Principles of Computer Communications Project 1

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Abstract
Project about basic usage and automation of tracert command.

1 Introduction

In this project, I have learned about basic computer communications, intermediate devices and how distance affects the time of delivery of internet packages. Investigation of tracert command and automation of tracert has been done by using python code which i wrote.

2 Code

In the code, i have used tracert command by using check_output command that subprocess library provides. I used this command for each IP address for 10 times. I extract the final hop's delay value by using regex. Then i keep every value in array for each tracert, finally, i determine minimum, maximum and average delay values.

2.1 Used IP addresses

1. 161.9.89.79 localhost
2. 193.255.0.141 Istanbul
3. 193.140.0.149 Ankara
4. 81.212.217.121 Denizli
5. 212.156.104.150 Zonguldak
6. 172.217.169.206 California
7. 151.101.194.216 UK
8. 23.185.0.1 Canada
9. 62.115.55.17 Sweden
10. 62.67.19.66 Germany

3 Results

From Thursday to Sunday, I executed my code for 12 different times, 3 times for each day. Each running took at least 2 hour to be finished.

Outputs are given in a file named "Results.xlsx". In this file; minimum, maximum and average delay times are seperated with comma. There are 10 different table for each IP addresses.

IP address	Thursday	Friday	Saturday	Sunday
Morning	min, max, avg			
Noon				
Night				

4 Diagrams

In the below, a table and a diagram for it can be seen. They show that average ms values for each part of the day.

