简要说明文档

程序架构

程序采用的是 python 标准库中的 asyncore 异步通信模块作为基本架构。（不过在已经完成了大部分代码工作之后，后来要求不允许使用 **asyncore** 模块，所以决定模仿 **asyncore** 模块粗略的封装 **select** 的操作，命名为 **lazy_asyncore** 模块）

程序运行

服务器端和客户端均通过命令行运行。

服务器端：python   server.py

客户端：python   client.py   ip_addr   port

在本地测试 ip 地址为 localhost，默认端口为 6666

注册与登录

● 注册

- 登录

```
Please login first...
User Name:fanxiaochen
Password:fxc_
```

游戏大厅

```
Successful login. Now you've in the 21 points game lobby.
In the game lobby, you can create rooms to
play games or chat with other players.
Some commands to know:
1. 'cr roomname' -- create new room
2. 'find all' -- find all rooms
3. 'er roomname' -- enter existing room
4. 'qt roomname' -- quit from room
5. 'logout' -- logout the lobby
6. 'start' -- be ready for the game
7. '21game answer' -- send your answer
8. chatting mode
 1) 'chatAll msg' -- broadcast to all players
 2) 'chatRoom msg' -- broadcast to players in the room
 3) 'chat username msg' -- chat with somebody
 4) 'msg' -- receive messages
cmd:_
```

进入游戏大厅之后，会提示整个所需要的各种命令格式，主要包括房间相关，游戏相关以及聊天相关的命令。

创建房间

```
cmd:cr fan
Successful creating room! Now you can play game in the room.
You can chat with others or input "start" to wait for the game, it'll start half
-hourly...
```

发现房间

```
cmd:find all
Current Rooms:
room name: fan
room owner: fanxiaochen
player number: 1
```

进入房间

```
cmd:er fan
Successful entering room! Now you can play game in the room.
You can chat with others or input "start" to wait for the game, it'll start half
-hourly...
```

退出房间

```
cmd:qt
Successful quiting room!
```

开始游戏

进入房间之后，需要房间内的所有玩家输入'start'来确认开始游戏，然后服务器根据整半点发布 21 点游戏给房间里面的每一个玩家。**题目要求是每逢半点才发布具体内容，所以不要过早确认开始游戏，因为一旦确认，就默认进入等待过程，无法再做其他的事情。**

```
cmd:start
Ready for game. Waiting for others...
```

到时间点之后，游戏发布给房间内所有玩家。

```
Game starts! There are four numbers below,
by using "+ - * / ( )" to get the result be close to 21.
please write the answer like "21game ANSWER" in 15s.
0 5 8 3
```

按要求输入答案之后，需要等待其他所有玩家都作答完毕。当所有玩家完成答案之后，会反馈游戏结果。（**题目要求是在 15s 之内完成作答，但实际上发现由于需要手动输入表达式这样的命令，所以往往都会超时，导致没有人获胜，将作答时间增加一些更合理**）

胜利者：
```
ans:21game 5+8+3+0
Congratulations! You are the winner!
Continue or not?
1. continue
2. quit room
```

失败者：
```
ans:21game 8-3+5+0
Sorry! You lose the game.
Continue or not?
1. continue
2. quit room
```

一轮游戏结束之后可以选择继续还是退出房间。

聊天模式

一共有四个相关命令。'chatAll'用来向大厅内所有人广播，'chatRoom'用来向房间内所有人广播，'chat'用来向某个特定的人发送消息，而**'msg'用来查看已接收到的消息。（由于没有做控制台的非阻塞式操作，所以他人发送过来的消息不能及时在控制台中出现，需要手动查看已接收到的消息）**

```
8. chatting mode
1) 'chatAll msg' -- broadcast to all players
2) 'chatRoom msg' -- broadcast to players in the room
3) 'chat username msg' -- chat with somebody
4) 'msg' -- receive messages
```

向大厅所有人发送消息

```
cmd:chatAll hello!~
Chatting...(lobby msg)netease1:hello!~
```

向房间所有人发送消息

```
cmd:chatRoom let's play~
Chatting...(room msg)netease1:let's play~
```

向特定玩家发送消息

```
cmd:chat fanxiaochen who are you?
Chatting...(private msg)netease1:who are you?
```

接收消息

```
cmd:msg
(lobby msg)netease1:hello!~
(room msg)netease1:let's play~
(private msg)netease1:who are you?
```

注销并存盘

输入'logout'即可注销，并且在线时长被存入数据库。

```
cmd:logout
Successful logout.
Welcome to the 21 points game world!!
Please choose 1 if you already have an
account, otherwise choose 2
1. login
2. create an account
Your choice:
```