Report SWE261P

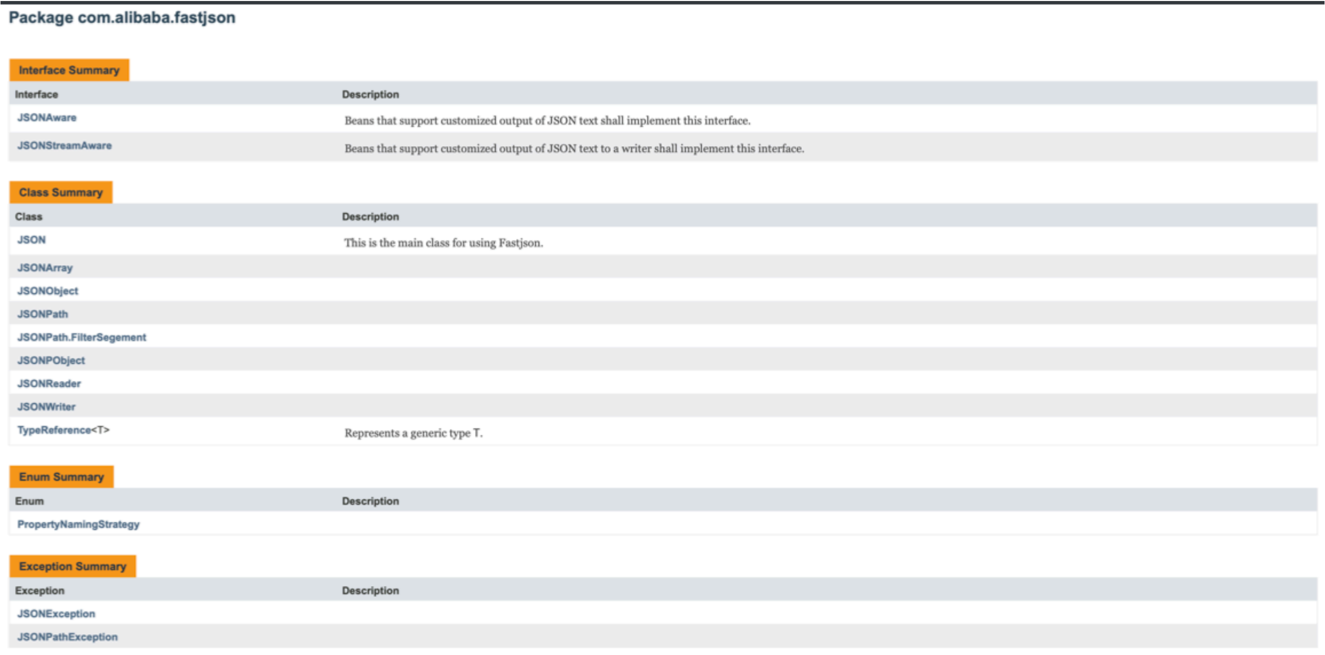
Team Name： Endloop

Team Memebr： Bin Guo, Xin Tan, Chao Liu

FastJson

Github: https://github.com/alibaba/fastjson

- Fastjson, a library taht can be used to convert Java Objects into their JSON representation, is able to convert Json string to an equivalent Java object.
- Fastjson contain 14 packages ro provide the best performance on the server-side and android client and simeple toJSONString() and parseObject() methods to convert Java objects to JSON and vice versa. Also, it allows pre-existing unmodifiable objects to be converted to and form JSON and custom presentations for objects.



Package com.alibaba.fastjson

Interface Summary

Interface	Description
JSONAware	Beans that support customized output of JSON text shall implement this interface.
JSONStreamAware	Beans that support customized output of JSON text to a writer shall implement this interface.

Class Summary

Class	Description
JSON	This is the main class for using Fastjson.
JSONArray	
JSONObject	
JSONPath	
JSONPath.FilterSegement	
JSONPObject	
JSONReader	
JSONWriter	
TypeReference<T>	Represents a generic type T.

