

四川 大学 计算机 学院、软件 学院

实 验 报 告

学号：2021141430158 姓名：杨融鑫 专业：计算机科学与技术 班级：行政三班 第 10 周

课程名称	网络编程	实验课时	3 个课时
实验项目	Socket 编程练习：用户注册与登录	实验时间	3 个小时
实验目的	自己编写二进制通讯协议，实现注册认证功能		
实验环境	Visual Code Studio Python 3.10		

<p>实 验 内 容 （ 算 法 、 程 序、步骤 和方法）</p>	<p>任务 1. User Registration - 用户注册</p> <p>① 客户端连接服务器，并发送 registration request msg 进行注册，然后客户端等待注册结果。</p> <p>② 若注册请求通过，服务器在本地 passwd文件中保存新用户的用户名和密码的 hash 值，并返回 registration response msg，通知客户端注册成功。</p> <p>③ 若注册请求未通过（用户重名），并返回 registration response msg，通知客户端注册失败。</p> <p>任务 2. User Authentication - 用户登录认证</p> <p>① 客户端连接服务器，并发送 login request msg 进行登录，然后客户端等待登录结果。</p> <p>② 服务器在本地 passwd文件中查找对应用户记录，并计算 login request msg 中密码的 hash 值，若 hash一致，则验证通过，服务器返回 login response msg，通知客户端登录成功。</p> <p>③ 若身份认证失败（用户名不存在或密码不正确），服务器返回 login response msg，通知客户端注册失败，并在返回消息中描述失败原因。</p>
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(接上)
实验内容(算法、程序、步骤和方法)

数据记录
和计算

用户注册:

No.	Time	Source	Destination	Protocol	Length	Info
341	29.001725	127.0.0.1	127.0.0.1	TCP	56	5893 → 8888 [EST] Seq=0 Win=5535 Len=0 MSS=65495 MS=256 SACK_PERM
342	29.001736	127.0.0.1	127.0.0.1	TCP	66	8888 → 5893 [EST] Seq=1 Ack=1 Win=5535 Len=0 MSS=65495 MS=256 SACK_PERM
343	29.001823	127.0.0.1	127.0.0.1	TCP	54	5893 → 8888 [ACK] Seq=1 Ack=1 Win=2619648 Len=0
344	29.001893	127.0.0.1	127.0.0.1	SNMP	182	182_receiver(Malformed Packet)
345	29.001900	127.0.0.1	127.0.0.1	TCP	44	8888 → 5893 [ACK] Seq=1 Ack=1 Win=2619648 Len=0
358	29.000591	127.0.0.1	127.0.0.1	SNMP	117	117_transmitter
359	29.000618	127.0.0.1	127.0.0.1	TCP	44	5893 → 8888 [ACK] Seq=59 Ack=74 Win=2619648 Len=0
362	29.000609	127.0.0.1	127.0.0.1	TCP	44	5893 → 8888 [ACK] Seq=59 Ack=74 Win=2619648 Len=0
353	29.000905	127.0.0.1	127.0.0.1	TCP	44	8888 → 5893 [ACK] Seq=74 Ack=60 Win=2619648 Len=0
354	29.001198	127.0.0.1	127.0.0.1	TCP	44	8888 → 5893 [FIN, ACK] Seq=74 Ack=75 Win=2619648 Len=0
355	29.001216	127.0.0.1	127.0.0.1	TCP	44	5893 → 8888 [ACK] Seq=74 Ack=75 Win=2619648 Len=0
348	30.012437	127.0.0.1	127.0.0.1	TCP	56	5893 → 8888 [EST] Seq=0 Win=5535 Len=0 MSS=65495 MS=256 SACK_PERM
385	30.012409	127.0.0.1	127.0.0.1	TCP	56	5888 → 5896 [EST, ACK] Seq=0 Win=5535 Len=0 MSS=65495 MS=256 SACK_PERM
386	30.012408	127.0.0.1	127.0.0.1	TCP	44	5896 → 8888 [ACK] Seq=1 Ack=1 Win=2619648 Len=0
387	30.012592	127.0.0.1	127.0.0.1	SNMP	182	182_Querry.self(Malformed Packet)
388	30.012618	127.0.0.1	127.0.0.1	TCP	56	5893 → 8888 [EST] Seq=0 Win=5535 Len=0 MSS=65495 MS=256 SACK_PERM
393	30.012641	127.0.0.1	127.0.0.1	TCP	44	5896 → 8888 [ACK] Seq=1 Ack=1 Win=2619648 Len=0
394	30.012623	127.0.0.1	127.0.0.1	TCP	56	5893 → 8888 [EST] Seq=0 Win=5535 Len=0 MSS=65495 MS=256 SACK_PERM

