**1)Traceroute google.com**

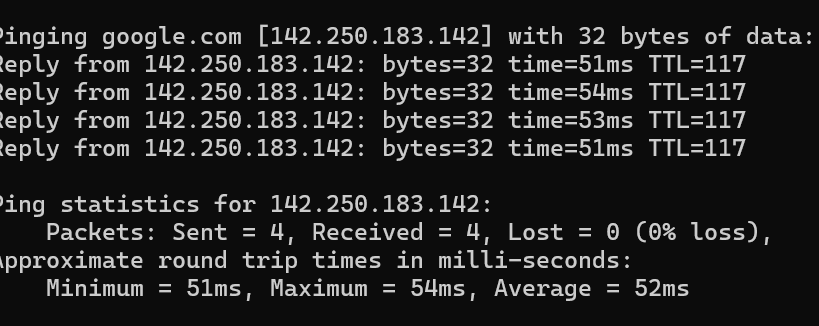
The traceroute command can be executed only in linux machines and the windows alternative for traceroute is tracert. The relevant outputs are attached below.

**A computer screen shot of a computer screen

Description automatically generated**

**Ping google.com**

In windows machine the ping command is performed to google.com and relevant outputs are presented below.

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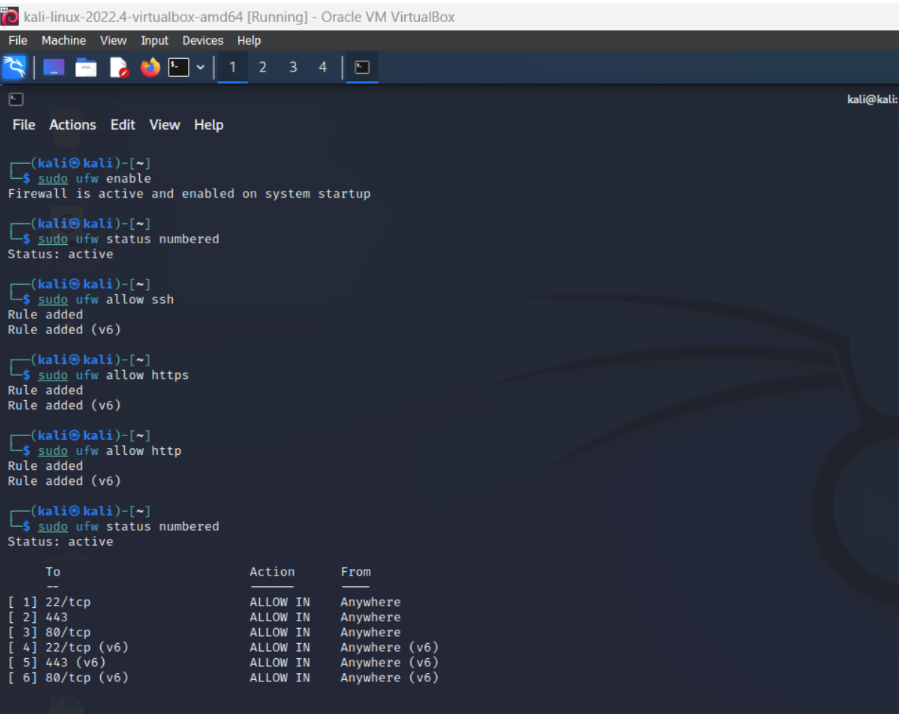
**2)** **Design a network with firewall and open ssh, http and https port.**

I have installed the **Uncomplicated Firewall (UFW)** on my Linux virtual machine and enabled the firewall. After enabling it, I verified the active ports in the firewall. Then, I added rules to allow **SSH**, **HTTP**, and **HTTPS** traffic using the following commands:

sudo ufw allow ssh

sudo ufw allow http

sudo ufw allow https

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As shown in the picture we configured the rules for the firewall allowing specific ports such as SSH, HTTP, HTTPS 