websocket 记录

1.spring 整合websocket

1.不用注解的方式

1.简单说明

```
1.spring整合websocket有两种方式
1.1 实现org.springframework.web.socket.WebSocketHandler
重写里面的方法
1. 方法 afterConnectionEstablished（），是连接之后进行的操作，类似于以前的 onopen 方法。里面有一个参数 WebSocketSession，表示连接进来的那一个 Session. 可以通过 getAttributes() 方法，获取 HandshakeInterceptor 拦截器放置的 paramMap 集合。
2. 方法 handleMessage(), 是服务器接收浏览器发送过来的消息进行的操作，类似于以前的 onmessage 方法。 WebSocketSession 对象表示 发送消息的那一个Session, WebSocketMessage 表示发送的消息主体。
3. 方法 handleTransportError（）是出现异常时进行的操作，类似于以前的 onerror 方法。WebSocketSession 对象表示哪一个Session 出现了错误异常。
4. 方法 afterConnectionClosed（）,是浏览器断开连接或者服务器断开连接的操作，类似于以前的 onclose 方法，WebSocketSession 表示 断开的是哪一个Session
5. 方法 supportsPartialMessages（） 表示是否支持拆分。 当浏览器输入的内容过多时，允不允许将接收到的内容，进行拆分处理。通常不允许拆分, 返回 false 即可。

1.2 利用注解注释类方法,这种是用java自带的包
javax.websocket.ClientEndpoint
javax.websocket.ServerEndpoint
javax.websocket.Session

@OnOpen
@OnMessage
@OnError
@OnClose

public void send(String message) {
        this.session.getAsyncRemote().sendText(message);
    }
```

2.服务端

1.pom.xml

```
<dependencies>
        <!---->
        <dependency>
            <groupId>org.springframework</groupId>
            <artifactId>spring-websocket</artifactId>
            <version>4.2.4.RELEASE</version>
        </dependency>

        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-web</artifactId>
```

```
        </dependency>

        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-devtools</artifactId>
            <scope>runtime</scope>
            <optional>true</optional>
        </dependency>
        <dependency>
            <groupId>org.projectlombok</groupId>
            <artifactId>lombok</artifactId>
            <optional>true</optional>
        </dependency>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-test</artifactId>
            <scope>test</scope>
        </dependency>
    </dependencies>

    <build>
        <plugins>
            <plugin>
                <groupId>org.springframework.boot</groupId>
                <artifactId>spring-boot-maven-plugin</artifactId>
                <configuration>
                    <excludes>
                        <exclude>
                            <groupId>org.projectlombok</groupId>
                            <artifactId>lombok</artifactId>
                        </exclude>
                    </excludes>
                </configuration>
            </plugin>
        </plugins>
    </build>xml
```

2.拦截器

```
1.继承spring提供的拦截器接口
org.springframework.web.socket.server.support.HttpSessionHandshakeInterceptor

2.内容
public class WebSocketInterceptor extends HttpSessionHandshakeInterceptor {
    @Override
    public boolean beforeHandshake(ServerHttpRequest request,
                                   ServerHttpResponse response, WebSocketHandler
wsHandler,
                                   Map<String, Object> attributes) throws
Exception {
        if (request instanceof ServletServerHttpRequest) {
            ServletServerHttpRequest serverHttpRequest =
(ServletServerHttpRequest) request;
            // 获取参数
            String userId = serverHttpRequest.getServletRequest().getParameter(
                    "userId");
```

```
            attributes.put("currentUser", userId);
        }

        return true;
    }

    // 初次握手访问后
    @Override
    public void afterHandshake(ServerHttpRequest serverHttpRequest,
            ServerHttpResponse serverHttpResponse,
            WebSocketHandler webSocketHandler, Exception e) {

    }
```

