```python
import os
import pandas as pd
import re
from enum import Enum
```

## Utils

```python
class LoadTestingTypes(Enum):
    INITIAL_PAGE_LOAD = 'initial_page_load'
    TICKETS_FUNCTIONALITY = 'tickets_functionality'

def extract_number(string):
  """Extracts the number from a string.

  Args:
    string (str): The input string.

  Returns:
    int: The extracted number, or None if not found.
  """

  match = re.search(r"\d+", string)
  if match:
    return int(match.group())
  else:
    return None

def load_csv_files(path):
    """Loads all CSV files from the given path and returns a list of
DataFrames.

    Args:
        path (str): The path to the directory containing the CSV
files.

    Returns:
        dict[pd.DataFrame]: A dict of DataFrames, one for each CSV
file.
    """

    csv_files = [f for f in os.listdir(path) if f.endswith('.csv')]
    dataframes = {LoadTestingTypes.INITIAL_PAGE_LOAD: {},
LoadTestingTypes.TICKETS_FUNCTIONALITY: {}}

    for file in csv_files:
        file_path = os.path.join(path, file)
        df = pd.read_csv(file_path)
        lt_type = LoadTestingTypes.INITIAL_PAGE_LOAD if
LoadTestingTypes.INITIAL_PAGE_LOAD.value in file_path else
LoadTestingTypes.TICKETS_FUNCTIONALITY
```

```
            dataframes[lt_type][extract_number(file_path)] = df

    return dataframes
```

## Prepare Data

```
dataframes = load_csv_files(".")

initial_page_load = dataframes[LoadTestingTypes.INITIAL_PAGE_LOAD]
tickets_functionality =
dataframes[LoadTestingTypes.TICKETS_FUNCTIONALITY]

initial_page_load[32]
```

|    | timeStamp      | elapsed | label        | responseCode | responseMessage |
|----|----------------|---------|--------------|--------------|-----------------|
| 0  | 1727054333371  | 2191    | HTTP Request | 200          | OK              |
| 1  | 1727054333745  | 1826    | HTTP Request | 200          | OK              |
| 2  | 1727054332995  | 2577    | HTTP Request | 200          | OK              |
| 3  | 1727054332248  | 3325    | HTTP Request | 200          | OK              |
| 4  | 1727054332622  | 2967    | HTTP Request | 200          | OK              |
| 5  | 1727054334870  | 726     | HTTP Request | 200          | OK              |
| 6  | 1727054334494  | 1104    | HTTP Request | 200          | OK              |
| 7  | 1727054334121  | 1479    | HTTP Request | 200          | OK              |
| 8  | 1727054331974  | 3628    | HTTP Request | 200          | OK              |
| 9  | 1727054335243  | 383     | HTTP Request | 200          | OK              |
| 10 | 1727054335619  | 33      | HTTP Request | 200          | OK              |
| 11 | 1727054335995  | 43      | HTTP Request | 200          | OK              |
| 12 | 1727054336370  | 37      | HTTP Request | 200          | OK              |
| 13 | 1727054336746  | 34      | HTTP Request | 200          | OK              |
| 14 | 1727054337118  | 43      | HTTP Request | 200          | OK              |
| 15 | 1727054337493  | 46      | HTTP Request | 200          | OK              |
| 16 | 1727054337869  | 42      | HTTP Request | 200          | OK              |
| 17 | 1727054338244  | 41      | HTTP Request | 200          | OK              |