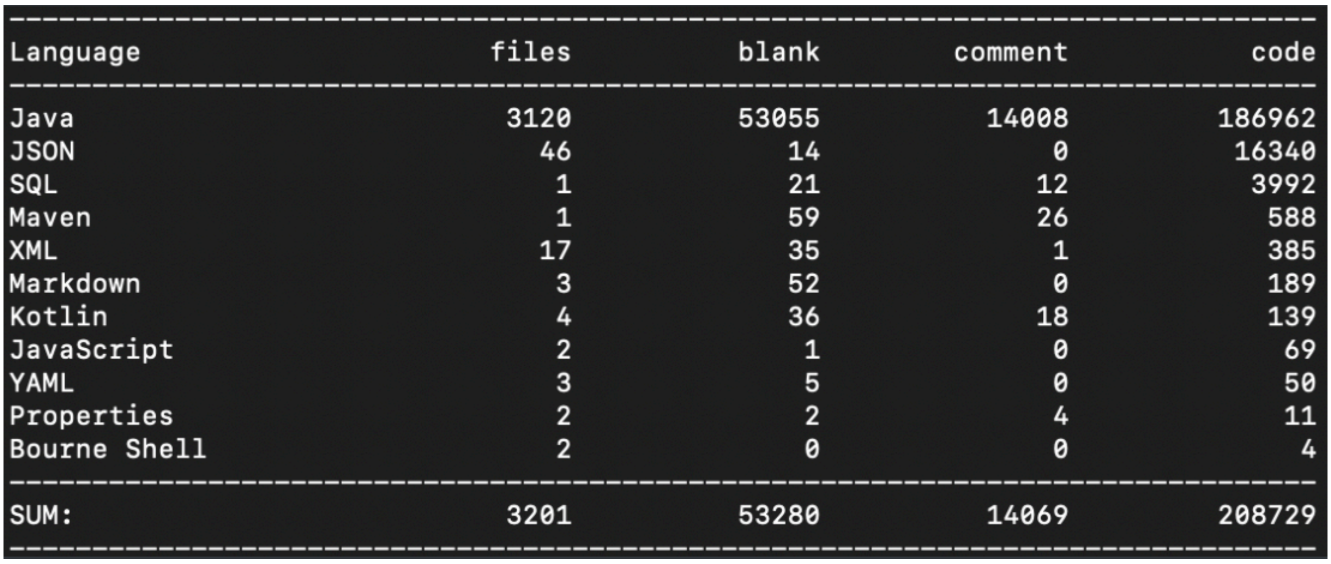
Enum Summary

Enum	Description
PropertyNamingStrategy	

Exception Summary

Exception	Description
JSONException	
JSONPathException	

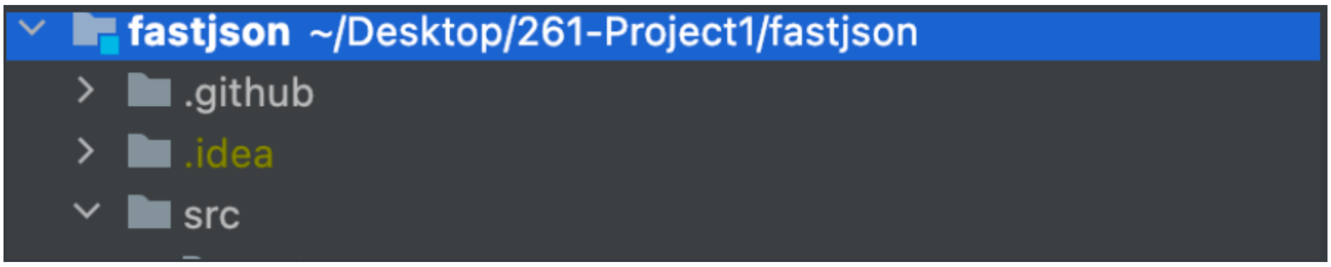
- LOC and Language:



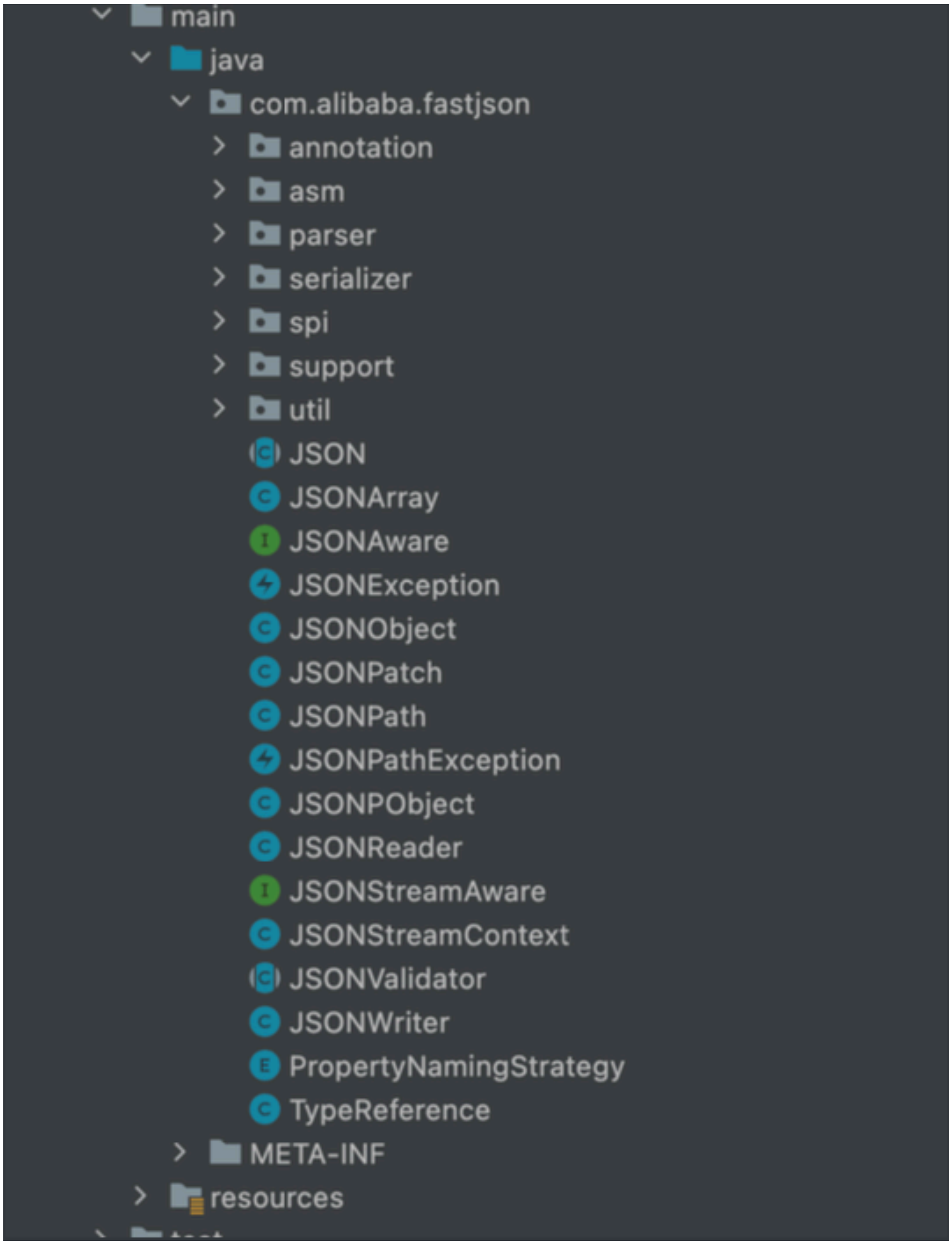
```
-------------------------------------------------------------------------------
Language                     files          blank        comment           code
-------------------------------------------------------------------------------
Java                          3120          53055          14008         186962
JSON                            46             14              0          16340
SQL                              1             21             12           3992
Maven                            1             59             26            588
XML                             17             35              1            385
Markdown                         3             52              0            189
Kotlin                           4             36             18            139
JavaScript                       2              1              0             69
YAML                             3              5              0             50
Properties                       2              2              4             11
Bourne Shell                     2              0              0              4
-------------------------------------------------------------------------------
SUM:                          3201          53280          14069         208729
-------------------------------------------------------------------------------
```

