Homework 02
MO412 - Network Science

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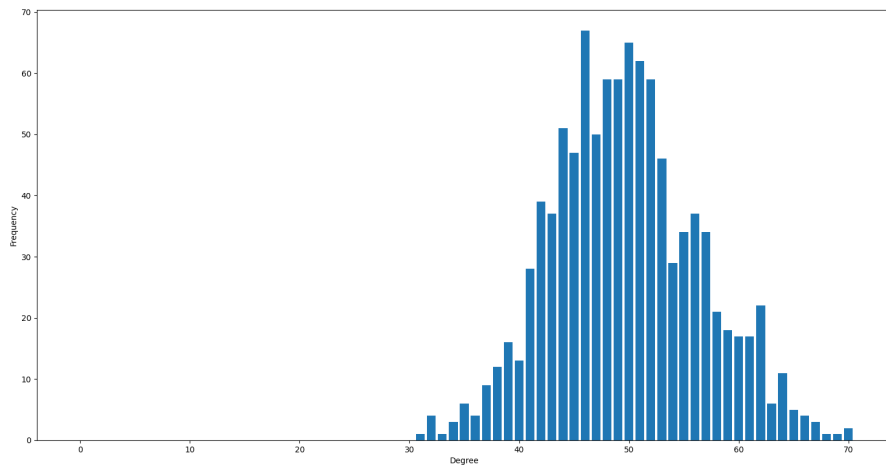**RA:** 234924

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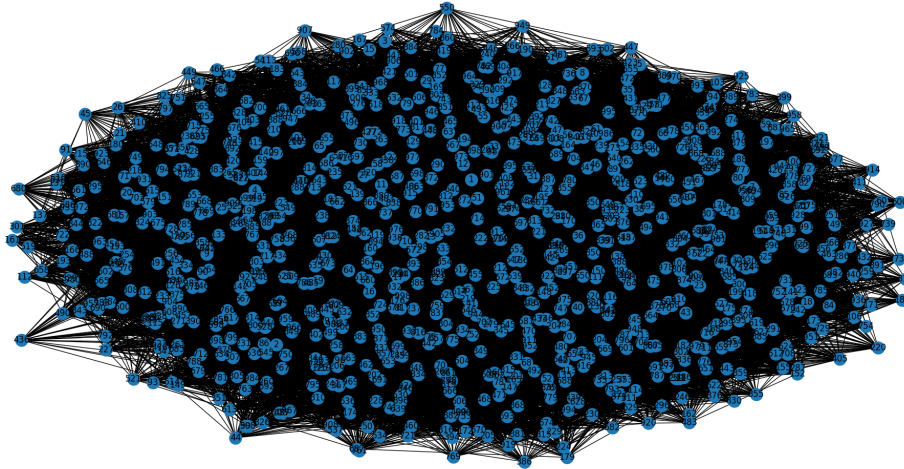
1 What is the average degree of this network?

> average degree = 49.686

2 Plot the degree distribution of the network.

3 Graph

4 Code

```python
# libraries
import pandas as pd
import networkx as nx
import matplotlib.pyplot as plt

# graph
net = pd.read_csv("net1000-005.tsv",header=None,sep='\t')
graph = nx.from_pandas_edgelist(net, 0, 1)
nx.draw(graph, with_labels=True)
plt.show()

#frequency
degree_freq = nx.degree_histogram(graph)
degrees = range(len(degree_freq))
plt.xlabel('Degree')
plt.ylabel('Frequency')
plt.bar(degrees, degree_freq)
plt.show()

#average degree
nodes = len(list(graph.nodes))
links = len(graph.edges)
average_degree = (2*links)/nodes
print("Average degree: ",average_degree)
```