



Weather App Präsentation

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Current Weather

 Description:
 clear sky

 Temperature:
 0 °C

 Feels Like Temperature:
 -2 °C

 Wind Speed:
 7 km/h

 Wind Direction:
 SSE

 Pop:
 0



Weather for the next hours

Time	Weather	Temperature [C]	Feels Like Temperature [C]	Wind speed [km/h]	Wind direction	Рор
29.01.2024: 00:00	clear sky	0	-1	5	SE	0
29.01.2024: 01:00	few clouds	1	-1	5	ESE	0
29.01.2024: 02:00	clear sky	1	-1	7	ESE	0
29.01.2024: 03:00	clear sky	1	-1	7	ESE	0
29.01.2024: 04:00	clear sky	1	-1	7	ESE	0
29.01.2024: 05:00	clear sky	1	-1	7	ESE	0
29.01.2024: 06:00	clear sky	1	-1	7	ESE	0
29.01.2024: 07:00	clear sky	1	-2	8	ESE	0
29.01.2024: 08:00	clear sky	1	-2	8	ESE	0
29.01.2024; 09:00	clear sky	2	-1	10	SE	0





3-Schichten Architektur

 Persistenzschicht – siehe Model & Repository Klassen

 Anwendungsschicht – siehe Service Klassen

 Präsentationsschicht - siehe Bean & Controller Klassen

Presentation layer Business logic layer Data layer



Design Patterns

Facade Pattern

- Convenient access to subsystem's functionality.
- Directs the request and how to operate all the moving parts.

```
P develop ~
         public Location handleLocationSearch(String locationSearchString)
       throws FailedApiRequest, GeocodingApiReturnedEmptyListException {
     // This method covers 3 cases:
     // 1. The searched location is already persisted and has up-to-date weather
     // 2. The searched location is already persisted but the weather data is o
     // 3. The searched location does not exist in the database yet.
     LocationAnswerDTO locationAnswerDTO = callApi(locationSearchString, limit 1
     // Case 1:
     if (locationAlreadyPersisted(locationAnswerDTO)) {
       Location location = getLocation(locationAnswerDTO);
       if (locationHasUpToDateWeatherData(location)) {
         return location;
       else {
         // get the old weather data from the location
         CurrentAndForecastAnswer oldWeather =
             currentAndForecastAnswerRepository.findById(location.getWeather().
         Assert.notNull(
             oldWeather,
              message: "The location was already persisted, yet has no weather da
         CurrentAndForecastAnswerDTO newWeatherDTO =
             currentAndForecastAnswerService.callApi(
                 locationAnswerDTO.longitude(), locationAnswerDTO.latitude());
         Current And Ennarget Answer now Weather -
> main > java > at > qe > skeleton > internal > services > ⊚ LocationService
```



sonarqube

Save and re-use this "Random".

"Random" objects should be reused java:S2119

🛊 Bug Critical

Closed (Fixed)

Not assigned

5min effort 0 comments

Where is the issue?

Why is this an issue?



