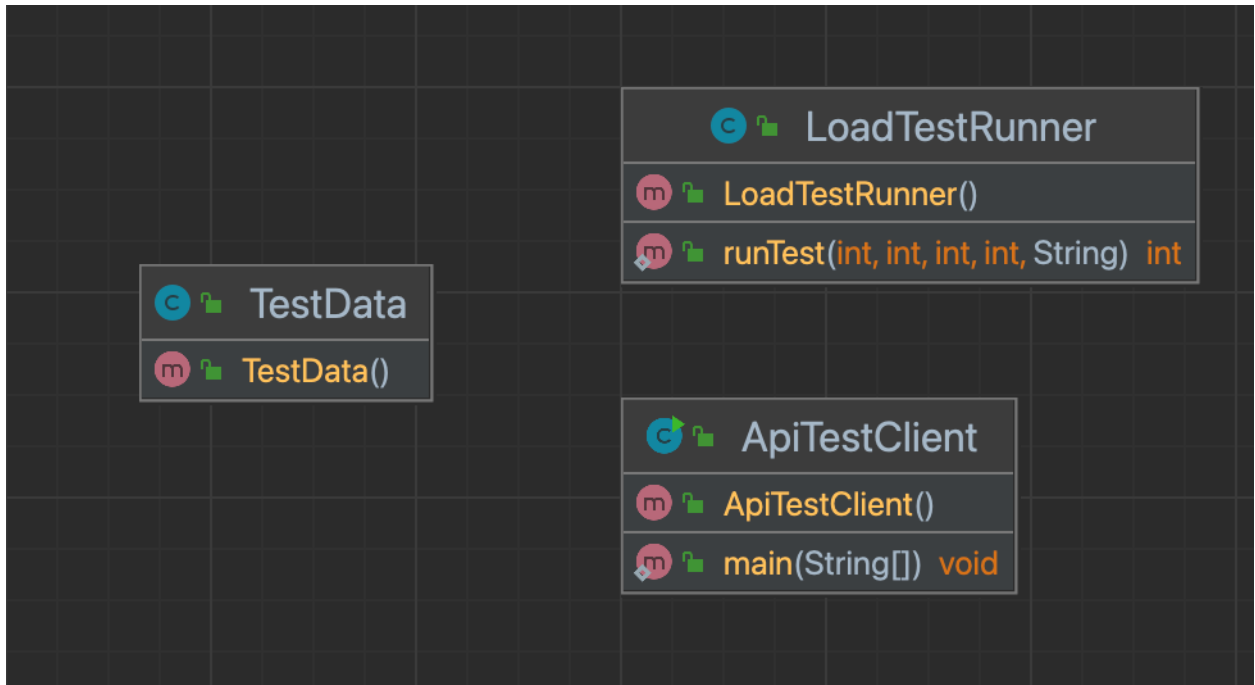


## Design doc

### Client 1



This program consists of 3 classes:

1. **ApiTestClient**

This is the entry point of the client. it contains the high-level logic of the load test. It runs the start-up test followed by the running test. After these two tests are completed, calculate the wall time and throughput. Display the output to the console.

