

# Project Specifications for CS400 Advance Windows Network Programming

School of Computing, Communication University of China

Sept. 25, 2019.

Due Sept. 30, 2019

## Tools and Platform

The following tools and platforms are to be used in the projects:

Operating System: Microsoft Windows

Language: C++

Development Tools: Microsoft Visual Studio 201x

WinPcap Developer's Packs 4.12

## Project 2 – arping

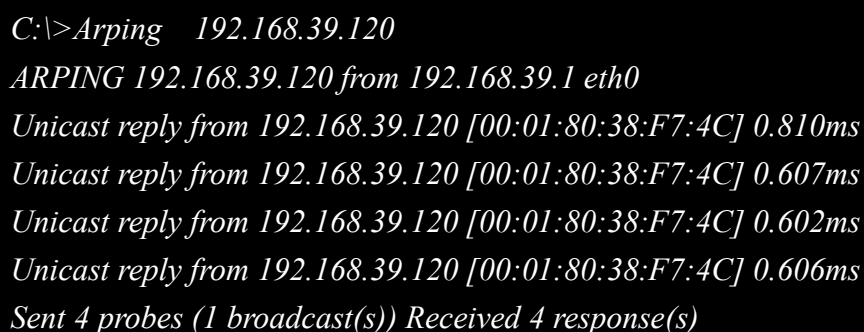
### A. Overview

In this project, student should develop a software tool “arping” that is used to discover hosts on a local area network. The program tests whether a given IP address is in use on the local network, and can get additional information (like MAC address) about the device using that address.

The arping tool is analogous in function to ping, which probes hosts using the ICMP at the Internet Layer. Arping operates at the Link Layer using the ARP for probing hosts on the local network only, as ARP cannot be routed across gateways (routers).

### B. Specification

Example arping usage:



```
C:\>Arping 192.168.39.120
ARPING 192.168.39.120 from 192.168.39.1 eth0
Unicast reply from 192.168.39.120 [00:01:80:38:F7:4C] 0.810ms
Unicast reply from 192.168.39.120 [00:01:80:38:F7:4C] 0.607ms
Unicast reply from 192.168.39.120 [00:01:80:38:F7:4C] 0.602ms
Unicast reply from 192.168.39.120 [00:01:80:38:F7:4C] 0.606ms
Sent 4 probes (1 broadcast(s)) Received 4 response(s)
```

Functions and features of the ARPing tool program are as follows:

- The arping tool must be implemented as a Windows Command Line application just as it is depicted in the above figure.
- The tool should take an IP address as parameter, send out 4 probing ARP packets and parse the reply to get the corresponding MAC address.
- No thread functions allowed within your implementation.***

### Note:

- a) All functions should be tested on different machines.

- b) Submissions that do not use Object Oriented Programming with C++ will not be accepted.
- c) If the submitted source code can not be compiled by Visual Studio 201x, **your grade** will be deducted
- d) Late submission will be punished with grade deductions