| | | | | | |
|---|---|---|---|---|---|
| 18 | 1727054338618 | 41 | HTTP Request | 200 | OK |
| 19 | 1727054338993 | 40 | HTTP Request | 200 | OK |
| 20 | 1727054339369 | 43 | HTTP Request | 200 | OK |
| 21 | 1727054339744 | 34 | HTTP Request | 200 | OK |
| 22 | 1727054340119 | 44 | HTTP Request | 200 | OK |
| 23 | 1727054340495 | 34 | HTTP Request | 200 | OK |
| 24 | 1727054340868 | 38 | HTTP Request | 200 | OK |
| 25 | 1727054341244 | 41 | HTTP Request | 200 | OK |
| 26 | 1727054341618 | 28 | HTTP Request | 200 | OK |
| 27 | 1727054341993 | 40 | HTTP Request | 200 | OK |
| 28 | 1727054342368 | 37 | HTTP Request | 200 | OK |
| 29 | 1727054342744 | 40 | HTTP Request | 200 | OK |
| 30 | 1727054343118 | 41 | HTTP Request | 200 | OK |
| 31 | 1727054343493 | 40 | HTTP Request | 200 | OK |

```
                                 threadName dataType   success
failureMessage
0     Thread Group - Initial Page Load 1-5      text      True
NaN   \
1     Thread Group - Initial Page Load 1-6      text      True
NaN
2     Thread Group - Initial Page Load 1-4      text      True
NaN
3     Thread Group - Initial Page Load 1-2      text      True
NaN
4     Thread Group - Initial Page Load 1-3      text      True
NaN
5     Thread Group - Initial Page Load 1-9      text      True
NaN
6     Thread Group - Initial Page Load 1-8      text      True
NaN
7     Thread Group - Initial Page Load 1-7      text      True
NaN
8     Thread Group - Initial Page Load 1-1      text      True
NaN
9   Thread Group - Initial Page Load 1-10      text      True
```

```
NaN
10    Thread Group - Initial Page Load 1-11        text       True
NaN
11    Thread Group - Initial Page Load 1-12        text       True
NaN
12    Thread Group - Initial Page Load 1-13        text       True
NaN
13    Thread Group - Initial Page Load 1-14        text       True
NaN
14    Thread Group - Initial Page Load 1-15        text       True
NaN
15    Thread Group - Initial Page Load 1-16        text       True
NaN
16    Thread Group - Initial Page Load 1-17        text       True
NaN
17    Thread Group - Initial Page Load 1-18        text       True
NaN
18    Thread Group - Initial Page Load 1-19        text       True
NaN
19    Thread Group - Initial Page Load 1-20        text       True
NaN
20    Thread Group - Initial Page Load 1-21        text       True
NaN
21    Thread Group - Initial Page Load 1-22        text       True
NaN
22    Thread Group - Initial Page Load 1-23        text       True
NaN
23    Thread Group - Initial Page Load 1-24        text       True
NaN
24    Thread Group - Initial Page Load 1-25        text       True
NaN
25    Thread Group - Initial Page Load 1-26        text       True
NaN
26    Thread Group - Initial Page Load 1-27        text       True
NaN
27    Thread Group - Initial Page Load 1-28        text       True
NaN
28    Thread Group - Initial Page Load 1-29        text       True
NaN
29    Thread Group - Initial Page Load 1-30        text       True
NaN
30    Thread Group - Initial Page Load 1-31        text       True
NaN
31    Thread Group - Initial Page Load 1-32        text       True
NaN

      bytes    sentBytes    grpThreads    allThreads                          URL
Latency
0     12176           116            10            11    http://127.0.0.1:3000/
```

```
2185  \
1    12176         116           9            10   http://127.0.0.1:3000/
1821
2    12176         116           8            9    http://127.0.0.1:3000/
2572
3    12176         116           7            8    http://127.0.0.1:3000/
3320
4    12176         116           6            7    http://127.0.0.1:3000/
2955
5    12176         116           5            6    http://127.0.0.1:3000/
726
6    12176         116           4            5    http://127.0.0.1:3000/
1104
7    12176         116           3            4    http://127.0.0.1:3000/
1479
8    12176         116           2            3    http://127.0.0.1:3000/
3628
9    12176         116           2            2    http://127.0.0.1:3000/
381
10   12176         116           1            1    http://127.0.0.1:3000/
33
11   12176         116           1            2    http://127.0.0.1:3000/
43
12   12176         116           1            2    http://127.0.0.1:3000/
37
13   12176         116           1            2    http://127.0.0.1:3000/
34
14   12176         116           1            2    http://127.0.0.1:3000/
40
15   12176         116           1            2    http://127.0.0.1:3000/
46
16   12176         116           1            2    http://127.0.0.1:3000/
42
17   12176         116           1            2    http://127.0.0.1:3000/
40
18   12176         116           1            2    http://127.0.0.1:3000/
38
19   12176         116           1            2    http://127.0.0.1:3000/
40
20   12176         116           1            2    http://127.0.0.1:3000/
43
21   12176         116           1            2    http://127.0.0.1:3000/
34
22   12176         116           1            2    http://127.0.0.1:3000/
43
23   12176         116           1            2    http://127.0.0.1:3000/
34
24   12176         116           1            2    http://127.0.0.1:3000/
38
```