Coverage on 1.3k Lines

to cover

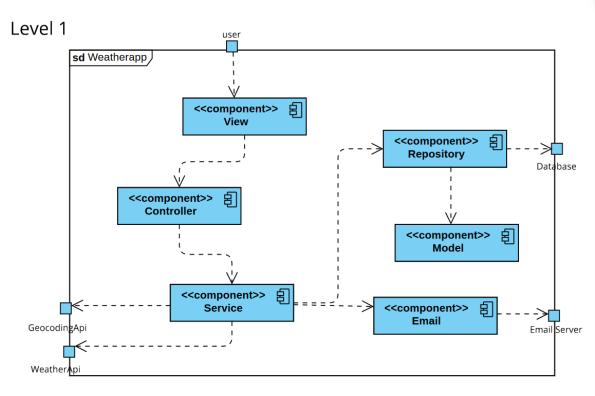
Unit **Tests**



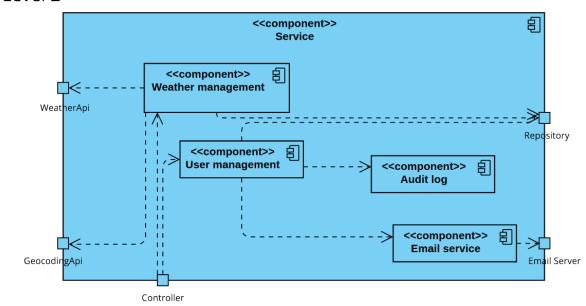
Lessons learned: Diagramme

- Erste Version UML ->groben Projektüberblick
- Einige Änderungen bei tatsächlicher Imple mentierung
- "Weniger ist manchmal mehr"
 - Reduktion auf das Wesentliche
- Anfängliches Komponenten Diagram zur Übersicht
- Je weniger Erfahrung, desto hilfreicher sind Diagramme als Orientierungshilfen.





Level 2



Lessons Learned: GIT



GIT is your friend: Nachvollziehbarkeit und Übersicht über aktuellen Stand des Projekts



Issues anfangs grob fomulieren ->im aktuellen Milestone Issues detailierter ausgestalten



Neuer Issue für Bug fixes



Aufteilung nach features nicht nach Schichten, weil weniger Kommunikation nötig war.

- Awaiting approval
- High priority
- In code review
- In development
- Low priority



- Tests = sinnvoll
- Sicherheit bei Merges & Refactoring
- Was erleichtert das Testen?
 - Kleinere testbare Klassen
 - Spezifische (Custom) Exceptions
 - Constructor Injection

```
\mathbb{R} Weather App 	imes
                         🛚 java in skeleton 🗆
  ß ■ ✓ ⊘ 톡 ੯ ⊙ ◎ 된 ⊘ :

✓ Tests passed: 99 of 99 tests – 2 sec 707 ms

  <default package>
                            2 sec 707 ms
                                            ZUZ4-U1-Z01ZJ.40.JU.00/TU1.UU INFU 0407/ --- |
  LocationSearchTest
                                            2024-01-28T23:48:36.892+01:00
                                                                             INFO 84897 --- |
     testPerformLocationAndWeat 378 ms
                                            2024-01-28T23:48:36.893+01:00
                                                                             INFO 84897 --- [

    ✓ EditCreditCardBeanTest

                                                                             INFO 84897 --- [
                                            2024-01-28T23:48:36.955+01:00
    updateCreditCard()
                                            2024-01-28T23:48:36.961+01:00
                                                                             INFO 84897 --- [

v testInit()

                                            2024-01-28T23:48:36.999+01:00
                                                                             INFO 84897 --- [

√ testValidateDatetrue()

                                            2024-01-28T23:48:37.000+01:00
                                                                             INFO 84897 --- [

√ testValidateDatefalse()

                                            2024-01-28T23:48:37.001+01:00
                                                                             INFO 84897 --- [

✓ testSaveCreditCard()

                                            2024-01-28T23:48:37.001+01:00
                                                                             INFO 84897 --- [
V AuditLogServiceTest
                                            2024-01-28T23:48:37.001+01:00
                                                                             INFO 84897 --- [

√ saveCreatedUserEntryTest()

                                            2024-01-28T23:48:37.001+01:00
                                                                             INFO 84897 --- [

✓ saveDeletedUserEntryTest()

                                            2024-01-28T23:48:37.033+01:00
                                                                             INFO 84897 --- [

✓ auditLogEqualsTest()

                                            2024-01-28T23:48:37.036+01:00
                                                                             INFO 84897 --- [

✓ saveEntryTest()

                                            2024-01-28T23:48:37.120+01:00
                                                                             INFO 84897 --- [

✓ auditLogsShouldNotBeEqual()

                                            2024-01-28T23:48:37.179+01:00
                                                                             INFO 84897 --- [

✓ GeocodingApiLocationDtoTest

                                            2024-01-28T23:48:37.202+01:00
                                                                             INFO 84897 --- [
WeatherApiRequestServiceTest 172 ms
                                            2024-01-28T23:48:37.319+01:00 WARN 84897 --- [

√ inputValidationTest()

✓ apiRequestServiceShouldThro¹ 49 ms.

                                            Using generated security password: f5f4a5f9-7432-4789-8c39-

✓ apiRequestServiceShouldThrow 4 ms

    ✓ WeatherApiRequestServiceCall 14 ms
                                            This generated password is for development use only. Your s

√ simulateConnectionError()

✓ testDtoCreationFromApiRespon 5 ms

                                            2024-01-28T23:48:37.333+01:00 INFO 84897 --- [
> V PasswordResetServiceTest
                                            2024-01-28T23:48:37.345+01:00
                                                                             INFO 84897 --- [
AutocompletionTest
                                            2024-01-28T23:48:37.345+01:00
                                                                             INFO 84897 --- [

    SessionInfoBeanTest

                                            2024-01-28T23:48:37.345+01:00
                                                                             INFO 84897 --- [

✓ testLoggedIn()

                                            2024-01-28T23:48:37.459+01:00
                                                                             INFO 84897 --- [ionShutdownH

√ testNotLoggedIn()

                                                                             INFO 84897 --- [ionShutdownH
                                            2024-01-28T23:48:37.459+01:00

✓ UserRegistrationBeanTest

                                                                             INFO 84897 --- [ionShutdownH
                                            2024-01-28T23:48:37.459+01:00

√ FavoriteTest

                                                                             INFO 84897 --- [ionShutdownH
                                            2024-01-28T23:48:37.460+01:00

√ testIsFavorite()

                                            2024-01-28T23:48:37.460+01:00
                                                                             INFO 84897 --- [ionShutdownH
    v testTogglingFavorite()
                                            2024-01-28T23:48:37.461+01:00 INFO 84897 --- [ionShutdownH
     testCascadeDelete()
```

