Socket Programming Project – Python HTTP Load Balancer

Name	Major	Checkpoints (25 pts)	Primary Objective (90 pts)	Secondary Objectives (10 pts)	Total Score (125 pts)

Checkpoints (25 points possible):
Checkpoints are graded as full credit *(25 points),* half credit *(13 points), or* no credit *(0 points)*

Description	Points	Score
Checkpoint 1: Full implementation of "at program startup" section plus decoding of ARP requests received via raw socket	**25**	
Total (25 pts possible)		

Evaluation Rubric – Primary Objective (90 pts possible):
Load balancer directs traffic to pool of web servers and implements direct server return

Description	Points	Score
Program determines MAC address of virtual NIC (*not* specified on command line or hardwired in program)	**10**	
Create a raw socket and bind to the virtual NIC	**10**	
Detect ARP requests from clients (to the virtual NIC *only*)	**20**	
Transmit ARP reply back to the requester	**10**	
Detect HTTP requests from client (IP + TCP packets destined to the virtual IP and virtual port number *only)*	**20**	
Select target HTTP server from pool via load-balancing algorithm. (Repeat requests from the same client by IP address are always forwarded to the same target web server)	**10**	
Transmit modified HTTP request back on network to selected target server	**10**	
Total (90 pts possible)		

Evaluation Rubric – Secondary Objectives (10 pts possible):

Description	Points	Score
Load balancer gracefully shuts down upon receiving user CTRL-C	**5**	
Load balancer supports all specified command-line arguments	**5**	
Total (10 pts possible)		

Comments: