

Assignment

Practice Questions OOPS I

Separate Compilation

Always have three distinct files for the following questions:

- *Stack.h (contract)*
 - *Stack.cpp (developer)*
 - *Main.cpp (user)*
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1. Write a class *myStack* with the following functionalities. No other function should be included.
 1. I can add a character to the stack (push)
 2. I can read a character from the stack (front, a new function!)
 3. I can delete a character from the stack (pop)
 - a) Compile each file separately. Which is the extension of the compiled file. Is it different from which that you get after linking?
 - b) What should be the data members of *myStack*
 - c) What are the member functions of *myStack*
 - d) Write a main function to test 1,2,3
 - e) Try creating an object of *myStack* from an already existing *myStack*.
 - f) Try assigning object of *myStack* from already existing *Stack*.
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STOP READING! First implement up question before proceeding.

Analyze:

- Did you use a char array to implement the Stack?
 - Was there any need to initialize the top of Stack?
 - What happens when no constructor was supplied?
 - What happens when no copy constructor was supplied from the developer end? Is the array copied as the sense applies?
 - How does compiler knows to assign a *myStack* from another? (Part e)
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- g) Modify the main function to print "My First MutiFile Program".
 - Which files need to be compiled?
 - h) Try adding a new method that return the size of stack so far.
 - Which files need to be compiled now?

2. Modify the above *myStack* as follows:
 - I can create a stack from a c-string
 - I can create an empty stack
 3. Modify the above *Stack* as follows:
 - I can create a stack of N size
 - I can create a stack from another stack
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STOP READING! First implement up question before proceeding.

Analyze:

- Did you use a char array to implement the Stack?
 - Was there any need to initialize the top of Stack?
 - What happens when no constructor was supplied?
 - What happens when no copy constructor was supplied from the developer end? Is the array copied as the sense applies?
 - How does compiler knows to assign a myStack from another? (Part e)
 - Do I need to write destructor for this?
4. Google the following terms and write them in your own words:
 - Object Oriented Programming
 - Modular Programming Paradigm
 - Polymorphism
 - Data Abstraction
 - Data Encapsulation
 - Difference between a function and a method
 - Procedure (in terms of programming)
 - Constructor, Destructor
 - Function Overloading
 - Method Overloading
 - Function Signature
 - Function Prototype
 - Abstract Data Type
 - User Defined Type
 - Concrete Type
 - Difference between an Object and an instance
 - Class

Bonus Question: Can there be a class which CANNOT be instantiated? If yes, what would be the purpose of such class.

Hint: Think of a contract!