Continuous Evaluation 1 (CE1)

Write a C++ code to simulate functioning of TCP/IP layers. The structure of the code is as follows:

class application	private:
	String message
	public:
	void get(String msg,bool txrx)//to get message from user or transport layer
	String print()//to print message and pass the message to next layer

class transport	private:
	String header="TL"
	String tlmessage
	public:
	void get(String msg,bool txrx)//to append or remove header from msg
	String print()//to print tlmessage and pass the message to next layer

class network	private:
	String header="NL"
	String nlmessage
	public:
	void get(String msg,bool txrx)//to append or remove header from msg
	String print()//to print nlmessage and pass the message to next layer

class datalink	private:
	String header="DL"
	String dlmessage
	public:
	void get(String msg,bool txrx)//to append or remove header from msg
	String print()//to print dlmessage and pass the message to next layer

class physical	private:
	int dstream[100]
	public:
	void get(String msg, int dstr[], bool txrx)//If txrx=1: Convert msg to dstr; if txrx=0: Convert dstr to msg.
	
	String print()//to print dstream and pass the message to next layer
	
	String to dstr: Each character is converted to ASCII code. You may use any required datatype for dstream/dstr.

main	To create objects of each class and calling public functions of each class. Layers should append header if txrx=1 and layers should remove header if txrx=0.

Make necessary assumptions. If required, you are allowed to make small modifications in the above structure. Your output may look like following:

Case 1: txrx=1

Enter message

Hello

Message at Application layer: Hello

Message at Transport layer: TLHello

Message at Network layer: NLTLHello

Message at Data Link layer: DLNLTLHello

Message at Physical layer:

ASCII: 68 76 78 76 84 76 72 101 108 108 111

Case 2: txrx=0

Message at Physical layer

ASCII: 68 76 78 76 84 76 72 101 108 108 111

msg: DLNLTLHello

Message at Data Link layer: NLTLHello

Message at Network layer: TLHello

Message at Transport layer: Hello

Message at Application layer: Hello