I’ve followed an approach similar to problem 18.

Just for simplicity, I’ve flipped the table (or transposed it) !!

Insight: We’ll take every diagonal and add it to the next diagonal appropriately then eliminate it!!

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I want the min path sum from 131 at the top to 331 at the bottom.

If, instead, we start at 331 we have 2 ways (up and left)

So we add 331 to both elements on its right and above, and we get rid of it

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 805 | 537 | 630 | 201 | 131 |
| 732 | 699 | 803 | 96 | 673 |
| 524 | 497 | 746 | 342 | 234 |
| 37 | 121 | 422 | 965 | 103 |
| 331 | 956 | 111 | 159 | 18 |

Now we ‘re at the diagonal that contains 368 and 1287

Similar to what we have above, 368 and 1287 both have 2 ways (up and right)

We say that 121 is in common with 368 and 1287 so we can just add both, we’ll add the min(368,1287)

but for 524 and 111 we can safely add 368, 1287 respectively

Now we’re done with this diagonal, we can safely eliminate it

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 805 | 537 | 630 | 201 | 131 |
| 732 | 699 | 803 | 96 | 673 |
| 524 | 497 | 746 | 342 | 234 |
| 368 | 121 | 422 | 965 | 103 |
|  | 1287 | 111 | 159 | 18 |

We keep repeating this method until …

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 805 | 537 | 630 | 201 | 131 |
| 732 | 699 | 803 | 96 | 673 |
| 892 | 497 | 746 | 342 | 234 |
|  | 489 | 422 | 965 | 103 |
|  |  | 1398 | 159 | 18 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 805 | 537 | 630 | 201 | 131 |
| 1624 | 699 | 803 | 96 | 673 |
|  | 986 | 746 | 342 | 234 |
|  |  | 911 | 965 | 103 |
|  |  |  | 1557 | 18 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2429 | 2222 | 630 | 201 | 131 |
|  | 1685 | 803 | 96 | 673 |
|  |  | 1657 | 342 | 234 |
|  |  |  | 1876 | 103 |
|  |  |  |  | 1575 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2222 | 630 | 201 | 131 |
|  |  | 2460 | 96 | 673 |
|  |  |  | 1999 | 234 |
|  |  |  |  | 1678 |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | 6852 | 201 | 131 |
|  |  |  | 2095 | 673 |
|  |  |  |  | 1912 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  | 2296 | 131 |
|  |  |  |  | 2585 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

…until we only have one element left, and it will magically be the minimum sum !!

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  | 2427 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**We can also look at the described method like this: (I’ll use the following in my code)**

Starting at the last diagonal, For each element in the diagonal, add to that

element min(the element to its left, the element below it)

if the element happens to not have an element to its left or below it, then make the missing element a very big number (MAXVALUE will do the job!!).

delete the previous diagonal (the one we just used to add)

and do this for every diagonal until we have one diagonal containing one element which is our desired answer!!

Done!!