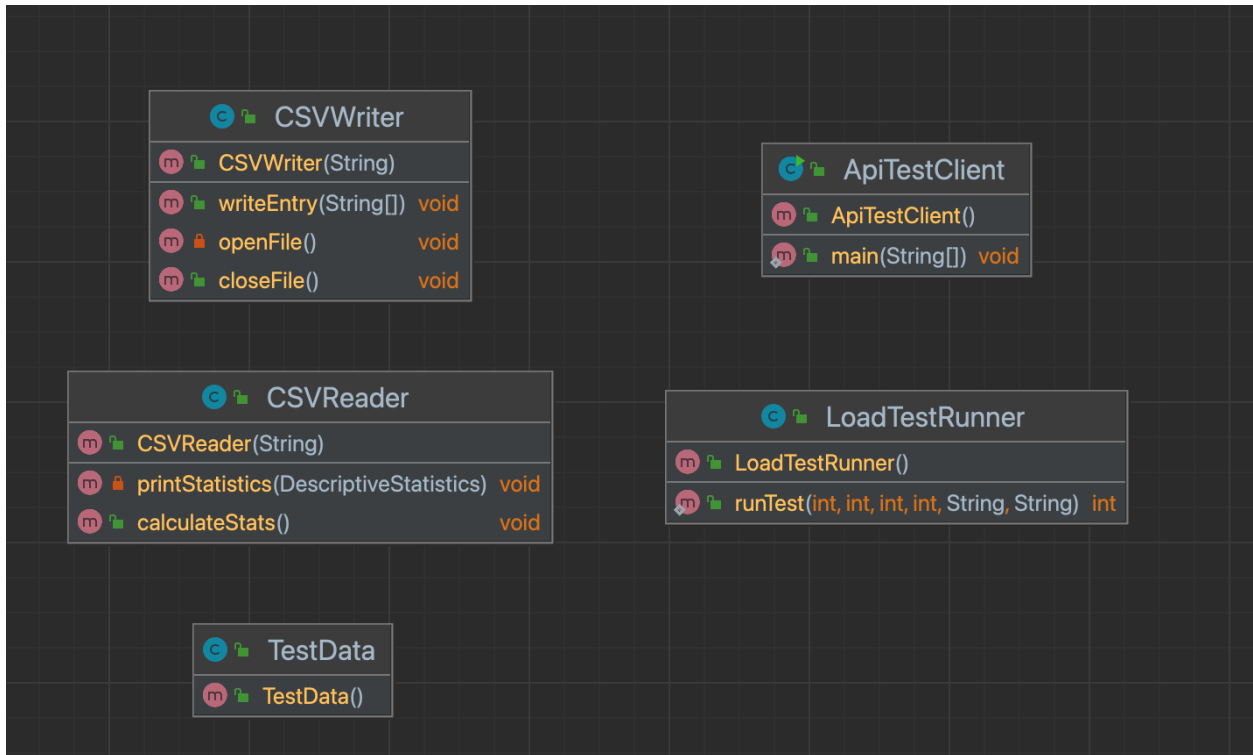
2. **LoadTestRunner**

This class is a static class for implementing a single run test. The **runTest** method takes 5 arguments – api call counts, thread group size, the number of thread groups, delay, server address.

3. **TestData**

This is a class for shared test data.

### Client 2



This program consists of 5 classes:

1. ApiTestClient

This is the entry point of the client. it contains the high-level logic of the load test. It runs the start-up test followed by the running test. After these two tests are completed, it creates a CSV reader to read the csv file and calculates the statistics of throughput. Display the output to the console.

2. LoadTestRunner

This class is a static class for implementing a single run test. The runTest method takes 6 arguments – api call counts, thread group size, the number of thread groups, delay, server address, file path for csv.

3. CSVWriter

It is responsible for writing entry to the csv file.

