Ratings and Analysis of Modules

1. server.py — 7/10
   Pros:
   • Clear Server class with methods for bind/listen, accept, broadcast, cleanup.
   • Thread-per-client model is simple and works for small groups.
   Cons:
   • Never tags broadcasts with sender’s name/timestamp—clients display wrong username.
   • No framing protocol (1024■byte chunks can split messages unpredictably).
   • Uses raw print() instead of structured logging; risk of race conditions on self.clients list.

2. client_app.py — 6/10
   Pros:
   • Separate receive thread lets incoming messages print immediately.
   • Prompts for username up front and encodes it to the server.
   • Uses Message class to format outgoing display.
   Cons:
   • Incoming messages get labeled with your username (server never includes the real sender).
   • Console I/O can interleave—no prompt reprint after a message arrives.
   • Doesn’t inform user 'type “quit” to exit,' and lacks KeyboardInterrupt handling.

3. client.py — 5/10
   Pros:
   • Encapsulates conn, addr, id, and username in one object.
   • Easy to extend (e.g., add per-client methods).
   Cons:
   • Holds redundant host/port attributes (same for every client).
   • No methods for send/recv—pure data structure.
   • Name collides with client_app; could be clearer (e.g., ServerClient).

4. message.py — 7/10
   Pros:
   • Centralizes formatting logic (format() vs raw()).
   • Clean separation of username, data, timestamp.
   Cons:
   • raw() implementation is broken (b"...".format(...) won’t work).
   • Doesn’t handle framing or parsing—only formatting.
   • Method names overlap with built-in format.

5. run.py — 3/10
   Pros:
   • Placeholder for a CLI entry point under if __name__=='__main__'.
   Cons:
   • Empty pass—does nothing.
   • Should either invoke server.start()/client.connect() or be removed.

6. __init__.py — 2/10

Pros:

• Defines a main() stub and module entry point.

Cons:

• main() is empty; no real package initialization.

• Unnecessary clutter unless you plan to turn this into an installable package.