# Explanation of the Algorithm

My code finds a unique route (if it exists) between two lines (not between start station and end station) using a branching algorithm iterating through only the breakpoints for the efficiency. The code firstly starts searching the starting line in the breakpoints. Until it finds it does not add anything to the blacklist. When it does find the correct breakpoint, it does add the breakpoint to the blacklist and checks if that breakpoint does have end line. If it finds the end line in breakpoint it returns the blacklist as the route. If it does not find an end point, it calls itself with using the other lines (that breakpoint contains) as starting lines and a temporary copy of the blacklist and having that temporary list as an argument (if it does not the route on the first recursion). If the first loop ends within returning anything, the code returns an empty list for to indicate failure in finding a route between the start and end lines.

## Example 1:

Input:

Levent

Uskudar

Console Output:

Levent

Gayrettepe

Sisli-Mecidiyekoy

Osmanbey

Taksim

Sishane

Halic

Vezneciler

Yenikapi

Sirkeci

Uskudar

Canvas Output:

https://drive.google.com/file/d/1hZYwU_NMIxqOAQXJCNksl0EhXlb8pBJ3/view?usp=sharing

# Example 2:

## Input:

Aksaray

Bahariye

## Console Output:

These two stations are not connected

## Canvas Output:

Canvas will not pop up.

# Example 3:

## Input:

Bogazici

Kadikoyy

## Console Output:

The station names provided are not present in this map.

## Canvas Output:

Canvas will not pop up.

# Example 4:

## Input:

IstanbulHavalimani

SabihaGokcenHavalimani

## Console Output:

IstanbulHavalimani

Ihsaniye

Gokturk

Kemerburgaz

Hasdal

Kagithane

Caglayan

Sisli-Mecidiyekoy

Osmanbey

Taksim

Sishane

Halic

Vezneciler

Yenikapi

Sirkeci

Uskudar

AyrilikCesmesi

Acibadem

Unalan

Goztepe2

Yenisahra

Kozyatagi

Bostanci2

Kucukyali2

Maltepe2

Huzurevi

Gulsuyu

Esenkent

Hastane-Adliye

Soganlik

Kartal2

Yakacik

Pendik2

Tavsantepe

FevziCakmak

Yayalar

Kurtkoy

SabihaGokcenHavalimani

## Canvas Output:

https://drive.google.com/file/d/1XZlGW-TdjwH-iCR57ek1npeKOEoXNF7m/view?usp=sharing