Homework 1

Running the application:

1. Server:

```
D:\Facultate-general\MOC3\PCD>D:\Facultate-general\MOC3\PCD\server.py --help
usage: server.py [-h] [-p {TCP,UDP}] [-b BUFFER] [-P PORT] [-A] [-L LOG]

optional arguments:
  -h, --help            show this help message and exit
  -p {TCP,UDP}, --protocol {TCP,UDP}
                        Select UDP/TCP. default TCP
  -b BUFFER, --buffer BUFFER
                        Buffer size. Default 1024. Select int from 1 to 65535
  -P PORT, --Port PORT  Port to use. default 4949, select from 1024 49151
  -A, --ack             Select if server needs to send ack back to client
                        Default is False
  -L LOG, --log LOG
```

Example:
```
server.py -p UDP -b1024 -L 6.log -A
```

2. Client:

```
D:\Facultate-general\MOC3\PCD>D:\Facultate-general\MOC3\PCD\client.py --help
usage: client.py [-h] [-p {TCP,UDP}] [-b BUFFER] [-P PORT] [-I IP] [-S SIZE]
                 [-A] [-L LOG]

optional arguments:
  -h, --help            show this help message and exit
  -p {TCP,UDP}, --protocol {TCP,UDP}
                        Select UDP/TCP. default TCP
  -b BUFFER, --buffer BUFFER
                        Buffer size. Default 1024. Select int from 1 to 65535
  -P PORT, --Port PORT  Port to use. default 4949, select from 1024 to 49151
  -I IP, --ip IP        Ip to connect to. default localhost
  -S SIZE, --size SIZE  Size of data to send in bytes. Default 1MB
  -A, --ack             Select if client needs to wait for ack before sending
                        another message. Default is False
  -L LOG, --log LOG
```

Example:

```
client.py -p UDP -I 10.100.0.217 -b1024 -S 10485764 -L 6.log -A
```

Tests:

Local – Server and Client on the same machine

Protocol	Ack	Buffer Size	Sent bytes	Received bytes	Lost	Sent messages	Received messages	Time
UDP	False	10	10485764	10485764	0	1048576	1048576	14.7s
UDP	False	1024	10485764	10485764	0	10241	10241	0.14s
TCP	False	1024	10485760	10485760	0	10240	10240	0.16s
TCP	False	10	10485760	10485760	0	1048576	1048576	14.7s
TCP	True	1024	10485760	10485760	0	10240	10240	0.48s
UDP	True	1024	10485764	10485764	0	10241	10241	0.55s
TCP	False	1024	2.024GB	20.24GB	0	1976563	1976563	33s
UDP	False	1024	2.025GB	2023974916	25000	1976564	1976539	33s

Remote – Server on a machine in Bucharest, Client in Iași

Protocol	Ack	Buffer Size	Sent bytes	Received bytes	Lost	Sent messages	Received messages	Time
UDP	False	10	10485774	10417954	67820	1048578	1041796	43.8s
UDP	False	1024	10486788	10272772	214016	10242	10033	1.6s
TCP	False	1024	10486784	10486784	0	11548	10241	1.6s
TCP	False	10	10485770	10485770	0	1048577	1048640	5.5s
TCP	True	1024	10486784	10486784	0	10241	10241	467s
UDP	True	1024	10486784		ack			>10h
TCP	False	10000	1020000	1020000	0	102	170	0.44s
TCP	False	1000	10120000	10120000	0	10120	12618	24.8s
UDP	False	1000	10120004	9994004	126000	10121	9995	2.2s