Take Home Quiz(3)

Submit handwritten soft copy in GCR by 11:59 tonight and hard copy in the upcoming onsite class

You are tasked with implementing a simple **chat application** that supports two types of messages i.e., (text and video). The application provides the basic chat methods like (sendMessage, displayMessage, and deleteLastMsg). Each chat object can send maximum of 10 messages and incase of overflow (more than 10 msgs) or underflow (deletion of msg when msgCount is 0) it must display a proper message on console. The chat class acts like an abstract class having all the functions (used in the application) as pure virtual functions and it is mandatory to override these methods in child classes.

Use char arrays, (you can use built-in functions strcpy or strlen etc). Make sure there must not be any memory leak. A sample main function is given to test the functionality.

```
int main() {
    TextMsg* text = new TextMsg;
    VideoMsg* video = new VideoMsg;
    Chat* chats[2];
    chats[0] = text;
    chats[1] = video;
    for(int i=0; i<10; i++)
        text->sendMessage("Hello, how are you?");
    text->deleteLastMsg();
    text->sendMessage("Don't forget the deadline!");
    video->sendMessage("demo.mp4", "mp4", 10.4);  //filename, format, size
    video->sendMessage("meeting.avi", "avi", 209.7);
    cout << "--- Displaying Messages ---\n";
    for (int i = 0; i < 2; ++i) {
        chats[i]->displayMessages();  //it must print all the stored messages.
        cout << endl;
    }
    delete text;
    delete video;
}
```