| | | | | | |
|---|---|---|---|---|---|
| 25 | 12176 | 116 | 1 | 2 | http://127.0.0.1:3000/ |
| 41 | | | | | |
| 26 | 12176 | 116 | 1 | 2 | http://127.0.0.1:3000/ |
| 27 | | | | | |
| 27 | 12176 | 116 | 1 | 2 | http://127.0.0.1:3000/ |
| 40 | | | | | |
| 28 | 12176 | 116 | 1 | 2 | http://127.0.0.1:3000/ |
| 37 | | | | | |
| 29 | 12176 | 116 | 1 | 2 | http://127.0.0.1:3000/ |
| 39 | | | | | |
| 30 | 12176 | 116 | 1 | 2 | http://127.0.0.1:3000/ |
| 41 | | | | | |
| 31 | 12176 | 116 | 1 | 2 | http://127.0.0.1:3000/ |
| 39 | | | | | |

| | IdleTime | Connect |
|---|---|---|
| 0 | 0 | 1 |
| 1 | 0 | 1 |
| 2 | 0 | 1 |
| 3 | 0 | 0 |
| 4 | 0 | 0 |
| 5 | 0 | 1 |
| 6 | 0 | 1 |
| 7 | 0 | 1 |
| 8 | 0 | 19 |
| 9 | 0 | 0 |
| 10 | 0 | 1 |
| 11 | 0 | 1 |
| 12 | 0 | 1 |
| 13 | 0 | 1 |
| 14 | 0 | 1 |
| 15 | 0 | 1 |
| 16 | 0 | 1 |
| 17 | 0 | 0 |
| 18 | 0 | 1 |
| 19 | 0 | 1 |
| 20 | 0 | 1 |
| 21 | 0 | 0 |
| 22 | 0 | 1 |
| 23 | 0 | 0 |
| 24 | 0 | 1 |
| 25 | 0 | 1 |
| 26 | 0 | 1 |
| 27 | 0 | 1 |
| 28 | 0 | 0 |
| 29 | 0 | 1 |
| 30 | 0 | 1 |
| 31 | 0 | 0 |