3.方法说明

beforeHandshake() 方法，是请求连接之前的处理方法，

afterHandshake() 方法，是请求连接成功之后的处理方法。

3.消息处理器

1.实现spring提供的接口org.springframework.web.socket.WebSocketHandler

2.内容

```
public class MyMessageHandler implements WebSocketHandler {

    /**
     * userMap:使用线程安全map存储用户连接webscoket信息
     *
     * @since JDK 1.7
     */
    private final static Map<String, WebSocketSession> userMap = new
ConcurrentHashMap<String, WebSocketSession>();

    /**
     * 关闭websocket时调用该方法
     *
     * @see
org.springframework.web.socket.WebSocketHandler#afterConnectionClosed(org.spring
framework.web.socket.WebSocketSession,
     * org.springframework.web.socket.CloseStatus)
     */
    @Override
    public void afterConnectionClosed(WebSocketSession session,
                                      CloseStatus status) throws Exception {
        String userId = this.getUserId(session);
        if (!StringUtils.isEmpty(userId)) {
            userMap.remove(userId);
            System.err.println("该" + userId + "用户已成功关闭");
        } else {
            System.err.println("关闭时，获取用户id为空");
        }

    }

    /**
     * 建立websocket连接时调用该方法
     * <p>
```

```
     *
org.springframework.web.socket.WebSocketHandler#afterConnectionEstablished(org.springframework.web.socket.WebSocketSession)
     */
    @Override
    public void afterConnectionEstablished(WebSocketSession session)
            throws Exception {
        String userId = this.getUserId(session);
        if (!StringUtils.isEmpty(userId)) {
            userMap.put(userId, session);
            System.out.println("用户:" + userId +"连接成功！");
            session.sendMessage(new TextMessage("建立服务端连接成功！"));
        }

    }

    /**
     * 客户端调用websocket.send时候，会调用该方法,进行数据通信
     * <p>
     *
org.springframework.web.socket.WebSocketHandler#handleMessage(org.springframework.web.socket.WebSocketSession,
     * org.springframework.web.socket.WebSocketMessage)
     */
    @Override
    public void handleMessage(WebSocketSession session,
                              WebSocketMessage<?> message) throws Exception {
        String msg = message.toString();
        String userId = this.getUserId(session);
        System.err.println("该" + userId + "用户发送的消息是：" + msg);
        message = new TextMessage("服务端已经接收到消息，msg=" + msg);
        session.sendMessage(message);
    }

    /**
     * 传输过程出现异常时，调用该方法
     * <p>
     *
org.springframework.web.socket.WebSocketHandler#handleTransportError(org.springframework.web.socket.WebSocketSession,
     * java.lang.Throwable)
     */
    @Override
    public void handleTransportError(WebSocketSession session, Throwable e)
            throws Exception {
        WebSocketMessage<String> message = new TextMessage("异常信息："
                + e.getMessage());
        session.sendMessage(message);
    }

    /**
     * org.springframework.web.socket.WebSocketHandler#supportsPartialMessages()
     */
    @Override
    public boolean supportsPartialMessages() {

        return false;
    }
```

```
    /**
     * sendMessageToUser:发给指定用户
     */
    public void sendMessageToUser(String userId, String contents) {
        WebSocketSession session = userMap.get(userId);
        if (session != null && session.isOpen()) {
            try {
                TextMessage message = new TextMessage(contents);
                session.sendMessage(message);
            } catch (IOException e) {
                e.printStackTrace();
            }
        }
    }

    /**
     * sendMessageToAllUsers:发给所有的用户
     */
    public void sendMessageToAllUsers(String contents) {
        Set<String> userIds = userMap.keySet();
        for (String userId : userIds) {
            this.sendMessageToUser(userId, contents);
        }
    }

    /**
     * getUserId:获取用户id
     *
     * @param session
     * @return
     * @author liuchao
     * @since JDK 1.7
     */
    private String getUserId(WebSocketSession session) {
        try {
            String userId = (String) session.getAttributes().get("currentUser");
            return userId;
        } catch (Exception e) {
            e.printStackTrace();
        }
        return null;
    }
}
```

3.说明

这里除了handler的功能，同时也肩负着连接管理的功能，一般可以将其分开成两个类

4.webSocketConfig

1.实现spring提供的接口

org.springframework.web.socket.config.annotation.WebSocketConfigurer

打上配置注解和启用webSocket的注解

org.springframework.web.socket.config.annotation.EnableWebSocket

2.内容

```
@Configuration
```

```
@EnableWebSocket
public class WebSocketConfig implements WebSocketConfigurer {
    /**
     * 注册handle
     * @see
org.springframework.web.socket.config.annotation.WebSocketConfigurer#registerWeb
SocketHandlers(org.springframework.web.socket.config.annotation.WebSocketHandler
Registry)
     */
    @Override
    public void registerWebSocketHandlers(WebSocketHandlerRegistry registry) {
          registry.addHandler(myHandler(),
"/testHandler.do").addInterceptors(new
WebSocketInterceptor()).setAllowedOrigins("*");
          registry.addHandler(myHandler(),
"/socketJs/testHandler.do").addInterceptors(new
WebSocketInterceptor()).setAllowedOrigins("*").withSockJS();

    }

    @Bean
    public WebSocketHandler myHandler(){
        return new MyMessageHandler();
    }
}
3.
```