Instructions for build up

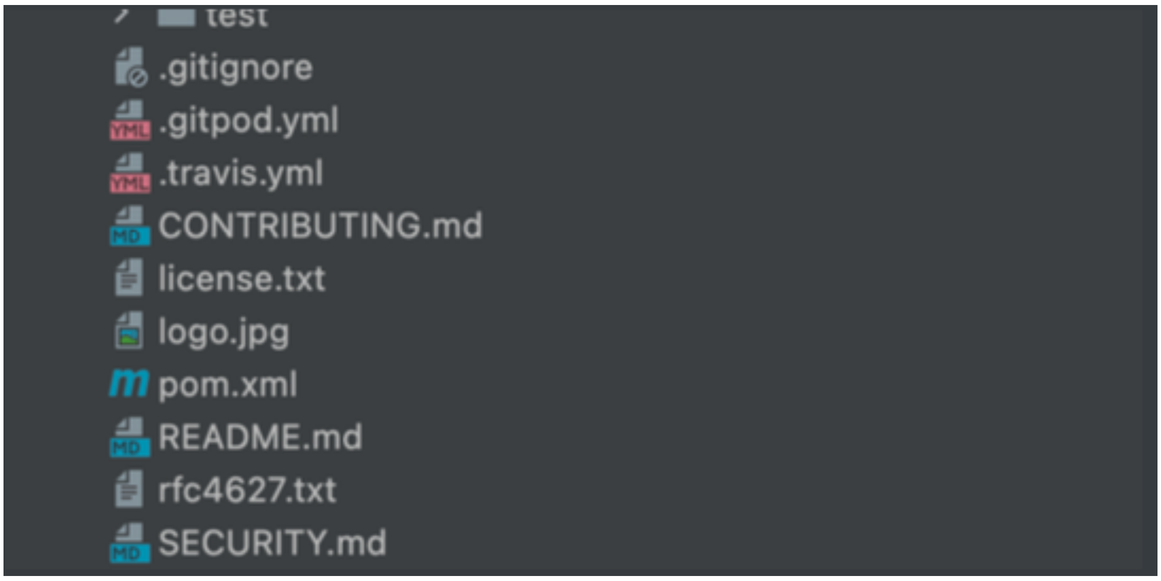
- The file structure shown as below



```
fastjson ~/Desktop/261-Project1/fastjson
  .github
  .idea
  src
```



```
main
  java
    com.alibaba.fastjson
      annotation
      asm
      parser
      serializer
      spi
      support
      util
      JSON
      JSONArray
      JSONAware
      JSONException
      JSONObject
      JSONPatch
      JSONPath
      JSONPathException
      JSONPObject
      JSONReader
      JSONStreamAware
      JSONStreamContext
      JSONValidator
      JSONWriter
      PropertyNamingStrategy
      TypeReference
    META-INF
  resources
```

