```python
# Python-Program for 1-D Visualization (Monte-Carlo-Integration).

from numpy import random
import numpy as np
import matplotlib.pyplot as plt

a = 0; b = np.pi; N = 1000

def f(x):
 return np.sin(x)

plt_vals = []

for i in range(N):
 ar = np.zeros(N)
 for i in range (len(ar)):
    ar[i] = random.uniform(a,b)
 integral = 0.0
 for i in ar:
    integral += f(i)
 ans = (b-a)/float(N)*integral
 plt_vals.append(ans)

plt.title("Distributions of areas calculated")
plt.hist (plt_vals, bins=25, ec="orange")
plt.xlabel("Areas")
plt.show
```


Distributions of areas calculated