Route Planner Technical Challenge - C++

Assignment

Implement a client/server route planning system in C++. The system comprises of the following separate binaries:

- A route planner service (which can calculate the shortest path between two locations)
- A client to request routes (which connects to the route planner service)

The route planner service.This service will receive two cities from the client and reply with the path with the least amount of points between these cities. The total amount of points includes the start and end locations.

Example: A route between John O'Groats and Liverpool via Glasgow has 9 points.
Example: The shortest route between Oxford and Brighton is via Bath, which is 5 points.

The client connects to the route planner service and requests a route between two cities from the route planner. There can be an arbitrary number of clients connected concurrently at any time.

Stretch Goals:

- A separate administrator client that connects to the route planner service and is able to update the points assigned to the cities whilst other clients are connected and requesting routes
- Ability to update the points from the server without restarting it.

Cities

Here is a table with a fixed set of cities and their starting weights represented as a bidirected graph:

Large - 5 Points	**Medium - 3 Points**	**Small - 1 Point**
1. London 2. Birmingham 3. Manchester 4. Liverpool	5. Glasgow 6. Leeds 7. Edinburgh 8. Peterborough 9. Newcastle 10. Bath	11. Brighton 12. Leicester 13. Oxford 14. Cambridge 15. Sheffield 16. John O'Groats

Here is a map visualising the points from above: