

**Graduate Developer - Technical Assessment**

**Instructions**

You may use any methods available to you to find the answers (other than asking someone else to answer on your behalf).

You may spend as much time on this task as you wish as long as you submit the completed assessment within 7 calendar days of receipt.

**The scenario**

Trains Express is looking to build a new route finder system to be utilized by their website, kiosks and tills. They have decided to develop a small prototype application to demonstrate how the route finding service could work and be architected. Given an abstract set of train stations (see end of document) with predefined routes and travel times, the question they want they want the prototype to answer is, "What is the quickest route between any two given stations?”

**Your solution**

You are required to solve the above challenge by writing some code in a language of your choice. Your solution should satisfy the following requirements:

A program/function where a user can provide two station names and will then be shown the correct quickest route.

A good solution will demonstrate the following qualities:

* Clear, concise and easily readable code (the best solutions we've seen are often those with the least code).
* Separation of the domain (routes and stations) and the underlying problem representation.
* Suitable usage of object-oriented patterns and best practices.

We are not interested in the most efficient route-finding algorithm or indeed in seeing you implement your own. E.g. You may use any existing free-to-use framework or library that either directly solves the problem or aids in solving the problem, but you may be asked to explain your selection of these.

You may be asked questions about your solution in your interview

Train stations and travel times

A to B takes 3 minutes

B to A takes 3 minutes

A to D takes 6 minutes

B to C takes 7 minutes

C to D takes 8 minutes

D to E takes 9 minutes

E to D takes 9 minutes

D to C takes 9 minutes

D to B takes 5 minutes

C to E takes 3 minutes