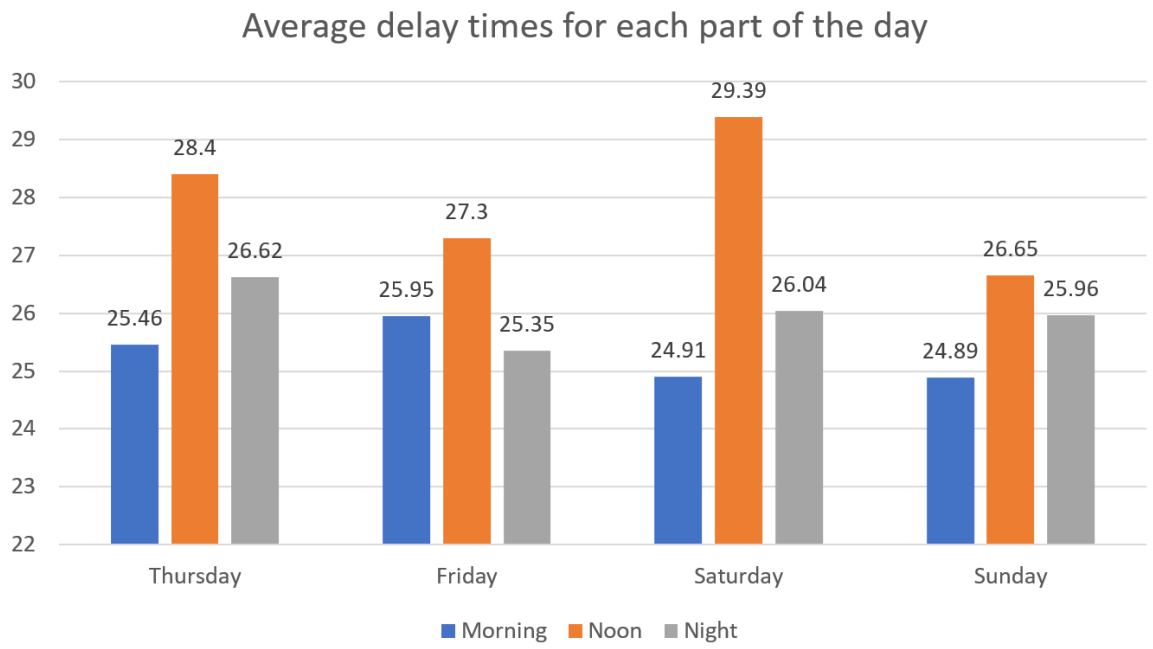
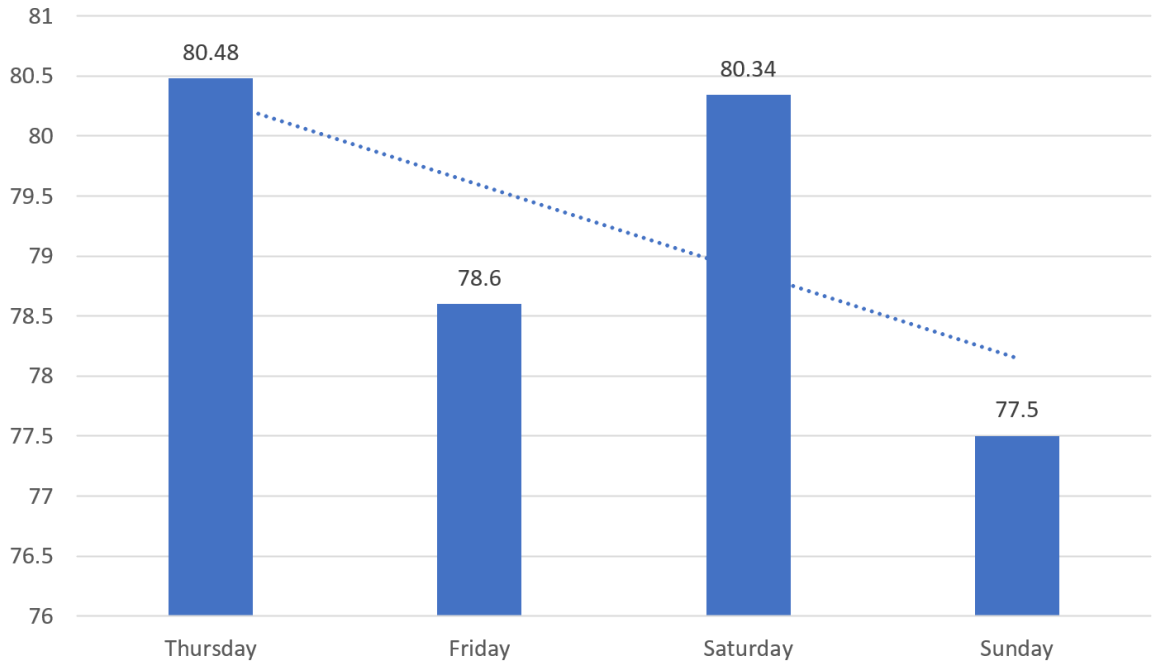
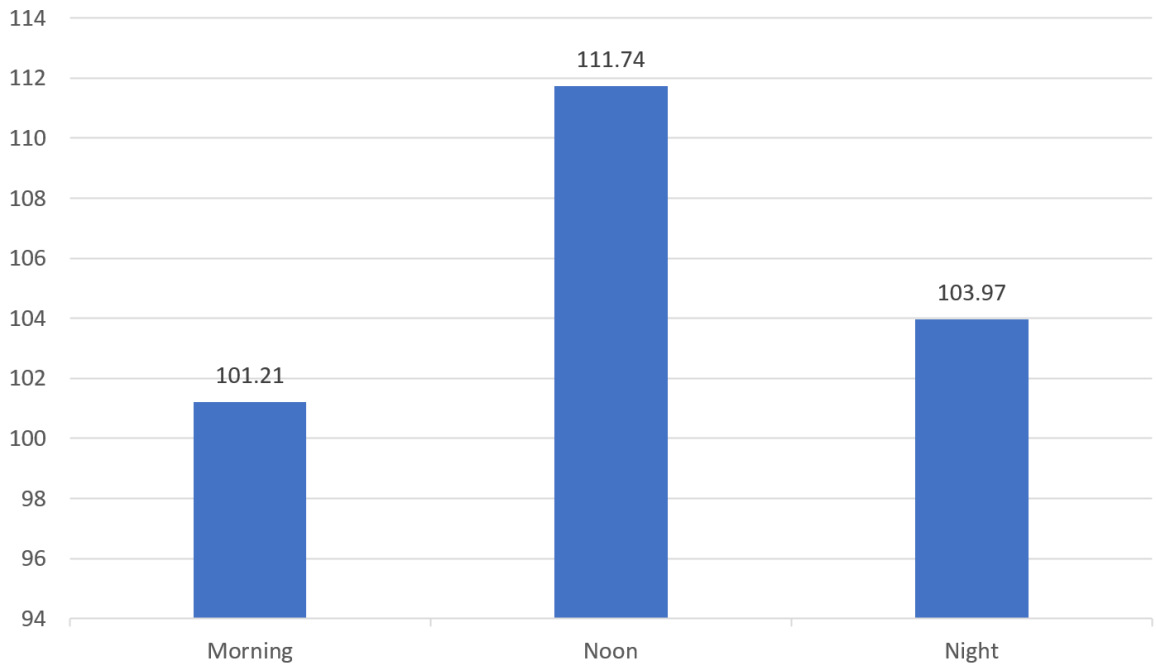