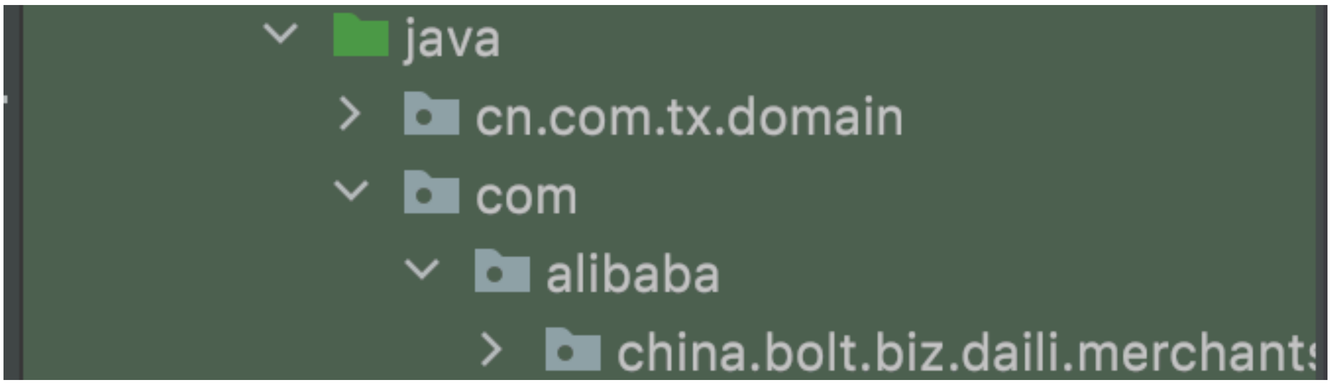


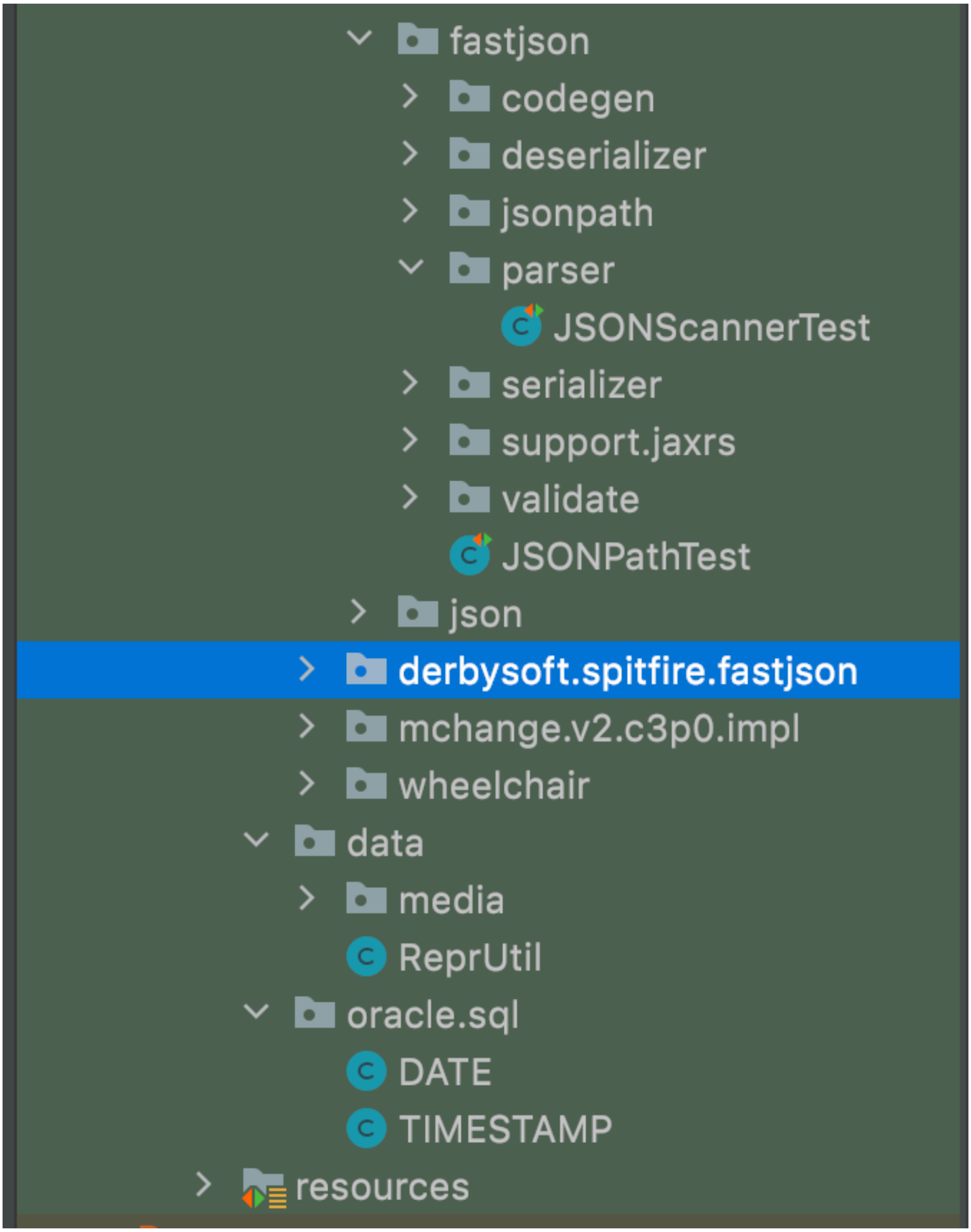
- How to build?
  1. Make a new directory
  2. git clone https://github.com/alibaba/fastjson
  3. Choose a IDE and then import the project to the IDE as a maven project. Then find pom.xml to reload the project
- How to run?
  1. In pom.xml, add two dependencies (android or others)

```
<dependency>
    <groupId>com.alibaba</groupId>
    <artifactId>fastjson</artifactId>
    <version>1.2.76</version>
</dependency>
  <dependency>
    <groupId>com.alibaba</groupId>
    <artifactId>fastjson</artifactId>
    <version>1.1.72.android</version>
</dependency>
```

