

In [5]:

```
#extracting lines for simplified version
open('fft.txt','w').writelines([ line for line in open("fft-out.log") if "IPD" in line])
print ("done")
```

done

In [12]:

```
#extracting content from lines
index = 0
csv_out = open('fft_csv.txt','w')
with open ('fft.txt', 'rt') as fft:
    for line in fft:
        index +=1
        line_split = line.split()
        router = line_split[line_split.index("Router") + 1]
        time = line_split[line_split.index("time:") + 1]
        line_csv = str(index)+","+router+","+time
        csv_out.write(line_csv)
print ("done")
```

done

In [14]:

```
#convert txt to csv

import csv

with open('fft_csv.txt', 'r') as in_file:
    stripped = (line.strip() for line in in_file)
    lines = (line.split(",") for line in stripped if line)
    with open('fft.csv', 'w') as out_file:
        writer = csv.writer(out_file)
        writer.writerow(('Index', 'Router', 'Time'))
        writer.writerows(lines)
print ("done")
```

done

In [17]:

```
import pandas as pd
import matplotlib.pyplot as plt

fft_data = pd.read_csv('fft.csv')

print(fft_data.head())
```

	Index	Router	Time
0	1	0	5
1	2	1	9
2	3	2	13
3	4	3	17
4	5	7	21

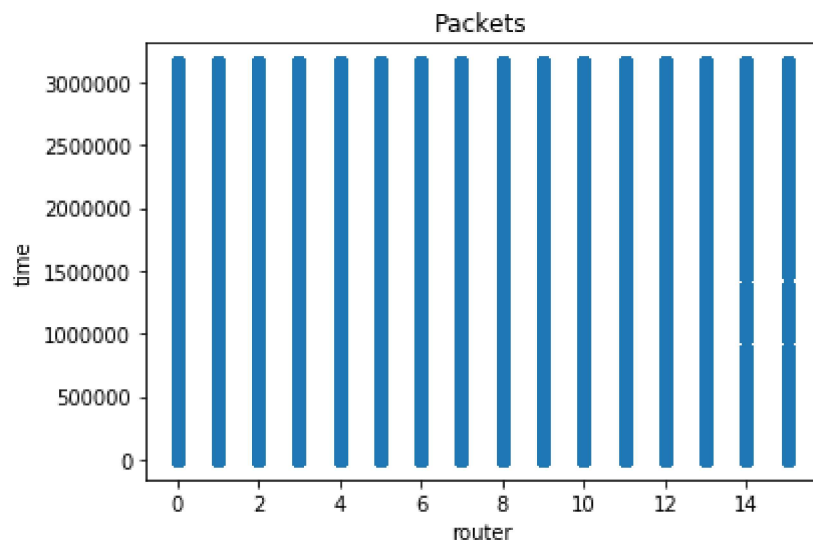
In [20]:

```
# scatter plot
fig, ax = plt.subplots()

ax.scatter(fft_data['Router'], fft_data['Time'])
# set a title and labels
ax.set_title('Packets')
ax.set_xlabel('router')
ax.set_ylabel('time')
```

Out[20]:

Text(0, 0.5, 'time')



In [43]:

```
#reading a part of csv

fft_data_500 = pd.read_csv('fft.csv',nrows=500)
```

In [44]:

```
# scatter plot 100

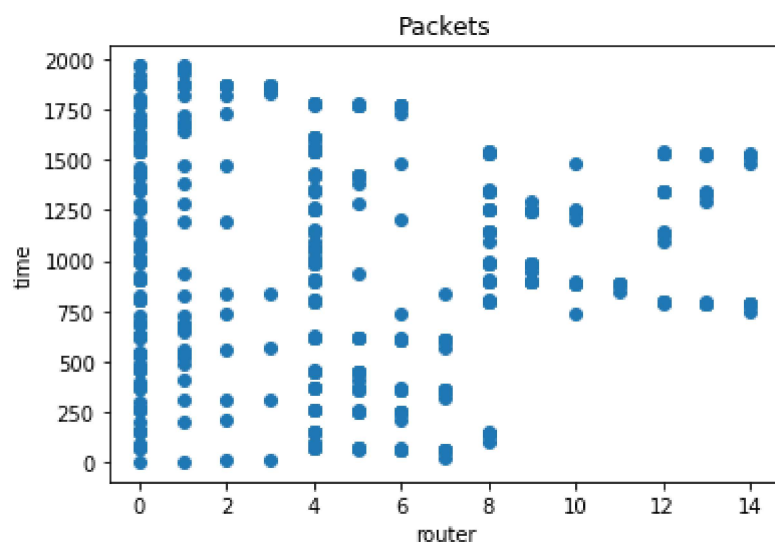
fig, ax = plt.subplots()

ax.scatter(fft_data_500['Router'], fft_data_500['Time'])

# set a title and labels
ax.set_title('Packets')
ax.set_xlabel('router')
ax.set_ylabel('time')
```

Out[44]:

Text(0, 0.5, 'time')



In [45]:

```
# bar chart by router

fig, ax = plt.subplots()

# count the occurrence of each class
data = fft_data_500['Router'].value_counts()

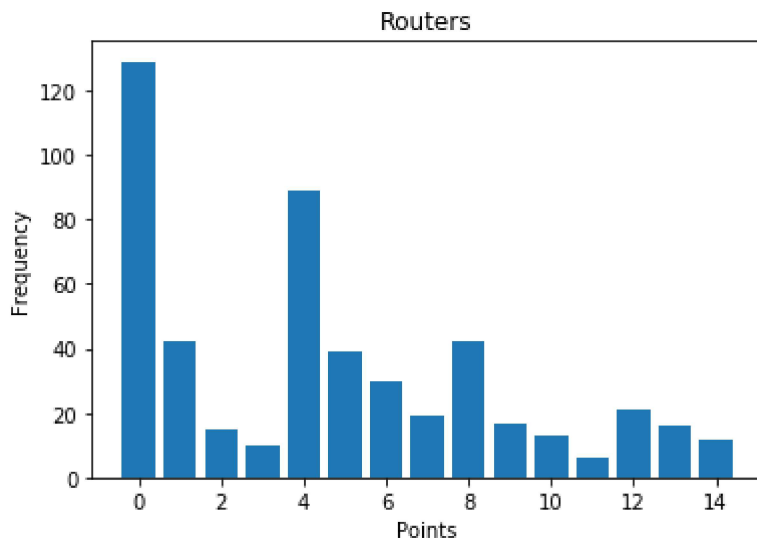
# get x and y data
points = data.index
frequency = data.values

# create bar chart
ax.bar(points, frequency)

# set title and labels
ax.set_title('Routers')
ax.set_xlabel('Points')
ax.set_ylabel('Frequency')
```

Out[45]:

Text(0, 0.5, 'Frequency')



In [46]:

```
# bar chart by time

fig, ax = plt.subplots()

# count the occurrence of each class
data = fft_data_500['Time'].value_counts()

# get x and y data
points = data.index
frequency = data.values

# create bar chart
ax.bar(points, frequency)

# set title and labels
ax.set_title('Time')
ax.set_xlabel('Points')
ax.set_ylabel('Frequency')
```

Out[46]:

Text(0, 0.5, 'Frequency')