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Wireshark - [946] 344 - Adapter for loopback traffic capture
[Frame 344: 182 bytes on wire (816 bits), 182 bytes captured (816 bits) on interface Null/loopback
Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
Transmission Control Protocol, Src Port: 5893, Dst Port: 8888, Seq: 1, Ack: 1
Short Message Peer to Peer, Command: Bind_receiver, Seq: 080644432, Len: 58
Malformed Packet - SNMP

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Frame 344: 182 bytes on wire (816 bits), 182 bytes captured on Null/loopback

Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1

Transmission Control Protocol, Src Port: 5893, Dst Port: 8888, Seq: 1, Ack: 1

Short Message Peer to Peer, Command: Bind_receiver, Seq: 080644432, Len: 58

Short Message Peer to Peer, Command: Bind_receiver, Seq: 080644432, Len: 58

Malformed Packet: SNMP

The screenshot displays the Wireshark network protocol analyzer interface. The top section shows a list of captured packets. The selected packet (No. 1) is detailed in the middle pane, showing its structure: Ethernet II (Type: IPv4), Internet Protocol Version 4 (Source: 127.0.0.1, Destination: 127.0.0.1), and Short Message Peer-to-Peer (Command: Bind, Transmitter: 127.0.0.1, Receiver: 127.0.0.1). The bottom pane shows the raw packet data in hexadecimal and ASCII. The packet is a 'Short Message Peer-to-Peer' packet, specifically a 'Bind' command, as indicated by the 'Command' field in the 'Short Message Peer-to-Peer' section.

用户登录:

Time	Source	Destination	Protocol	Length	Info
341	259.001725	127.0.0.1	TCP	56	5883 → 8888 [SYN] Seq=Min-65555 Len=0 MSS=65535 Win=0
342	259.001760	127.0.0.1	TCP	56	5888 → 5893 [SYN, ACK] Seq=Min-65558 Len=0 MSS=65535 Win=0
343	259.001835	127.0.0.1	TCP	56	5893 → 8888 [ACK] Seq=Ack-1 Min-65558 Len=0
344	259.001835	127.0.0.1	SNMP	102	117 GetRequest (Unformatted Packet)
345	259.001890	127.0.0.1	TCP	44	8888 → 5893 [ACK] Seq=Ack-1 Min-261968 Len=0
350	259.005051	127.0.0.1	SNMP	117	117 EndResponse
351	259.005051	127.0.0.1	TCP	44	5893 → 8888 [ACK] Seq=Seq+Ack-74 Min-261968 Len=0
352	259.009079	127.0.0.1	TCP	44	5893 → 8888 [FIN, ACK] Seq=Seq+Ack-74 Min-261968 Len=0
353	259.009295	127.0.0.1	TCP	44	8888 → 5893 [ACK] Seq=Ack-74 Min-261968 Len=0
354	259.009295	127.0.0.1	TCP	44	8888 → 8888 [RST] Seq=Seq+Ack-74 Min-261968 Len=0
355	259.009295	127.0.0.1	TCP	44	5893 → 8888 [ACK] Seq=Seq+Ack-75 Min-261968 Len=0
361	259.012137	127.0.0.1	TCP	56	5894 → 8888 [SYN] Seq=Min-65555 Len=0 MSS=65535 Win=0
362	259.012469	127.0.0.1	TCP	56	8888 → 5894 [SYN, ACK] Seq=Min-65558 Len=0 MSS=65535 Win=0
363	259.012469	127.0.0.1	TCP	44	5894 → 8888 [ACK] Seq=Ack-1 Min-261968 Len=0
367	259.02552	127.0.0.1	SNMP	102	Query (Unformatted Packet)
368	259.025610	127.0.0.1	TCP	44	8888 → 5894 [ACK] Seq=Ack-1 Min-261968 Len=0
389	259.032628	127.0.0.1	TCP	117	117 Submit (Unformatted Packet)
394	259.032635	127.0.0.1	TCP	44	5894 → 8888 [ACK] Seq=Seq+Ack-7 Min-261968 Len=0

