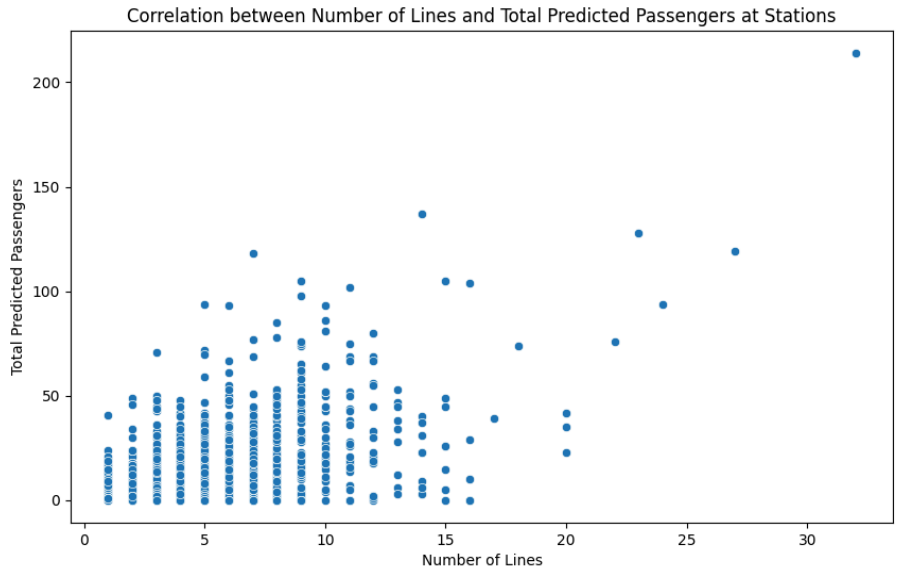
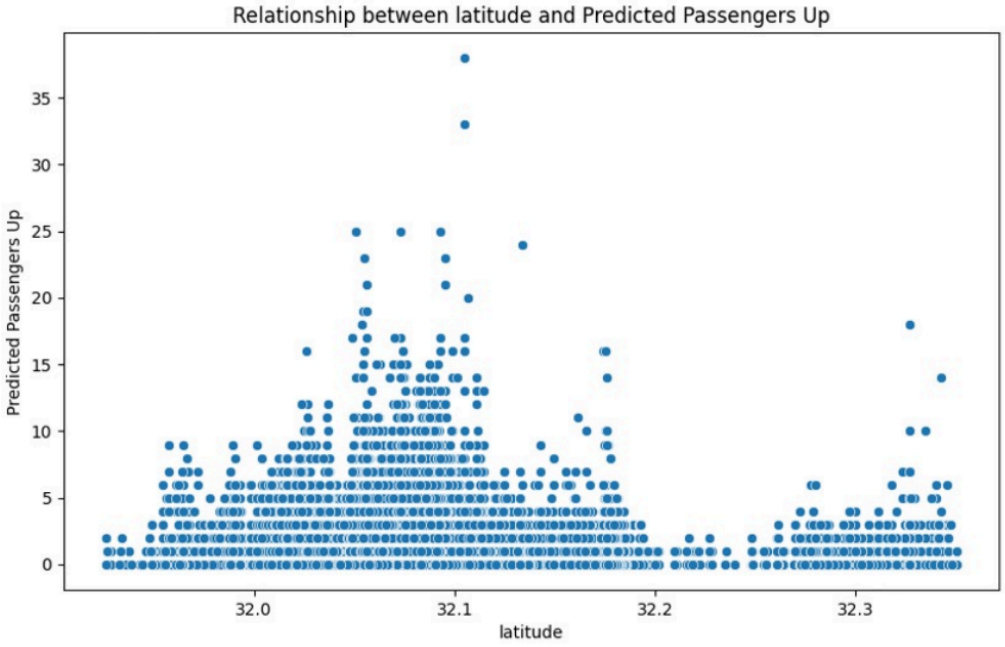
Part 3 - answer

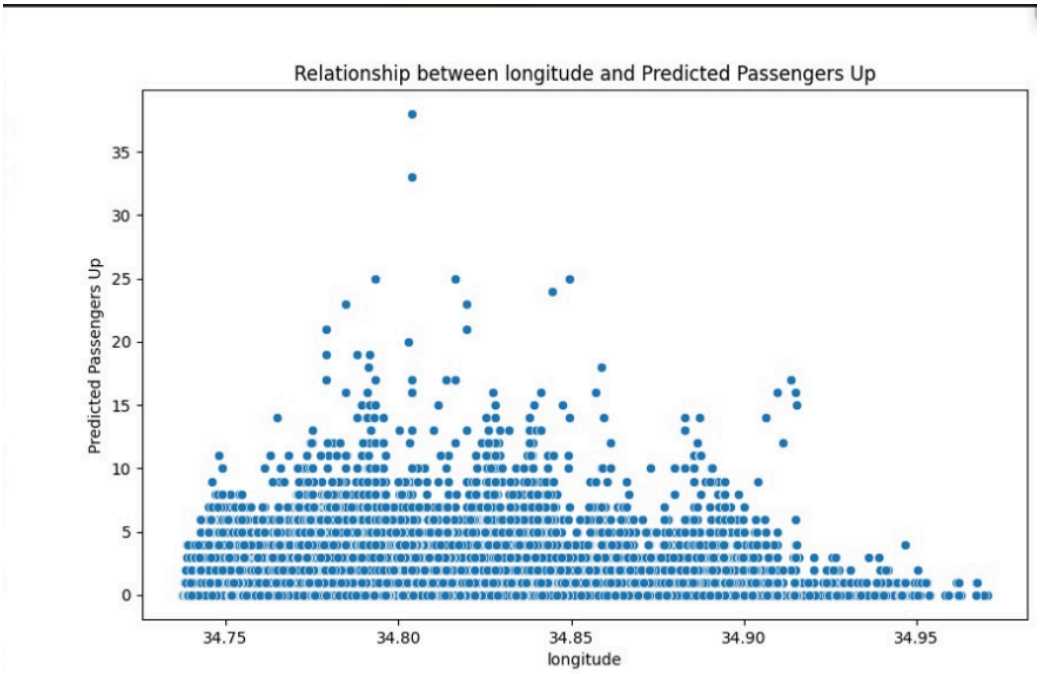
From the information we gathered, several important things can be seen.
First, we can see from the graphs below that stations with 6 to 8 lines have the perfect balance between the number of passengers per wave and the frequency of the waves. For each line stopping at a station with said number of lines, the number of passengers boarding a bus is average, and they come in waves with a good frequency - not too sparse but not too frequent either, whereas at stations with less than 6 buses, not a lot of passengers board each bus but they board very frequently, and stations with 10 buses and more have infrequent but strong waves of passengers.
Furthermore, the number of passengers boarding a bus decreases when the station index increases - that is to say, when approaching the end of the line, less people board the bus. We can also see from the graph that the early morning hours (7-8) and afternoon (1-4) are more crowded, and that there are more passengers at certain locations (from the coordinates, mostly the center of Israel).

