal class represents the power plants whose fuel type is coal.

Derived Hydro class represents the hydro-electric power plants.

Parametered constructors should initialize the member data.

The plot functions in derived classes should display a horizontal histogram for the plant megawatts values.



MAIN PROGRAM

Write a main C++ program to do followings.

- Standard Template Library (built-in STL classes) should NOT be used.
- Use only the same data values given below, do not use other different data values.
- Do not use object variable names which are same as the data value contents.
- User will NOT enter any data inputs from keyboard, program should assign all data through class constructors.

Define a **polymorphic array** of pointers for the base class Plant.

Dynamically allocate the following **Coal objects** thru constructors, and add them to the polymorphic array.

Name	Year	Megawatts	Carbon
Baihetan	2024	450	6.21
Xiangji	2022	51	5.37
Jaisalmer	2023	210	5.32
Nyabarongo	2024	365	5.51
Walney	2023	660	4.00
Gateway	2023	405	5.18
Vindhyachal	2023	520	5.92
Taichung	2024	70	6.13

Name	Year	Megawatts	Height
Yeongheung	2023	1800	173
Kashiwazaki	2022	1330	210
Coulee	2023	1209	135
Hongyanhe	2024	702	195
Polaniec	2022	672	63

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