# Spezifikation

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# ComObjects

```
public class ComInitLobby implements ComObject,
    Serializable {
private List<String> playerList;
private Set<GameServerRepresentation> gameList;
    public ComInitLobby(List<String> playerList, Set
        gameList) {
        this.playerList = playerList;
        this.gameList = gameList;
    }
...
    public void process(ClientModel model) {
        model.receiveMessage(this);
    }
    public void process(Player player, Server server) {
        server.receiveMessage(player,this);
    }
```

# Receive/Send Messages

```
public class ClientModell extends Observable{
...
public void receiveMessage(ComRuleset msg) {
public void receiveMessage(ComInitGameLobby msg) {}
public void send(RulesetMessage msg) {}
public void send(ComObject object) {}
...}
public class MessageListenerThread extends Thread {
...
public void run() {
...
object = (ComObject) in.readObject();
object.process(model);
...}
}
```

# Ruleset

```
public abstract class ServerRuleset {
private GameServer server;
private GameState gameState;
private GamePhase gamePhase;
...
public void runGame() {}
public void resolveMessage(MsgCard msgCard, String name)
    {}
protected abstract boolean isValidMove(Card card);
protected abstract void calculateTricks();
protected abstract void calculateRoundOutcome();
protected abstract String getWinner();
```

# DummyKlassen

- TestGameServer
- TestLobbyServer
- TestMessageListenerThread
- TestObserver
- TestPlayer

# TestPlayer

```
public class TestPlayer extends Player {
...
private List<ComObject> inputComObject;
public List<ComObject> getServerInput() {
return inputComObject;
}
public void injectComObject(ComObject object) {
object.process(this, server);
}
public void send(ComObject com) {
inputComObject.add(com);
}
...
}
}
```

# Wizard

## Wizard

Bei einem Spiel Wizard wo die erste Karte bereits auf dem Tisch liegt, soll geprüft werden dass nur noch regelkonforme Karten gespielt werden können

# Wizard

```
public class TestisValidMoveWizard {
@Before
public void setUp() throws Exception {
player1 = "Tick";
...
lobbyServer = new TestLobbyServer();
player = new TestPlayer(lobbyServer,null,null);
gameServer = new TestGameServer(lobbyServer,player,"Mein
    Spiel",RulesetType.Wizard, "", false);
ruleset = new ServerWizard(gameServer);
ruleset.addPlayerToGame(player1);
ruleset.addPlayerToGame(player2);
        ...
```

# Wizard

```
playerState1 = ruleset.getPlayerState(player1);
...
ruleset.setFirstPlayer(playerState1);
ruleset.setTrumpCard(WizardCard.VierRot);

ruleset.giveACard(playerState1, WizardCard.DreiGruen);
ruleset.giveACard(playerState1, WizardCard.ZaubererRot);

ruleset.giveACard(playerState2, WizardCard.ZweiGruen);
ruleset.giveACard(playerState2, WizardCard.DreiRot);
...
```

# Wizard

```
@Test
public void testRed3OnGreen3() {
ruleset.playCard(WizardCard.DreiGruen);
ruleset.setCurrentPlayer(playerState2);
assertFalse(ruleset.isValidMove(WizardCard.DreiRot));
}
@Test
public void testGreen2OnGreen3() {
ruleset.playCard(WizardCard.DreiGruen);
ruleset.setCurrentPlayer(playerState2);
assertTrue(ruleset.isValidMove(WizardCard.ZweiGruen);
}
```

# Hearts

## Hearts

Es wurde noch keine Karte in Hearts gespielt. Der Spieler der zuerst spielt, darf nur ein Herz spielen wenn er keine andere Farbe mehr hat.

# Hearts

```
@Test
public void testIsValidMove() {
 ruleset.giveACard(playerState1, HeartsCard.Herz2);
     ruleset.giveACard(playerState1, HeartsCard.Kreuz9)
     ...
     assertFalse(ruleset.isValidMove(HeartsCard.Herz2));
     assertTrue(ruleset.isValidMove(HeartsCard.Caro3););
}
```

# Hearts

```
@Test
public void testIsValidMoveOnlyHearts() {
 ruleset.giveACard(playerState1, HeartsCard.Herz2);
     ruleset.giveACard(playerState1, HeartsCard.Herz5);
     ...
     assertTrue(ruleset.isValidMove(HeartsCard.Herz2));
     assertTrue(ruleset.isValidMove(HeartsCard.Herz5));
}
```

# Siegerbestimmung

## Siegerbestimmung

Bei einem Spiel muss bei Spielende der korrekte Sieger bestimmt werden und an alle Mitspieler weitergeleitet werden.

