## RESULTS

In [5]:
```
import pandas as pd
from matplotlib import pyplot as plt
```

In [3]:
```
df = pd.read_csv("gc-results-sample-run.csv");
```

In [4]:
```
df.head()
```

Out[4]:

| | gcName | gcAction | gcCause | startTime | duration |
|---|---|---|---|---|---|
| **0** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 431 | 35 |
| **1** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 502 | 72 |
| **2** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 680 | 171 |
| **3** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 902 | 143 |
| **4** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 1091 | 177 |

## Data View

In [14]:
```
df.tail()
```

Out[14]:

| | gcName | gcAction | gcCause | startTime | duration |
|---|---|---|---|---|---|
| **89** | G1 Old Generation | end of major GC | G1 Evacuation Pause | 184936 | 9316 |
| **90** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 194401 | 449 |
| **91** | G1 Old Generation | end of major GC | G1 Evacuation Pause | 194850 | 16227 |
| **92** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 211128 | 293 |
| **93** | G1 Old Generation | end of major GC | G1 Evacuation Pause | 211421 | 16402 |

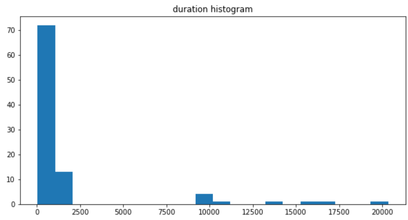
In [13]:
```
df.describe()
```

Out[13]:

| | startTime | duration |
|---|---|---|
| **count** | 94.000000 | 94.000000 |
| **mean** | 73299.063830 | 1961.893617 |
| **std** | 62197.636391 | 3766.677668 |
| **min** | 431.000000 | 35.000000 |
| **25%** | 15794.250000 | 761.250000 |
| **50%** | 56207.000000 | 881.500000 |
| **75%** | 125692.250000 | 1042.250000 |
| **max** | 211421.000000 | 20342.000000 |

## Duration distribution

In [12]:
```
plt.figure(figsize=(10,5))
plt.hist(df['duration'], bins=20)
plt.title("duration histogram")
plt.show()
```




In [15]:
```
df.head()
```

Out[15]:

| | gcName | gcAction | gcCause | startTime | duration |
|---|---|---|---|---|---|
| **0** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 431 | 35 |
| **1** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 502 | 72 |
| **2** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 680 | 171 |
| **3** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 902 | 143 |
| **4** | G1 Young Generation | end of minor GC | G1 Evacuation Pause | 1091 | 177 |

In [18]:
```
df['gcName'].unique().tolist()
```

Out[18]:
```
['G1 Young Generation', 'G1 Old Generation']
```

In [19]:
```
df['gcAction'].unique().tolist()
```

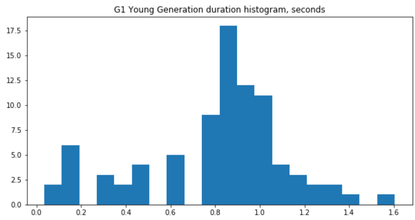
Out[19]:
```
['end of minor GC', 'end of major GC']
```

In [20]:
```
df['gcCause'].unique().tolist()
```

Out[20]:
```
['G1 Evacuation Pause']
```

## G1 Young Generation Duration distribution

In [29]:
```
plt.figure(figsize=(10,5))
plt.hist(df[df['gcName']=='G1 Young Generation']['duration']/1000, bins=20)
plt.title("G1 Young Generation duration histogram, seconds")
plt.show()
```




## G1 Old Generation Duration distribution

In [30]:
```
plt.figure(figsize=(10,5))
plt.hist(df[df['gcName']=='G1 Old Generation']['duration']/1000, bins=20)
plt.title("duration histogram, seconds")
plt.show()
```


## GC duration change by time

In [56]:
```
plt.figure(figsize=(13,5))

x1 = df[df['gcName']=='G1 Young Generation']['startTime']/1000
y1 = df[df['gcName']=='G1 Young Generation']['duration']/1000

x2 = df[df['gcName']=='G1 Old Generation']['startTime']/1000
y2 = df[df['gcName']=='G1 Old Generation']['duration']/1000


plt.plot(x1, y1, '-')
plt.scatter(x1, y1, edgecolors="black")

plt.plot(x2, y2, '-')
plt.scatter(x2, y2, edgecolors="black")

plt.title("GC duration change by time, seconds")
labels = ['Young Generation', 'Old Generation']
plt.legend(labels)

plt.ylabel("duration", fontsize=15)
plt.xlabel("startTime", fontsize=15)

plt.show()
```