Figure 1 Sample Canvas

In this assignment, we will write a Java program that finds the path between two input stations and draw it using StdDraw library. In the map (See the figure above), there are stations, transfer points (A transfer point is a station where passengers can change metro lines. In the rest of the file, we will call them breakpoints), and metro lines. The coordinates of stations and which line it belongs to will be given in input.txt. There will be 10 metro lines and 7 breakpoints. There is no loop in the graph, so if there is a path, it will be unique. A path is the sequence of stations passed to reach the endpoint and repetitions are **not** allowed.

- Take station names as input-if the input is not valid, print "No such station names in this map" to the console and finish the code.
- Find the path and print the path to the console-if there is no path, print "These two stations are not connected" to the console and finish the code.
- Make an animation using StdDraw.
- You will not be graded based on efficiency however we encourage you to keep it as efficient as possible.

In your report, please include

- explanation of the algorithm without code (max 1 page)
- the input and the output of all the example cases provided below.

Implementation

Input File Format:

M1B 141,31,22
*Kirazli 214,160 BagcilarMeydan 236,169 Ucyuzlu 259,169 *Menderes 280,169 Esenler 303,169 *Otogar 329,160

Expected Output:

Figure 2 Sample M1B Metro Line

Each metro line will be represented by two lines in the text file. First line contains the name of the metro line and RGB values (red/green/blue). In the second line there are station names and coordinates of stations. Not all of the station names will be printed on the canvas only the ones that start with"*" symbol.

Figure 3 Sample Input

Suggested drawing formats:

Canvas size	1024x 482
Pen radius of lines	0.012
Pen radius of stations	0.01
Text font	Font("Helvetica", Font.BOLD, 8)
Station name coordinate relative to its point (x, y)	(x, y+5)

Animation using StdDraw

 We will draw each step of the path as an animation. Current station should be bigger than the already visited stations. The animation format is similar to the bouncing ball animation discussed in Lab 1.

Figure 4 Yenikapı-Hacıosman First Step

The figures above and below are the first and last steps of the Yenikapi-Haciosman animation.

Suggested animation formats:

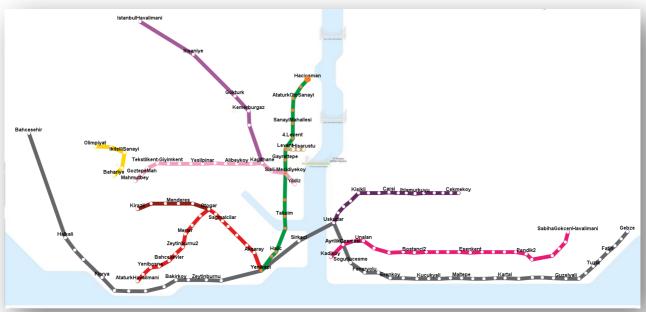|	
Current point pen radius	0.02
Pause duration	300
Path point color	PRINCETON_ORANGE

Figure 5 Yenikapı-Hacıosman Last Step

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/13JHLDxzN_7zaECHtFVmPshD9ev6qEgJb/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
Kadikoyyy

Console output:
The station names provided are not present in this map.

Canvas output:
Canvas will not pop up.

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/1NHmxO7K7VWJorISshJFJBHtDefm_L_17/view?usp=share_link

Evaluation Criteria and Grading for Assignments

Code
10% Compliance to programming style, e.g., naming conventions, indentation, comments.
80% Correctness of the solution
Report
10% Completeness of the report, compliance to the report format, correctness of the content and language.

Submission Guide

Submission Files
Submit a single compressed (.zip) file to Moodle.
Name your zip file as name_surname.zip.
Zip file should contain all source codes (under the \code directory), and report (in PDF format, under the \report directory).
Name the main code which is used to run your assignment as name_surname.java.
Contents of each Java file should start with your name, student ID, date, and a brief code summary in a comment block.

Mandatory Submission
Submission of assignments is mandatory. If you do not submit an assignment, you will fail the course.

Late Submission Policy
Maximum submission delay is two days. Late submission will be graded on a scale of 50% of the original grade.
Submission is mandatory even if you submit your assignment late.

Plagiarism
Plagiarism leads to grade F and YÖK regulations will be applied