

Data Structures & Algorithms

Software Year 2

CA3

Project Report

[Student Name]

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[Date of Submission]

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# Introduction

Replace this text with an appropriate Project Introduction.

Introduce the project application, and a summary of the contents of the report.

What is covered in the report? What Data structure did you use .. what language did you program in ?

Keep this section short!

This report was commissioned by Áine Byrne, lecturer Data Structures & Algorithms as submission for assessment for this module. This report is about a walking tour application for Paris. Adjacency matrix implemented using 2d arrays is the chosen data structure for the graph application. The application is written using Java.

# Section 1: Description of the Application

Drawing of graph used

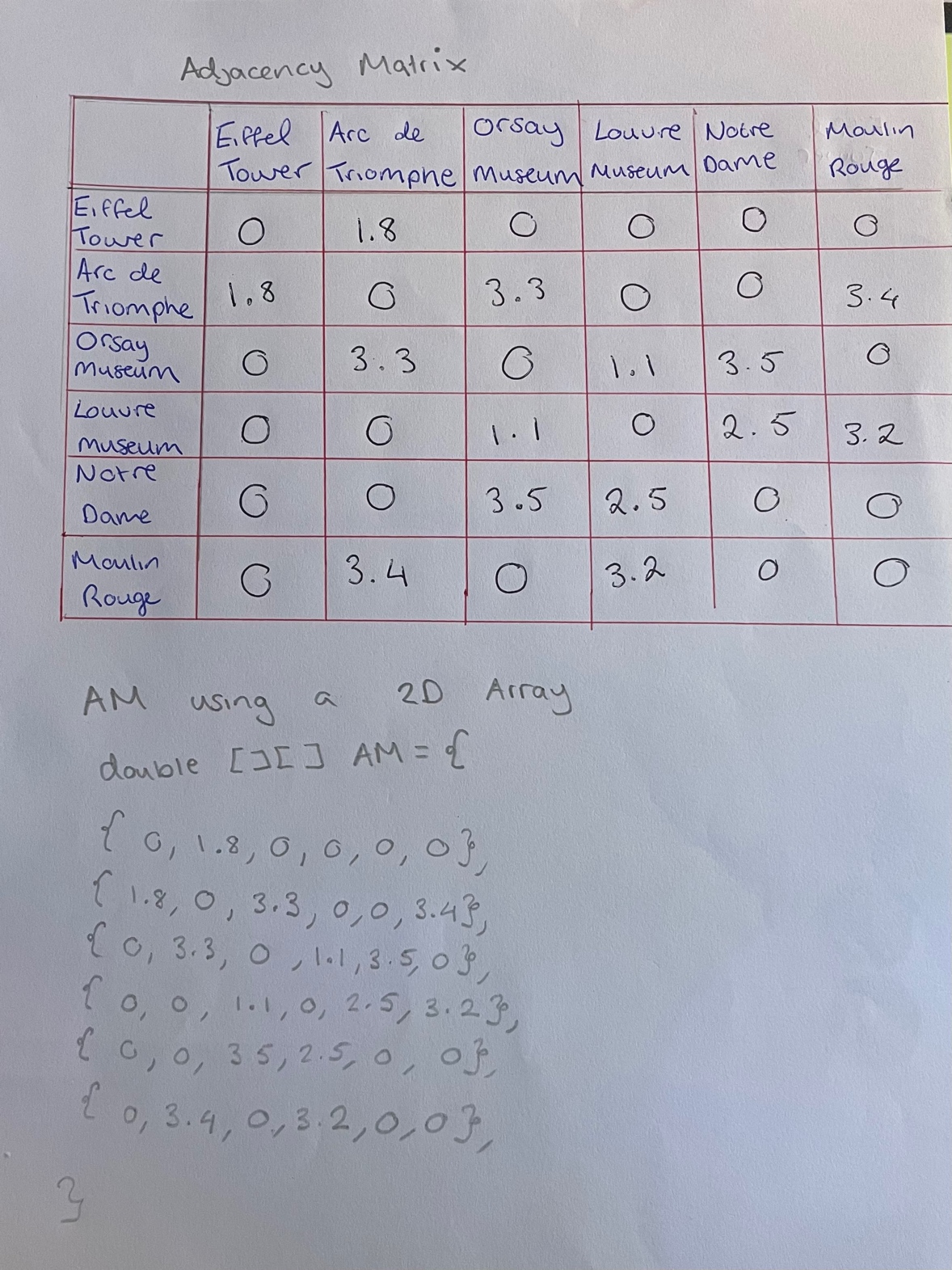
Description of application-where, sites,edges?

This walking tour was designed for Paris, France. The walking tour includes 6 sites which are The Eiffel tower, Arc de Triomphe, Orsay Museum, Louvre museum, Notre Dame and Moulin rouge. From the Eiffel tower you can only go to the Arc de triomphe. From the Arc de triomphe you can go to the Eiffel tower, Orsay museum or Moulin rouge. From Orsay museum you can go to Arc de triomphe, Louvre museum or Notre dame. From Louvre museum you can go to the Orsay museum, Moulin rouge or Notre Dame.From Notre Dame you can go to the Orsay museum or the Louvre museum.From Moulin rouge you can go to the Arc de triomphe or the Louvre museum. The user will be able to search sites, search edges, add edges, find all edges and find the closest site.

# Section 2: Data Structures Used

Short description of Data Structures used, including helper variables. Include drawings of the data structures and names used for these structures.

The data structure which will be used for this application to store the graph is an adjacency matrix. The name of the adjacency matrix is AM.The weightings for this Adjacency Matrix represents the distance between the sites in kms.



# Section 3: Pseudocode of operations:

Pseudocode of each of the methods used

1. **Open and input a graph from an external file**
2. **Search for a site**
3. **Insert an edge**

Input siteName1

Input siteName2

Input distance

AM[siteName1, siteName2] = distance

AM[siteName1,siteName2]=distance

1. **Search for an edge**

Input siteName1

Input siteName2

If (AM[siteName1, siteName2]> 0)

{

Return true//edge found

}

Else

{

Return false//no edge found

}

1. **Given a site, display all sites connected to it**

Input siteName

1. **Given a site, display the closest site to it**

# Section 4: Minimum Spanning Tree

Algorithm used: Kruskal’s

**A paper with text and circles
Showing minimum spanning tree using kruskals algorithm. 
Description automatically generated**Total Cost: 11.9

# Section 5: Description of methods used

Replace this text with description of methods used.

One line description for each method used in code.

# Section 6: Test data Used

Replace this text with Test Data.

Test data is the input given to the program during test execution. Include in this section a diagram of the graph used, a description of the test file used, and a copy (or screenshot) of the test file.

# Section 7: Sample execution

Replace this text with Sample execution screenshots.

Include screen shots of your application running on the test data described above. Demonstrate via screenshots, how each option on the menu runs. Ensure that screenshots are neat, readable and cropped to correct size.

# Section 8: Copy of Code

Replace this text with a copy of Code.

Include a copy of Code either by including the code file or screenshots of the code.

# References

Include Acknowledge Describe Evidence Form (if appropriate)