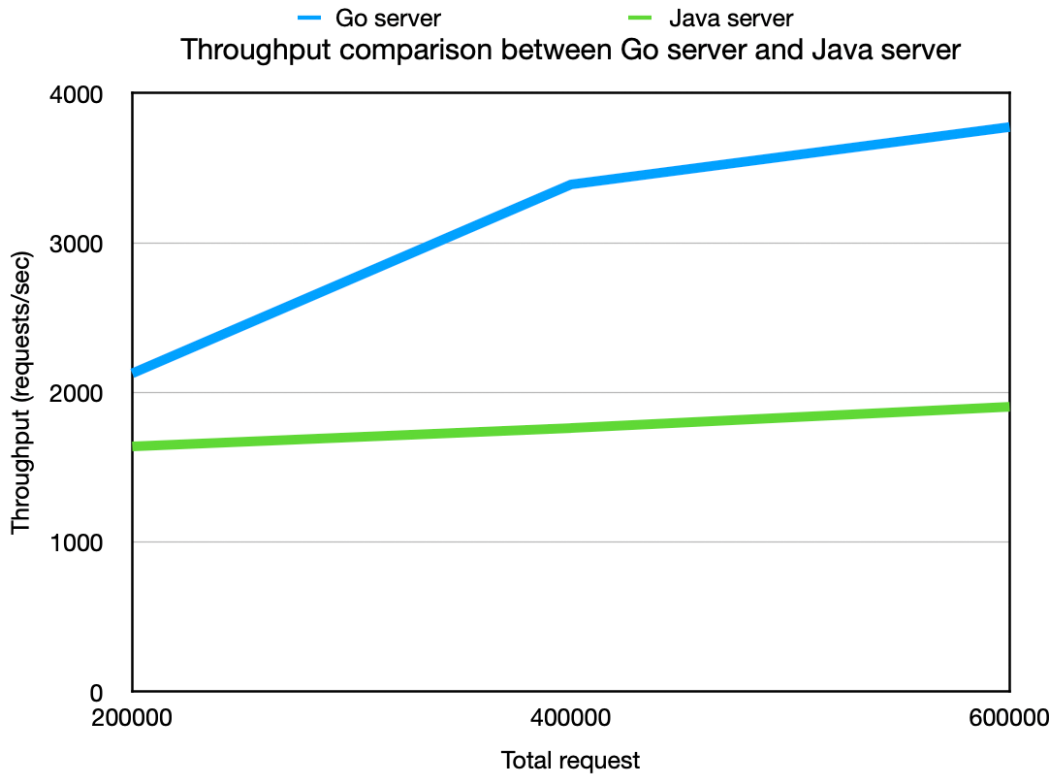
4. CSVReader

It is responsible for reading the csv file and calculates the statistics of throughput.

5. TestData

This is a class for shared test data.

### Step 3



### Go server

threadGroupSize = 10, numThreadGroups = 10, delay = 2

```
ApiTestClient x
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java ...
wall Time: 94 sec
throughput(for all request): 2127 requests/sec
the number of successful requests: 200000
throughput(only for successful request): 2127 requests/sec
Process finished with exit code 0
```

threadGroupSize = 10, numThreadGroups = 20, delay = 2

```
Run: ApiTestClient x
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java
wall Time: 118 sec
throughput(for all request): 3389 requests/sec
the number of successful requests: 400000
throughput(only for successful request): 3389 requests/sec
Process finished with exit code 0
```

threadGroupSize = 10, numThreadGroups = 30, delay = 2

```
Run: ApiTestClient x
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java
wall Time: 159 sec
throughput(for all request): 3773 requests/sec
the number of successful requests: 600000
throughput(only for successful request): 3773 requests/sec
Process finished with exit code 0
```

## Java server

threadGroupSize = 10, numThreadGroups = 10, delay = 2

```
Run: ApiTestClient x
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java ...
wall Time: 122 sec
throughput(for all request): 1639 requests/sec
the number of successful requests: 200000
throughput(only for successful request): 1639 requests/sec
Process finished with exit code 0
```

threadGroupSize = 10, numThreadGroups = 20, delay = 2

```
Run: ApiTestClient x
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java ...
wall Time: 227 sec
throughput(for all request): 1762 requests/sec
the number of successful requests: 400000
throughput(only for successful request): 1762 requests/sec

Process finished with exit code 0
```

