ProblemSheet2

January 24, 2018

Class: C5.4 Networks
From: Miguel Torres Costa
To: Mr Michael Coughlan

1 All imports

```
In [1]: import numpy as np
        import networkx as nx
        import math
        import matplotlib.pyplot as plt
        import pandas as pd
```

2 Utils

```
In [2]: def draw(G,**kwargs):
            n = len(G)
            nx.draw_spring(G,
                           node_size=300-30*math.log(n), # Node size decreases linearly with the
                           with_labels=n<20, # Only print labels if there are less than 20 nodes
                           **kwargs)

In [3]: def create_undirected_graph(edges):
            G=nx.Graph()
            G.add_edges_from(edges)
            return G

In [4]: def create_directed_graph(edges):
            DG=nx.DiGraph()
            DG.add_edges_from(edges)
            return DG

In [5]: def load_graph_from_tsv(file):
            f = open(file,"r")
            text = f.readlines()
            clean = lambda x:x.strip("\n").split(" ")
            node_pairs = list(map(clean,text[2:]))
            node_pairs = [(int(x[0]),int(x[1])) for x in node_pairs]
```