

# Chat App Final Presentation

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# Agenda

- Design Decision
- Design Pattern
- API Design
- Demo



# Design Decision

## Tech Stack

- Frontend: vanilla JS(JQuery)
- Backend: Java Spark
- Communication protocol: Websocket



## Design Pattern

1. Command Pattern
  - each command takes care of one use case
2. Singleton Pattern
  - UserManager, ChatRoomManager
  - RequestBuilder, ResponseBuilder
3. Factory Method Pattern
  - builds different commands accordingly



# API Design

## request

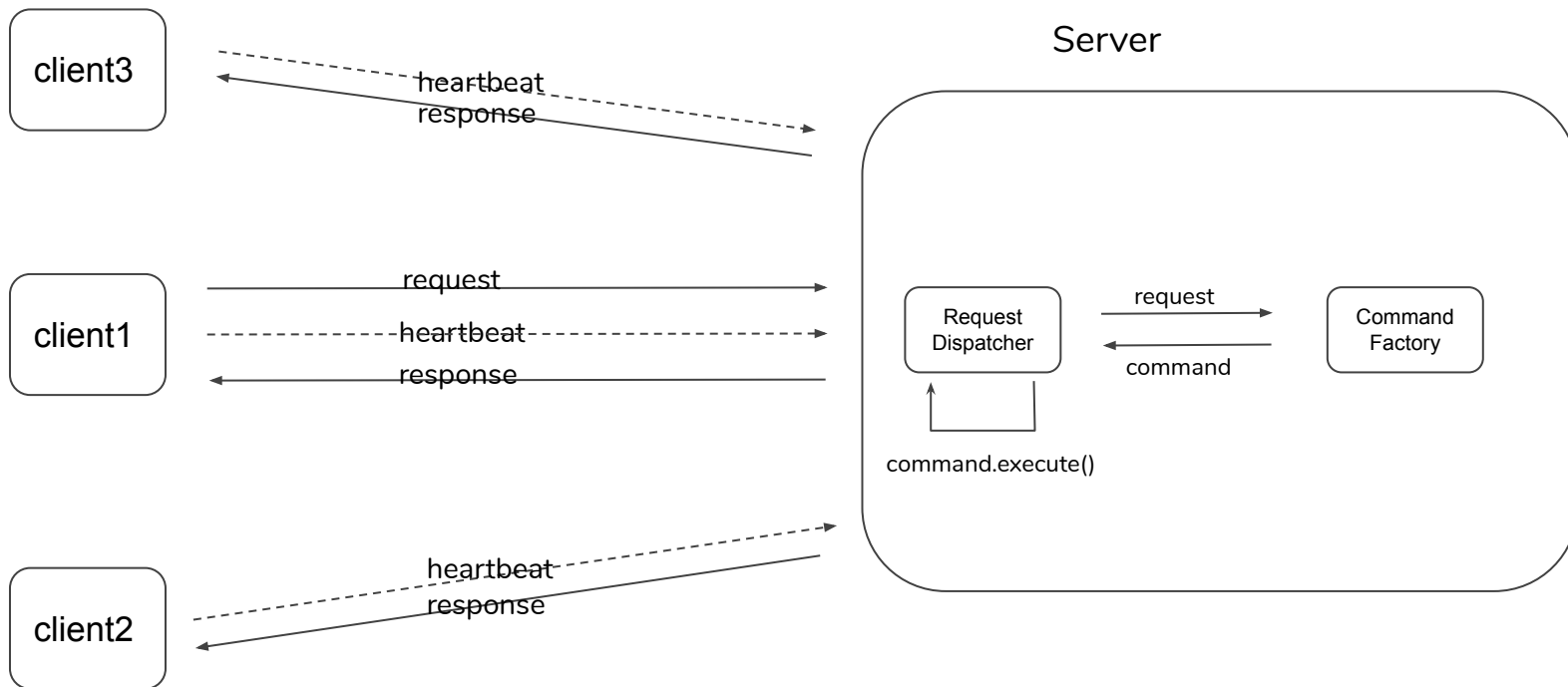
- ApproveRequest
- BanUserRequest
- CloseConnectionRequest
- CreateRoomRequest
- EditMsgRequest
- ExitRequest
- GetMsgRequest
- GetUserListRequest
- InviteUserRequest
- IRequest
- JoinRequest
- RecallMsgRequest
- RegisterRequest
- ReportRequest
- SendMsgRequest

## response

- AddMsgResponse
- AskApproveResponse
- EditMsgResponse
- ErrorResponse
- GetMsgResponse
- NotifyResponse
- RecallMsgResponse
- ReturnProfileResponse
- UpdateChatRoomListResponse
- UpdateUserListResponse
- WarningResponse