threadGroupSize = 10, numThreadGroups = 30, delay = 2

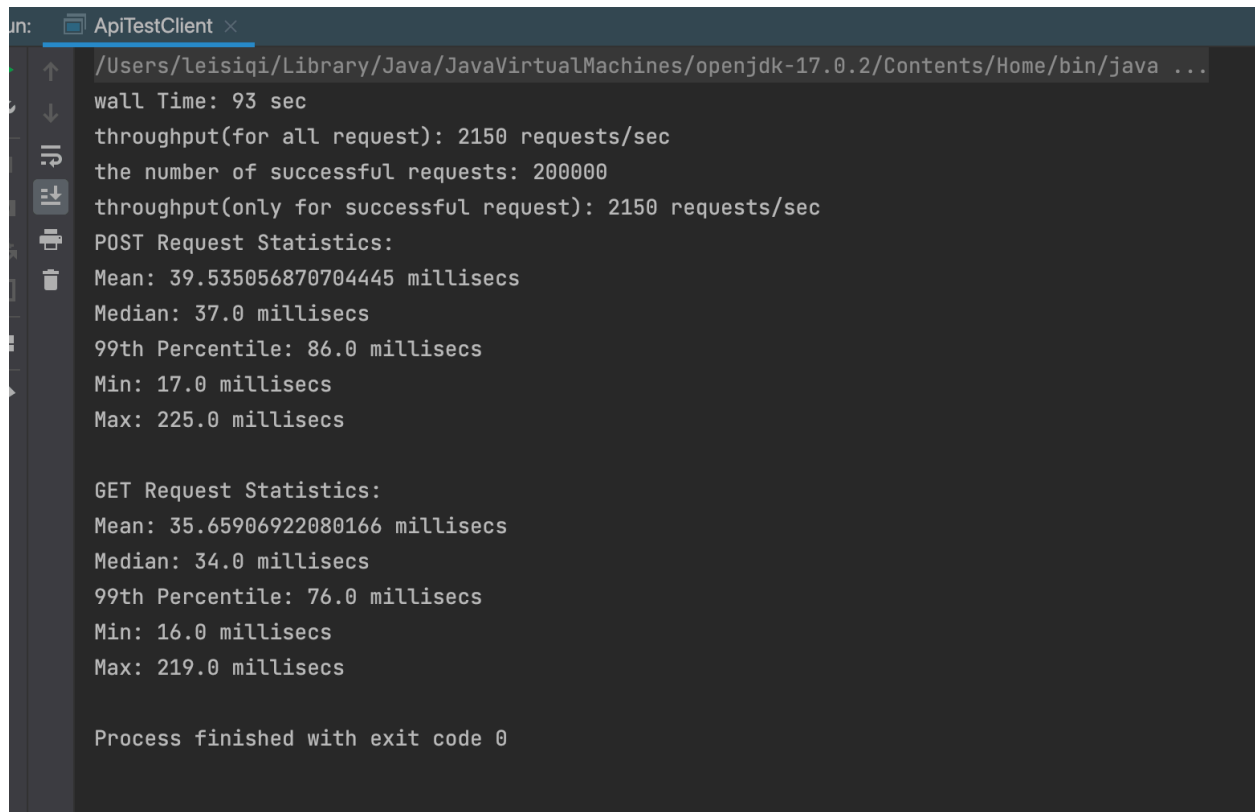
```
Run: ApiTestClient x
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java ...
wall Time: 315 sec
throughput(for all request): 1904 requests/sec
the number of successful requests: 600000
throughput(only for successful request): 1904 requests/sec

Process finished with exit code 0
```

## Step 4 and Step 5

### Go server

threadGroupSize = 10, numThreadGroups = 10, delay = 2



```
un: ApiTestClient x
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java ...
wall Time: 93 sec
throughput(for all request): 2150 requests/sec
the number of successful requests: 200000
throughput(only for successful request): 2150 requests/sec
POST Request Statistics:
Mean: 39.535056870704445 millisecs
Median: 37.0 millisecs
99th Percentile: 86.0 millisecs
Min: 17.0 millisecs
Max: 225.0 millisecs

GET Request Statistics:
Mean: 35.65906922080166 millisecs
Median: 34.0 millisecs
99th Percentile: 76.0 millisecs
Min: 16.0 millisecs
Max: 219.0 millisecs

Process finished with exit code 0
```

threadGroupSize = 10, numThreadGroups = 20, delay = 2

```
ApiTestClient x
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java .
wall Time: 127 sec
throughput(for all request): 3149 requests/sec
the number of successful requests: 400000
throughput(only for successful request): 3149 requests/sec
POST Request Statistics:
Mean: 47.558246191521526 millisecs
Median: 43.0 millisecs
99th Percentile: 135.0 millisecs
Min: 19.0 millisecs
Max: 334.0 millisecs

GET Request Statistics:
Mean: 43.09347961375785 millisecs
Median: 39.0 millisecs
99th Percentile: 118.0 millisecs
Min: 17.0 millisecs
Max: 308.0 millisecs

Process finished with exit code 0
```