## Initial Page Load

```python
latency = {}
for users, data in initial_page_load.items():
    latency[users] = data['Latency']

latency_df = pd.DataFrame(latency)
latency_df
```
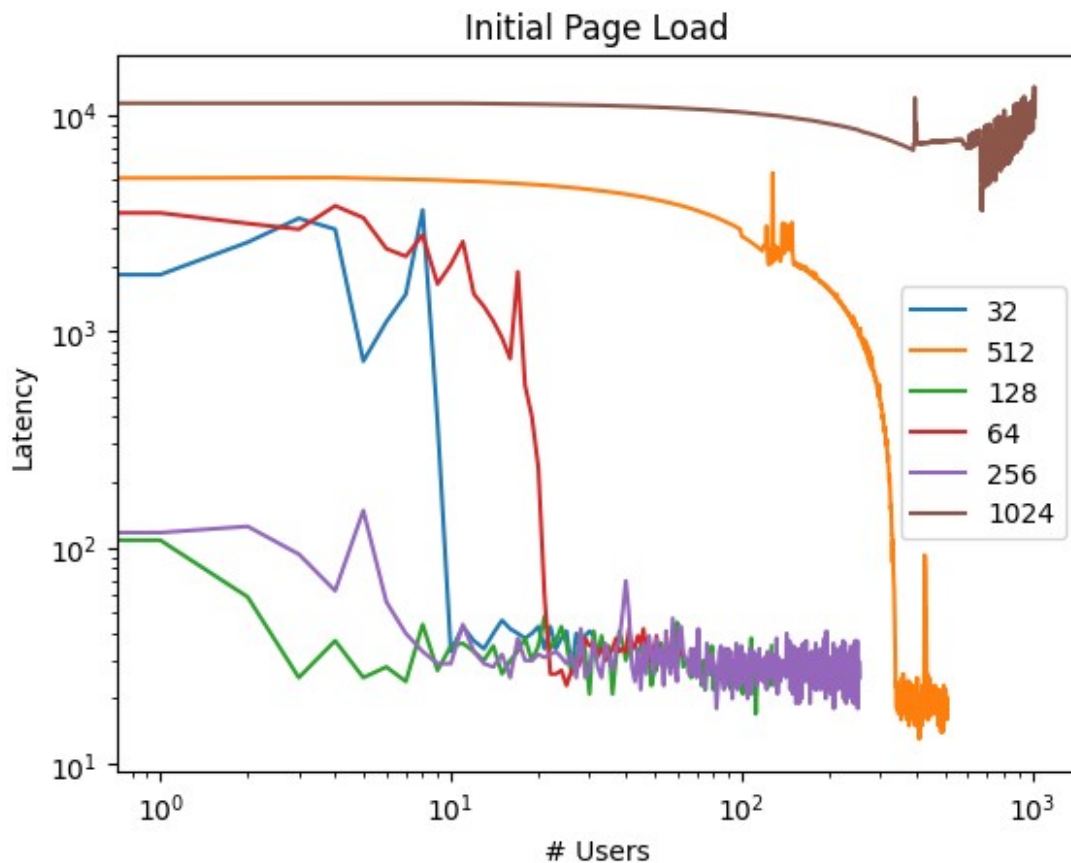
```
          32       512     128       64      256    1024
0      2185.0   4839.0   104.0   3702.0   115.0   11304
1      1821.0   5096.0   108.0   3516.0   117.0   11305
2      2572.0   5112.0    59.0   3142.0   125.0   11305
3      3320.0   5113.0    25.0   2955.0    93.0   11298
4      2955.0   5114.0    37.0   3792.0    63.0   11306
...       ...      ...     ...      ...     ...     ...
1019    NaN      NaN     NaN      NaN     NaN   12345
1020    NaN      NaN     NaN      NaN     NaN   10330
1021    NaN      NaN     NaN      NaN     NaN   10321
1022    NaN      NaN     NaN      NaN     NaN   12372
1023    NaN      NaN     NaN      NaN     NaN   13156

[1024 rows x 6 columns]
```

```python
latency_df.plot(title="Initial Page Load", loglog=True, ylabel =
"Latency", xlabel = "# Users")
```

```
<Axes: title={'center': 'Initial Page Load'}, xlabel='# Users',
ylabel='Latency'>
```