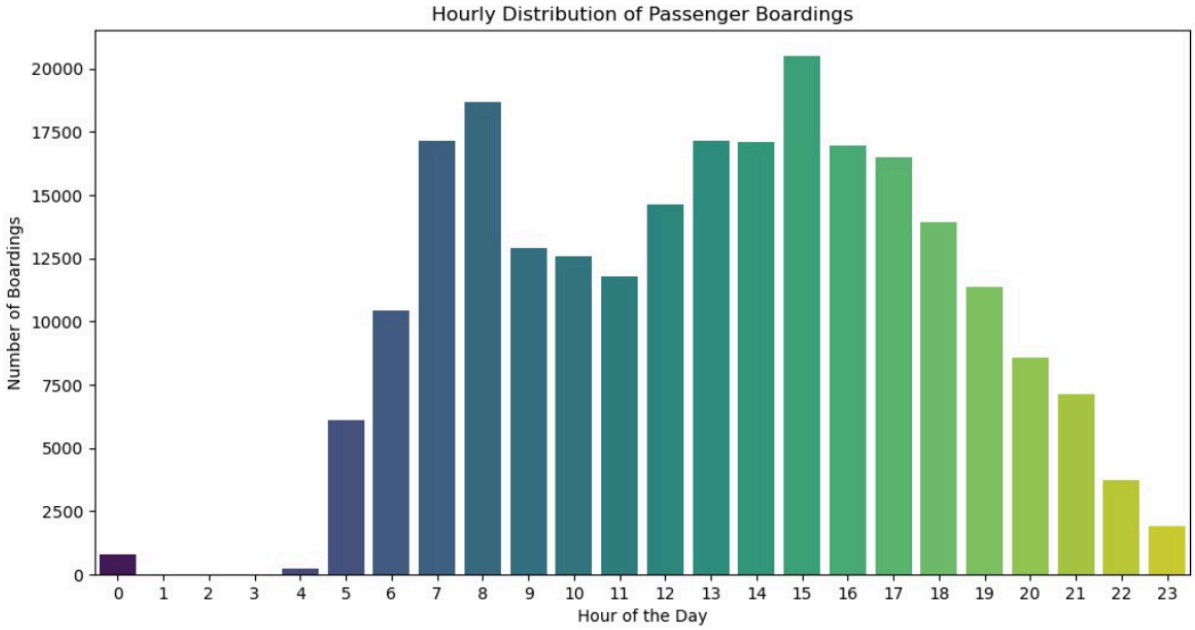
All this information put together allow us to propose the following adjustments:

1) Seeing that more people tend to go towards stations with 6-8 different lines, we can conclude that big stations are less needed, and therefore we should rather invest in the building of more stations with less lines than the central stations we have today. Central stations should be less frequent, allowing more budget to go towards smaller, more efficient stations all over a given area.
2) Additionally, to make said stations more efficient, a good balance between the lines is essential. That is, seeing more people board at the beginning of the line than at the end, a given station should be both at the start of the trip of a given line, and towards the end of another. This balance will allow less crowded stations, and once it is done, more data sampling should be done to see if adding more lines could improve the efficiency of public transportation.
3) Lastly, the fact that people in the center of Israel use more buses can be looked at in different ways: either the data sampling was done more on this specific area, or it isn't as available or as reliable, and therefore people tend to use it less. Either way, additional research should be done to determine the cause. According to the results, we could either add more public transportation in the center, seeing that people use it, or make public transportation in other areas more available and therefore allow people to rely on it more.


Correlation between Number of Lines and Total Predicted Passengers at Stations
Total Predicted Passengers
Number of Lines
0
50
100
150
200
0
5
10
15
20
25
30


Relationship between latitude and Predicted Passengers Up
Predicted Passengers Up
latitude
0
5
10
15
20
25
30
35
32.0
32.1
32.2
32.3


Relationship between longitude and Predicted Passengers Up
Predicted Passengers Up
longitude
0
5
10
15
20
25
30
35
34.75
34.80
34.85
34.90
34.95


Hourly Distribution of Passenger Boardings
Number of Boardings
Hour of the Day
0
2500
5000
7500
10000
12500
15000
17500
20000
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23