Project 4 Report

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1. MyMap

associate(): O(log(n)), where n is the number of keys, as it utilizes a binary search to find the correct position.

find(): O(log(n)), where n is the number of keys, as it utilizes a binary search.

1. AttractionMapper:

init(): O(S+AlogA), where S is the total number of streets and A is the number of attractions (For each attraction, it associates it with a geoCoord, which is a logA operation)

getGeoCoord(): O(logA), where A is the number of attractions. This function uses MyMap’s find, which is a O(logn) operation.

1. SegmentMapper:

init(): O(SlogS + AlogA), where S and A are the number of segments and the number of attractions respectively.

getSegments(): O(log(S+A)), where S and A are the number of segments and the number of attractions respectively.

1. Navigator:

navigate(): O(S\*k\*log(S)), where S is the number of segments and k is the average number of nodes (Start or end of a segment, or start or end position of the whole route) each node is connected to. Utilizes the A\* algorithm.