Testing for FastJson

- This project is using JUnnit to do unit test, and using maven to manage the dependency and build. So all the test are written under the "test" folder, all the part that need to be tested has a corresponding test file.





- We can run the test case individually under IDE, or we can run the test cases using maven under the terminal `mvn test` run all the test case `mvn -Dtest=TestCaseName` run single test case
- We can also build the project using maven `mvn package`

Systematic functional testing & Partition testing:

- Systematic functional testing:
    - Select inputs that are especially valuable.
    - Usually by choosing representatives of classes that are apt to fail often or not at all. It usually isolate regions with likely failures.
    - functional testing usually implies systematic testing.

Using systematic functional testing can make use of the attributes of classes we have. For example, if our purpose is to estimate the proportion of needles to hay, we can use their weight attribute for filtering. If we just test and sample randomly, it will be huge work.

- Partition testing
    - Partition
        - It is one of the basic principles of general engineering principles.
        - Divide and conquer: divied complex activities into sets of simple activities that can be tackled independently. For example: we can partition testing process into: unit, integration, system, .. testing; we can partition analysis into modeling and analyzing the model.
        - Partition specification space for testing; Partition the program structure for testing.
    - Systematic partition testing
        - Sometimes failures are sparse in the space of possibile inputs but dense in some parts of the space. Use systematic partition testing can find the failures with more chances.
    - Boundaries
        - We use data type or classes to be the boundary. Since the Fastjson have the function to convert different types of object (numbers, strings,) to JSON, we can simply partition our tests by the types of the input.
- Junit tests: the Junit tests are in the directory: `fastjson/src/test/java/SWE261P/SWE261P_A1_Test.java`
    - `test_String()` is used for testing String type for the function `JSON.toJSONString()`
    - `test_Array()` is used for testing int[] array type for the function `JSON.toJSONString()`