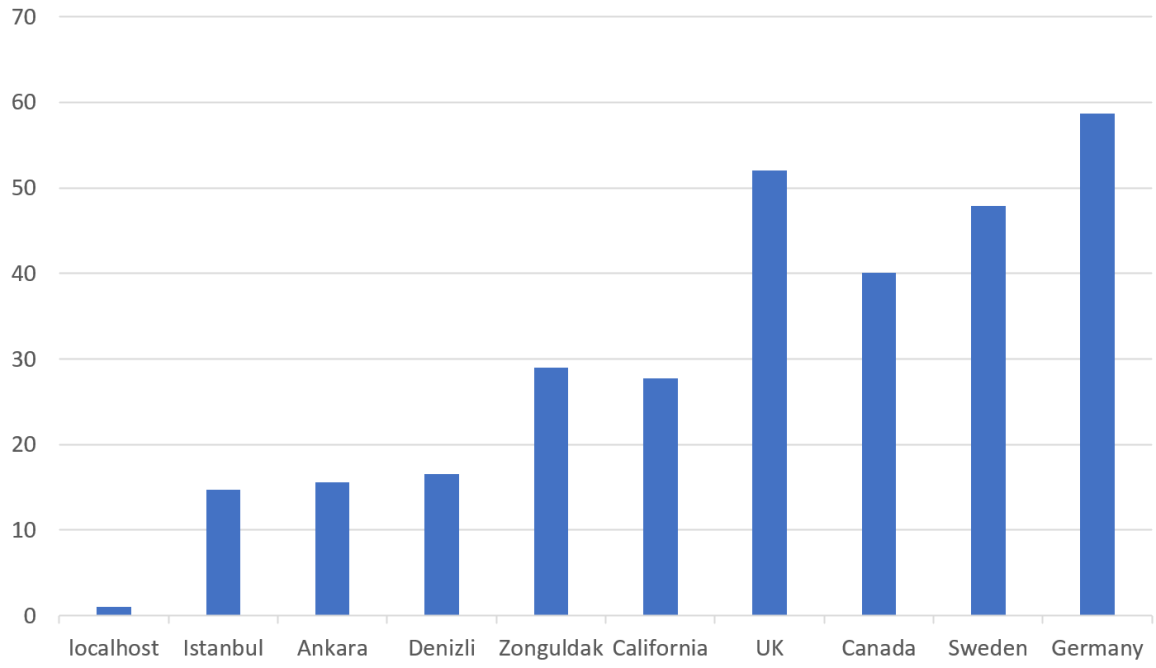
Diagram below is represents changing of delay time for each day.



This diagram shows the changing of delay time for parts of the day.



The last diagram explains the delay time varies depending on location of the server.



5 Comments

I have three observations on diagrams:

1. In weekends, there is a bit decline of the delay time, however it is so little that saying servers are busier weekends cannot be true. Trendline shows there is a bit decline when weekend has come.

2. In third diagram, we can say that servers may be busier at noon times while those times are when people are being awake.

3. In the last diagram, it is clear that reaching abroad servers are taking much more time. Also, reaching big cities like Istanbul and Ankara is easier than small cities like Zonguldak while IPS servers are generally build on there.