Constructor Injection:

```
₽4 usages
        @Mock EmailService mockedEmailService;
33
        RegistrationService registrationService;
        @Autowired UserxRepository userxRepository;
        @Autowired TokenService tokenService;
        @Autowired PasswordEncoder passwordEncoder;
        @Autowired UserxService userxService;
        @BeforeEach
        public void init() {
          registrationService =
              new RegistrationService(
                   this.passwordEncoder, this.mockedEmailService, this.tokenService, this.userxRepository);
```



Field Injection:

```
@Mock EmailService emailService;
6 usages
@InjectMocks PasswordResetService passwordResetService;
@Autowired PasswordEncoder passwordEncoder;
@Autowired UserxRepository userxRepository;
christopherstief
@BeforeEach
public void init() {
 // need to use these because no Constructor Injection
  ReflectionTestUtils.setField(passwordResetService, name: "userRepository", userxRepository);
  ReflectionTestUtils.setField(passwordResetService, name: "passwordEncoder", passwordEncoder);
```



Mockito:

```
4 usages
@Mock private static WeatherApiRequestService mockedWeatherApiRequestService;
   verify(mockedWeatherApiRequestService, times( wantedNumberOfInvocations: 1))
       .retrieveCurrentAndForecastWeather(
           searchedMockLocation.latitude(), searchedMockLocation.longitude());
when(mockedGeocodingRequestService.retrieveLocationsLonLat(searchedLocationName, limit: 1))
    .thenReturn(locationDtoListMunich);
when (mockedWeatherApiRequestService.retrieveCurrentAndForecastWeather(
        searchedLatitude, searchedLongitude))
    .thenReturn(searchedMockWeather);
```



MockRestServiceServer:

```
// stub RestTemplate and Mockserver for mock-api-requests
RestTemplate restTemplate = new RestTemplate();
mockServer = MockRestServiceServer.bindTo(restTemplate).build();
testRestClient = RestClient.create(restTemplate);
mockServer
     .expect(requestTo( expectedUri: "/geo/1.0/direct?q=Innsbruck&limit=" + LIMIT))
     .andExpect(method(HttpMethod.GET))
     .andRespond(withSuccess(apiResponseStringIbk, MediaType.APPLICATION_JSON));
// naking the api-request
geocodingApiRequestService.retrieveLocationsLonLat( locationName: "Innsbruck", LIMIT);
 // the actual test: verifying if request reached the expected URI
mockServer.verify();
```