# Siegerbestimmung bei Hearts

```
@Before
public void setUp() {
lobbyServer = new LobbyServer();
blue = new TestPlayer(lobbyServer, null, null);
white = new TestPlayer(lobbyServer, null, null);
...
}
@Test
public void testGetWinner() {
gameServer = new GameServer(lobbyServer, blue, "Test
    Game", RulesetType.Hearts, "", false);
gameServer.addPlayer(white);
...
heartsServerRuleset = new ServerHearts(gameServer);
...
```

# Siegerbestimmung bei Hearts

```
heartsServerRuleset.addPlayerToGame("Mr. Blue");
...
heartsServerRuleset.setPoints(heartsServerRuleset.getPlayerState
    White"),20);
...
heartsServerRuleset.setPoints(heartsServerRuleset.getPlayerState
    Brown"),110);

heartsServerRuleset.setGamePhase(GamePhase.Ending);
heartsServerRuleset.calculateRoundOutcome();
assertTrue(heartsServerRuleset.getWinner().equals("Mr.
    White"));
...
```

# Siegerbestimmung bei Hearts

```
inputList = blue.getServerInput();
comObject = (ComRuleset) inputList.get(1);
endMsg = (MsgGameEnd) comObject.getRulesetMessage();
winner = endMsg.getWinner();
assertEquals("Nachricht an Blue", "Mr. White", winner);

inputList = white.getServerInput();
comObject = (ComRuleset) inputList.get(1);
endMsg = (MsgGameEnd) comObject.getRulesetMessage();
winner = endMsg.getWinner();
assertEquals("Nachricht an White", "Mr. White", winner);
...
```

# Siegerbestimmung bei Hearts

```
inputList = blue.getServerInput();
comObject = (ComRuleset) inputList.get(1);
endMsg = (MsgGameEnd) comObject.getRulesetMessage();
winner = endMsg.getWinner();
assertEquals("Nachricht an Blue", "Mr. White", winner);

inputList = white.getServerInput();
comObject = (ComRuleset) inputList.get(1);
endMsg = (MsgGameEnd) comObject.getRulesetMessage();
winner = endMsg.getWinner();
assertEquals("Nachricht an White", "Mr. White", winner);
...
```

# Spieler verlässt Spiel

## Spieler verlässt Spiel

Wenn ein Spieler ein Spiel verlässt, müssen alle anderen Spieler benachrichtigt werden und zurück in die Lobby gebracht werden.

# Spieler verlässt Spiel

```
@Before
public void setUp() throws Exception {
lobby = new TestLobbyServer();
player1 = new TestPlayer(lobby, null, null);
player1.setName("MrBlue");
lobby.addPlayer(player1);
player2 = new TestPlayer(lobby, null, null);
player2.setName("MrWhite");
   ...
game = new TestGameServer(lobby, player1, "MrBluesGame",
    RulesetType.Hearts, null, false);
game.addPlayer(player2);
game.addPlayer(player3);
game.addPlayer(player4);

quit = new ComClientQuit();
}
```

# Spieler verlässt Spiel

```
@Test
public void testPlayerQuitGame() throws IOException{
player1.changeServer(game);
assertTrue(game.initLobby().getPlayerList().
    contains(player1.getName()));

player1.injectComObject(quit);

assertFalse(lobby.initLobby().getGameList().contains(game));
assertTrue(lobby.initLobby().getPlayerList().
    contains(player1.getName()));
assertTrue(lobby.initLobby().getPlayerList().
    contains(player2.getName()));
...
```

# Chat

## Chat

Nachrichten die vom Client an den Server geschickt werden, müssen an allen anderen Clients die sich im Server befinden ankommen.

# ChatModel

```
@Before
    public void setUp() {
testNetIO = new TestMessageListenerThread();
testObserver = new TestObserver();
testMessage = new ComChatMessage("Hello Test!");
testModel = new ClientModel((MessageListenerThread)
    testNetIO);
testNetIO.setModel(testModel);
testModel.addObserver(testObserver);
    }
```

# ChatModel

```
@Test
public void testSendChatMessage() {
String inputText = "Hello Test!";
testModel.sendChatMessage(inputText);
testText = ((ComChatMessage)
    testNetIO.getModelInput().get(0)).getChatMessage();
assertEquals("Vergleich der gesendeten Chatnachrichten",
    testText, inputText);
}
@Test
public void testReceiveChatMessage() {
testNetIO.injectComObject(testMessage);
assertTrue("Vergleich der empfangenen Chatnachrichten",
testObserver.getChatMessage().
equals(testMessage.getChatMessage()));
}
```

# ChatServer

```
@Before
public void setUp() {
testMessage = new ComChatMessage("Hello Test!");
testServer = new LobbyServer();
player1 = new TestPlayer(testServer, null, null);
player2 = new TestPlayer(testServer, null, null);
}
```

# ChatServer

```
@Test
public void testReceiveMessagePlayerComChatMessage() {
String messageToMatch = testMessage.getChatMessage();
testServer.addPlayer(player1);
testServer.addPlayer(player2);
player1.injectComObject(testMessage);
testText1 = ((ComChatMessage)
    player1.getServerInput(0)).getChatMessage();
testText2 = ((ComChatMessage)
    player2.getServerInput(0)).getChatMessage();
assertEquals("Nachricht an Spieler 1", messageToMatch,
    testText1);
assertEquals("Nachricht an Spieler 2", messageToMatch,
    testText2);
}
```