2.使用注解的方式

1.简单说明

这里就以客户端演示如何使用java jdk 自带的方式使用websocket

2.客户端

1.pom.xml

```
</properties>
    <dependencies>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-websocket</artifactId>
        </dependency>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-web</artifactId>
        </dependency>

        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-devtools</artifactId>
            <scope>runtime</scope>
            <optional>true</optional>
        </dependency>
        <dependency>
            <groupId>org.projectlombok</groupId>
```

```
            <artifactId>lombok</artifactId>
            <optional>true</optional>
        </dependency>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-test</artifactId>
            <scope>test</scope>
        </dependency>
    </dependencies>
```

2.配置WebSocketClient

1.不用像服务端那样，需要继承或者实现spring提供的接口，自己创建类，然后使用jdk中自带的类进行处理连接
2.内容

```
@Component
@ClientEndpoint
public class WebSocketClient {

    @Value("${websocket.server.url:localhost:8080/testHandler.do}")
    private String serverUrl;

    @Value("${websocket.server.user:system@1}")
    private String user;

    private Session session;

    @PostConstruct
    void init() {
        try {
            // 本机地址
            WebSocketContainer container =
ContainerProvider.getWebSocketContainer();
            String wsUrl = "ws://" + serverUrl + "?userId=" +user;
            URI uri = URI.create(wsUrl);
            session = container.connectToServer(WebSocketClient.class, uri);
        } catch (DeploymentException | IOException e) {
            e.printStackTrace();
        }
    }

    /**
     * 打开连接
     * @param session
     */
    @OnOpen
    public void onOpen(Session session) {
        System.out.println("打开");
        this.session = session;
    }

    /**
     * 接收消息
     * @param text
     */
    @OnMessage
    public void onMessage(String text) {
```

```
        System.out.println(text);

    }

    /**
     * 异常处理
     * @param throwable
     */
    @OnError
    public void onError(Throwable throwable) {
        throwable.printStackTrace();
    }

    /**
     * 关闭连接
     */
    @OnClose
    public void onClosing() throws IOException {
        System.out.println("关闭");
        session.close();
    }

    /**
     * 主动发送消息
     */
    public void send(String message) {
        this.session.getAsyncRemote().sendText(message);
    }

    public void close() throws IOException{
        if(this.session.isOpen()){
            this.session.close();
        }
    }


}
```

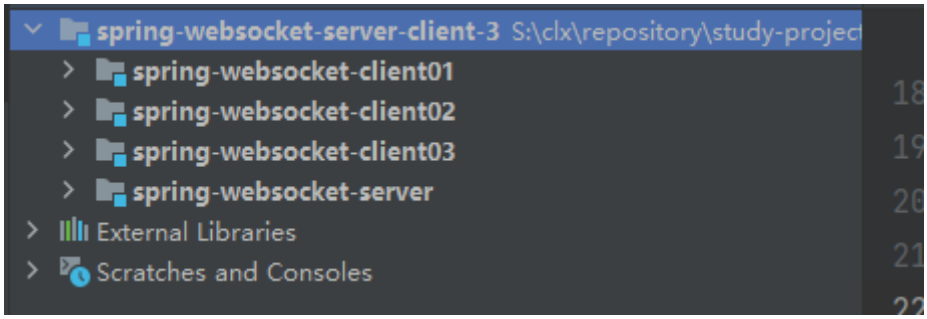
3.说明

```
spring-websocket：是服务端代码
spring-client01:是客户端01代码
client02:是客户端02代码
测试组消息发送的时候可以同时启动这三个进行测试
```

2.spring 和jdk

1.项目说明

```
如果想看单独的jdk  和 spring 客户端和服务端分别用同一种的
spring:springboot-websocket-all/spring-websocket-server-client-3
jdk:springboot-websocket-all/java-jdk-websocket/
```



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