threadGroupSize = 10, numThreadGroups = 30, delay = 2

```
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java ...
wall Time: 240 sec
throughput(for all request): 2500 requests/sec
the number of successful requests: 600000
throughput(only for successful request): 2500 requests/sec
POST Request Statistics:
Mean: 89.70976253284485 millisecs
Median: 56.0 millisecs
99th Percentile: 252.0 millisecs
Min: 19.0 millisecs
Max: 62871.0 millisecs

GET Request Statistics:
Mean: 78.21774678982027 millisecs
Median: 51.0 millisecs
99th Percentile: 192.0 millisecs
Min: 15.0 millisecs
Max: 62868.0 millisecs

Process finished with exit code 0
```

## Java server

threadGroupSize = 10, numThreadGroups = 10, delay = 2

```
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java ...  
wall Time: 137 sec  
throughput(for all request): 1459 requests/sec  
the number of successful requests: 200000  
throughput(only for successful request): 1459 requests/sec  
POST Request Statistics:  
Mean: 67.58181434938301 millisecs  
Median: 55.0 millisecs  
99th Percentile: 254.41999999999837 millisecs  
Min: 19.0 millisecs  
Max: 905.0 millisecs  
  
GET Request Statistics:  
Mean: 53.194341289121866 millisecs  
Median: 44.0 millisecs  
99th Percentile: 221.64999999999418 millisecs  
Min: 15.0 millisecs  
Max: 532.0 millisecs  
  
Process finished with exit code 0  
|
```



threadGroupSize = 10, numThreadGroups = 20, delay = 2

```
ApiTestClient x
/Users/leisiqi/Library/Java/JavaVirtualMachines/openjdk-17.0.2/Contents/Home/bin/java ...
wall Time: 208 sec
throughput(for all request): 1923 requests/sec
the number of successful requests: 400000
throughput(only for successful request): 1923 requests/sec
POST Request Statistics:
Mean: 102.90317177692721 millisecs
Median: 96.0 millisecs
99th Percentile: 254.8299999999872 millisecs
Min: 19.0 millisecs
Max: 482.0 millisecs

GET Request Statistics:
Mean: 69.51942145229387 millisecs
Median: 63.0 millisecs
99th Percentile: 162.0 millisecs
Min: 16.0 millisecs
Max: 564.0 millisecs

Process finished with exit code 0
```

threadGroupSize = 10, numThreadGroups = 30, delay = 2

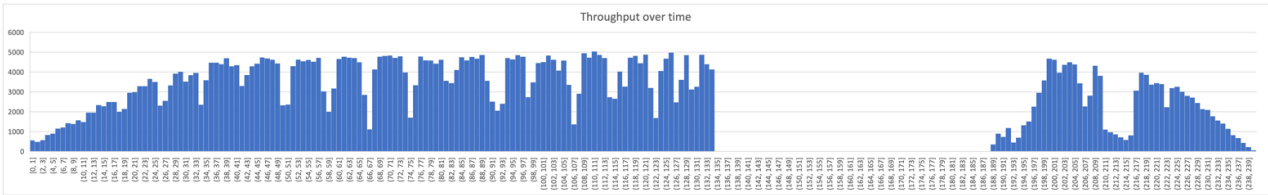
```
wall Time: 312 sec
throughput(for all request): 1923 requests/sec
the number of successful requests: 599996
throughput(only for successful request): 1923 requests/sec
POST Request Statistics:
Mean: 135.426042983573 millisecs
Median: 121.0 millisecs
99th Percentile: 298.0 millisecs
Min: 18.0 millisecs
Max: 930.0 millisecs

GET Request Statistics:
Mean: 114.99974920334787 millisecs
Median: 112.0 millisecs
99th Percentile: 251.0 millisecs
Min: 16.0 millisecs
Max: 828.0 millisecs

Process finished with exit code 0
|
```

Step 6

Go server



Java server