No.	Time	Source	Destination	Protocol	Length	Info
341	25.001725	127.0.0.1	127.0.0.1	TCP	5893	=>8888 [RST] Seq= Win=65535 Len=0 MSS=
342	25.001760	127.0.0.1	127.0.0.1	TCP	5888	=>8888 [SYN, ACK] Seq=1 Ack=1 Win=65535 Len=0
343	25.001762	127.0.0.1	127.0.0.1	TCP	44	=>8888 [SYN, ACK] Seq=1 Ack=1 Win=65535 Len=0
344	25.001762	127.0.0.1	127.0.0.1	TCP	102	bind query [Malformed Packet]
345	25.001769	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
346	25.008051	127.0.0.1	127.0.0.1	SNMP	117	bind.transmitter
347	25.008051	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
352	25.009079	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
353	25.009079	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
354	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
355	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
356	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
357	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
358	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
359	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
360	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
361	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
362	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
363	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
364	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
365	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
366	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
367	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
368	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
369	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
370	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
371	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
372	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
373	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
374	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
375	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
376	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
377	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
378	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
379	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
380	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
381	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
382	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
383	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
384	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
385	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
386	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
387	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
388	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
389	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
390	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
391	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
392	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
393	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
394	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
395	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
396	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
397	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
398	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
399	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
400	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
401	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
402	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
403	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
404	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
405	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
406	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
407	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
408	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
409	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
410	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
411	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
412	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
413	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
414	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
415	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
416	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
417	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
418	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
419	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
420	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
421	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
422	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
423	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
424	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
425	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
426	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
427	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
428	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
429	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
430	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
431	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
432	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
433	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
434	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
435	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
436	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
437	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
438	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
439	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
440	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
441	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
442	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
443	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
444	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
445	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
446	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
447	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
448	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
449	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
450	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
451	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
452	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
453	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
454	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
455	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
456	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
457	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
458	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
459	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
460	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
461	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
462	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
463	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
464	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
465	25.009116	127.0.0.1	127.0.0.1	TCP	44	=>8888 [RST] Seq=1 Ack=59 Win=2619648 Len=0
466	25.009116	127.0.0.1	127.0.			

密码保存文件:

[illegible]

用户成功注册并且登录:

```
PS C:\Users\杨融鑫\Desktop\网络编程> & 'C:\Users\杨融鑫\AppData\Local\Programs\Python\Python310\python.exe' 'c:\Users\杨融鑫\.vscode\extensions\ms-python.python-2022.18.2\pythonFiles\lib\python\debugpy\adapter\..\..\debugpy\launcher' '5888' '--' 'c:\Users\杨融鑫\Desktop\网络编程\client.py'
```

服务器端响应:

结 论

(结 果)

	<pre>PS C:\Users\杨融鑫\Desktop\网络编程> & 'C:\Users\杨融鑫\AppData\Local\Programs\Python\Python310\python.exe' 'c:\Users\杨融鑫\.vscode\extensions\ms-python.python-2022.18.2\pythonFiles\lib\python\debugpy\adapter\..\..\debugpy\launcher' '5873' '--' 'c:\Users\杨融鑫\Desktop\网络编程\server.py' Server is listening on port 8888... Connected to ('127.0.0.1', 5893) Connected to ('127.0.0.1', 5894)</pre>
小 结	<div></div> <p>通过实践，我对 Socket 编程的原理有了更深入的理解。我学会了如何创建套接字、监听连接、发送和接收消息等基本操作，以及如何处理并发连接和异常情况。</p> <p>设计消息传输协议是这个实践的关键。我学会了如何设计简单但有效的消息结构，包括消息头和消息体的格式，以及如何定义不同类型的消息以支持各种功能。</p> <p>在实现过程中，我意识到了安全性的重要性。我学会了如何使用哈希算法对密码进行加密存储，以及如何使用加密技术保护消息在传输过程中的安全性，确保用户的隐私和数据安全。</p> <p>通过这个项目，我不仅学到了很多理论知识，还锻炼了实践能力和解决问题的能力。我相信这些经验和技能将在我的职业生涯中发挥重要作用，并且我会继续探索和学习，不断提升自己。</p> <div></div>

注意：

- 实验报告将记入实验成绩；
- 每次实验开始时，交上一次的实验报告，否则将扣除此次实验成绩。