1. DFSEnumerator
   1. Path for dswrite:

[17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28]

* 1. Path for dskenq:

|  |
| --- |
| [15, 16, 17, 19, 25, 26, 26, 36, 37, 38] [15, 16, 17, 19, 25, 26, 26, 36, 37, 27, 28] [15, 16, 17, 19, 25, 26, 26, 36, 37, 27, 29, 26, 36, 37, 38] [15, 16, 17, 19, 25, 26, 26, 36, 37, 27, 29, 26, 36, 37, 31, 32, 33] [15, 16, 17, 19, 25, 26, 26, 36, 37, 27, 29, 26, 36, 37, 31, 32, 20, 21, 22, 23] |

* 1. Path for dskqopt:

|  |
| --- |
| [14, 15, 16, 21, 22], [14, 15, 16, 21, 24, 25, 26],  [14, 15, 16, 21, 24, 25, 29, 36, 37, 38, 39, 40, 41],  [14, 15, 16, 21, 24, 25, 29, 36, 37, 38, 39, 40, 44, 52, 53, 54, 55, 55, 63, 64, 65, 66],  [14, 15, 16, 21, 24, 25, 29, 36, 37, 38, 39, 40, 44, 52, 53, 54, 55, 55, 63, 64, 65, 56, 57, 58, 58, 59, 58, 60, 61, 55, 63, 64, 65, 66],  [14, 15, 16, 21, 24, 25, 29, 36, 37, 38, 39, 40, 44, 52, 53, 54, 55, 55, 63, 64, 65, 56, 57, 58, 58, 59, 58, 60, 61, 55, 63, 64, 65, 60, 61, 55, 63, 64, 65, 66],  [14, 15, 16, 21, 24, 25, 29, 36, 37, 38, 39, 40, 44, 52, 53, 54, 55, 55, 63, 64, 65, 56, 57, 58, 58, 59, 58, 60, 61, 55, 63, 64, 65, 60, 61, 55, 63, 64, 65, 68],  [14, 15, 16, 21, 24, 25, 29, 36, 37, 38, 39, 40, 44, 52, 53, 54, 55, 55, 63, 64, 65, 56, 57, 58, 58, 59, 58, 60, 61, 55, 63, 64, 65, 60, 61, 55, 63, 64, 65, 45, 46, 47, 47, 49],  [14, 15, 16, 21, 24, 25, 29, 36, 37, 38, 39, 40, 44, 52, 53, 54, 55, 55, 63, 64, 65, 56, 57, 58, 58, 59, 58, 60, 61, 55, 63, 64, 65, 60, 61, 55, 63, 64, 65, 45, 46, 47, 47, 48, 47, 49],  [14, 15, 16, 21, 24, 25, 29, 36, 37, 38, 39, 40, 44, 52, 53, 54, 55, 55, 63, 64, 65, 56, 57, 58, 58, 59, 58, 60, 61, 55, 63, 64, 65, 60, 61, 55, 63, 64, 65, 45, 46, 47, 47, 48, 47, 30, 31, 32, 33] |

1. Multiplicity path counter
   1. See Result.csv in source file which list all the path counts
   2. The reason why this algorithm is a linear algorithm is because we are simply go through each node inside of the graph and the time complexity is O(n) (or we can say O(v+e), v is the number of nodes, and e is the number of edges), and n is the number of nodes. You can see in the Results.csv, the numbers are the same for both algorithms. And you can see from the screenshots. When using non-linear one, the additions grow fast as the number of paths growing. But linear’s number of additions doesn’t grow as fast as non-linear one does.
   3. 