Initial Page Load

## Tickets Functionality

```python
latency = {}
for users, data in tickets_functionality.items():
    latency[users] = data['Latency']

latency_df = pd.DataFrame(latency)
latency_df
```
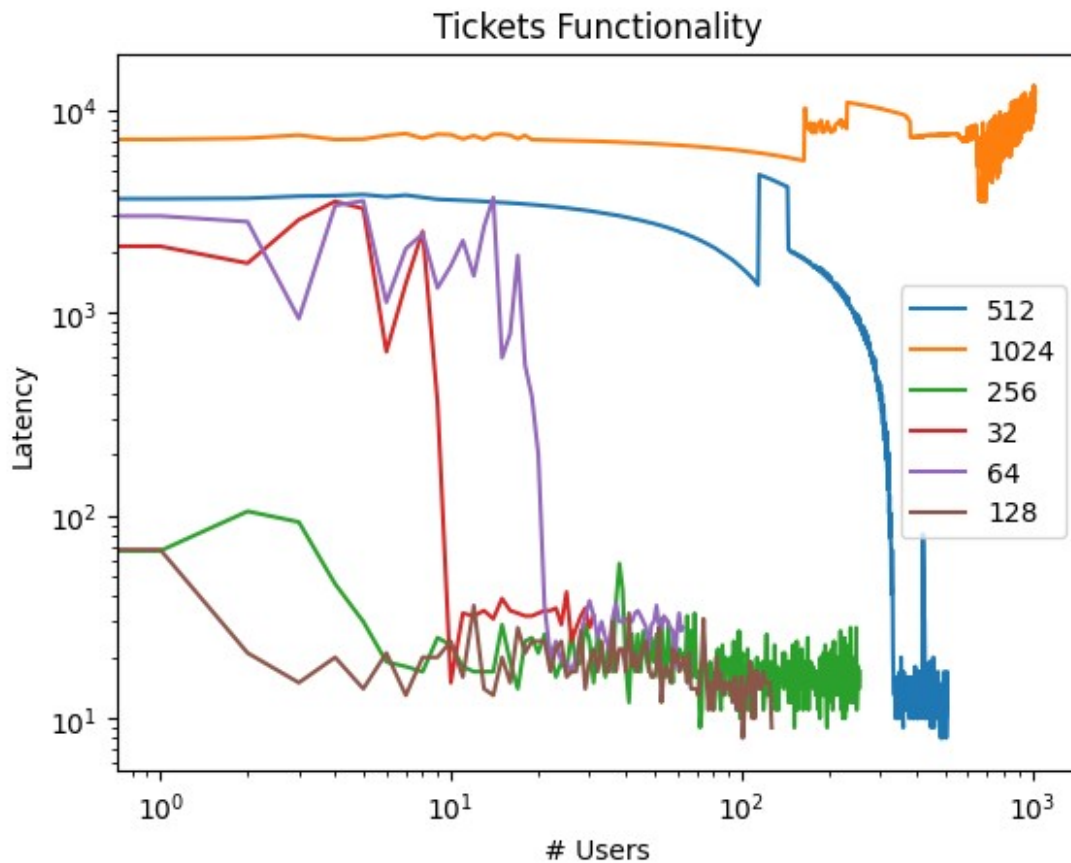
|      | 512    | 1024  | 256   | 32     | 64     | 128  |
|------|--------|-------|-------|--------|--------|------|
| 0    | 3692.0 | 7454  | 98.0  | 1009.0 | 3192.0 | 91.0 |
| 1    | 3652.0 | 7167  | 67.0  | 2130.0 | 3003.0 | 68.0 |
| 2    | 3672.0 | 7262  | 105.0 | 1757.0 | 2815.0 | 21.0 |
| 3    | 3760.0 | 7526  | 93.0  | 2881.0 | 936.0  | 15.0 |
| 4    | 3783.0 | 7158  | 46.0  | 3547.0 | 3385.0 | 20.0 |
| ...  | ...    | ...   | ...   | ...    | ...    | ...  |
| 1019 | NaN    | 12173 | NaN   | NaN    | NaN    | NaN  |
| 1020 | NaN    | 12091 | NaN   | NaN    | NaN    | NaN  |
| 1021 | NaN    | 12106 | NaN   | NaN    | NaN    | NaN  |
| 1022 | NaN    | 12117 | NaN   | NaN    | NaN    | NaN  |
| 1023 | NaN    | 12172 | NaN   | NaN    | NaN    | NaN  |

```
[1024 rows x 6 columns]
```

```
latency_df.plot(title="Tickets Functionality", loglog=True, ylabel =
"Latency", xlabel = "# Users")

<Axes: title={'center': 'Tickets Functionality'}, xlabel='# Users',
ylabel='Latency'>
```



Tickets Functionality

## Summary

It's expected that our app handles well a relatively low load (<= 256 users) and that it increases on higher loads (512 and 1024 users).

TBD, why the latency goes to zero for 512 but keeps increasing for 1024.

All runs were performed in a clean env.

I believe the latency suddenly dropping to zero is because the server dies due to high loads.