## API Design



# Backend APIs

- objects: ChatRoom, User and Message

```
ChatRoom
ChatRoom(Integer, String, Boolean, Integer)
equals(Object) boolean
getChatRoomID() Integer
getChatRoomName() String
getIsPrivate() Boolean
getUserList() List<User>
getMsgList() List<Message>
getAdmin() User
addUser(Integer) void
deleteUser(Integer) void
newMsg(String, Timestamp, Integer, Integer, String) Message
removeMsg(Integer) void
getMsg(Integer) Message
banUser(Integer) void
isBanned(Integer) Boolean
broadcastResponse(String) void
sendResponse(Integer, String) void
getUserNum() Integer
setNewAdmin() void
isUserExists(Integer) boolean
broadcastResponsePerUser(BroadcastInterface) void
getNextMsgID() int
```

```
User
User(Integer, String, Integer, String, String[], Session)
equals(Object) boolean
getUsername() String
getUserID() Integer
getAge() Integer
getNumOfHate() Integer
getJointChatRooms() List<ChatRoom>
hasJoined(ChatRoom) Boolean
getSchool() String
getInterests() String[]
addChatRoom(ChatRoom) void
sentHate(Integer) void
getSession() Session
sendResponse(String) void
exitChatRoom(Integer) void
```

```
Message
Message(Integer, String, Timestamp, Integer, Integer, String)
getMsgID() Integer
getType() String
getTimestamp() Timestamp
getSenderID() Integer
getReceiverID() Integer
getContent() String
editContent(String) void
```

## Backend APIs

- objects: UserManager and ChatRoomManager

UserManager	
getOnly()	UserManager
newUser(User)	void
deleteUser(Integer)	void
getUser(Integer)	User
banUser(User)	void
isBanned(Integer)	Boolean
getUserID(Session)	Integer
getNextUserID()	Integer
broadcastResponse(String)	void
broadcastResponsePerUser(BroadcastInterface)	void
reset()	void

ChatRoomManager	
getOnly()	ChatRoomManager
addChatRoom(String, Boolean, Integer)	ChatRoom
deleteRoom(Integer)	void
getChatRoom(Integer)	ChatRoom
getPublicChatRooms()	ChatRoom[]
reset()	void





## Backend APIs

Command Name	Description
ApproveCmd	Approve a user's request to join a chat room by the admin.
BanUserCmd	Ban a user from a chat room by the admin.
CreateRoomCmd	Create a chat room.
EditMsgCmd	Edit the content of a sent message.
InviteUserCmd	Invite a user to join a chat room by the admin.
JoinRoomCmd	Send out a user's request to join a chat room.
RecallMsgCmd	Recall a message from the chat room.
SendMsgCmd	Send a message to the chat room or a specific user.
CloseConnectionCmd	Clean up the information about the user.
ExitCmd	The user exits the room.
GetMsgCmd	Get the message list of the room.



## Backend APIs

- utilities: RequestBuilder, ResponseBuilder and TestUtilities
- requests and responses

RequestBuilder	
buildInviteUserRequest(Integer, Integer, Integer)	InviteUserRequest
buildBanUserRequest(Integer, Integer, Integer)	BanUserRequest
buildRegisterRequest(String, int, String, String[])	RegisterRequest
buildCreateRoomRequest(String, Integer, Boolean)	CreateRoomRequest
buildApproveRequest(Integer, Integer, Boolean)	ApproveRequest
buildExitRequest(Integer, Integer)	ExitRequest
buildJoinRequest(Integer, Integer)	JoinRequest
buildCloseConnectionRequest(Integer)	CloseConnectionRequest
buildCGetUserListRequest(Integer, Integer)	GetUserListRequest
buildSendMsgRequest(Integer, Integer, Integer, String)	SendMsgRequest
buildGetMsgRequest(Integer, Integer)	GetMsgRequest
buildRecallMsgRequest(Integer, Integer, Integer, Integer)	RecallMsgRequest
buildReportRequest(Integer, Integer, String)	ReportRequest
buildEditMsgRequest(Integer, Integer, Integer, Integer, String)	EditMsgRequest

ResponseBuilder	
buildUpdateChatRoomListResponse(User)	UpdateChatRoomListResponse
buildUpdateOwnChatRoomListResponse(User)	UpdateChatRoomListResponse
buildUpdateUserListResponse(ChatRoom)	UpdateUserListResponse
buildAddMessageResponse(Integer, Message, String, String)	AddMsgResponse
buildAddMessageResponse(Integer, Message)	AddMsgResponse
buildAskApproveResponse(ChatRoom, User)	AskApproveResponse
buildErrorResponse(String)	ErrorResponse
buildProfileResponse(User)	ReturnProfileResponse
buildEditMessageResponse(Integer, Integer, Message)	EditMsgResponse
buildRecallMessageResponse(Integer, Integer, Message)	RecallMsgResponse
buildGetMessageResponse(Integer)	GetMsgResponse
buildWarningResponse(String)	WarningResponse
buildNotifyResponse(Integer, Integer)	NotifyResponse



Demo

**Thanks!**

**Q&A Session**

