Closest Pair of Points

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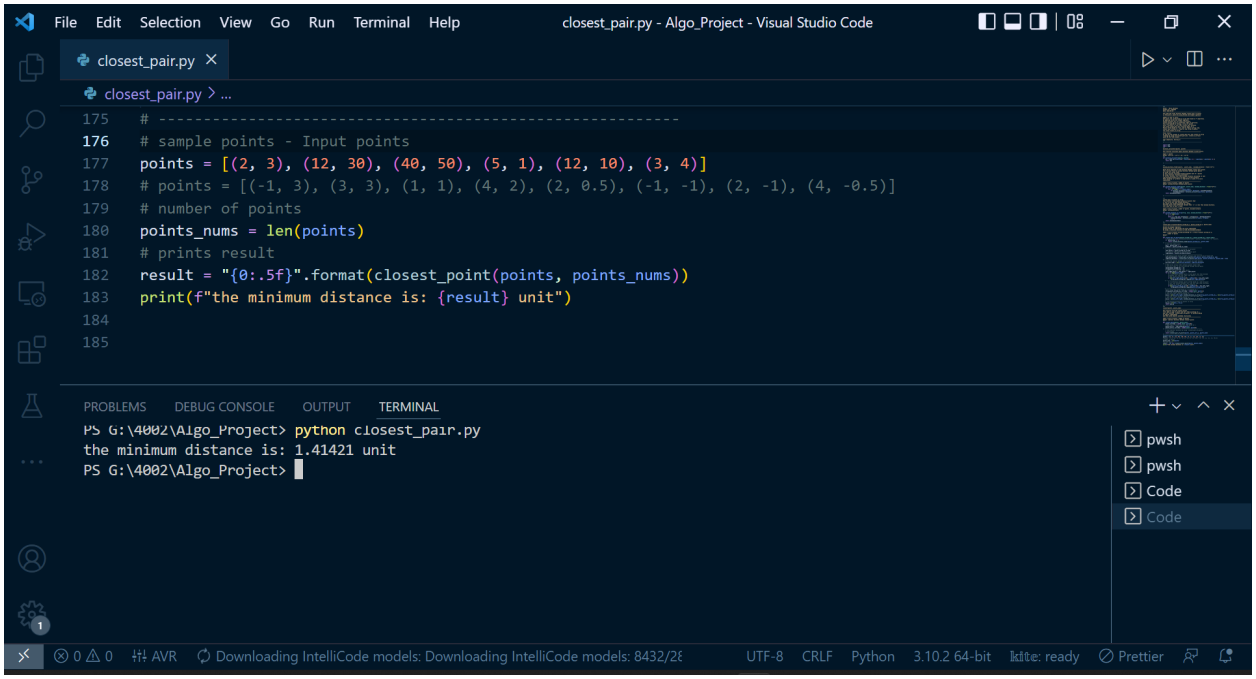
Algorithm:

1) Find middle-point of the sorted array
2) Divide the array into 2 halves, one is all elements before and up to the midpoint and the second is all elements after the midpoint.
3) Find the smallest distance in both the sub-arrays recursively, left (i) and right (j)
4) Find the minimum of the left and right (k)
5) We have the upper and lower bound of the minimum point now (i and j)
6) We now know that one point is in the left half and the other is in the right so we can find all the points with x coordinates closer to k than i and j, we then build an array with these points l
7) Sort this array in relation to their y coordinates
8) Find the smallest distance in l
9) Return the minimum of k and the smallest distance from l

❖ Sample of different Inputs and Outputs

1)



2)