152. Write a program that finds the convex hull of a set of 2D points using the brute force approach.

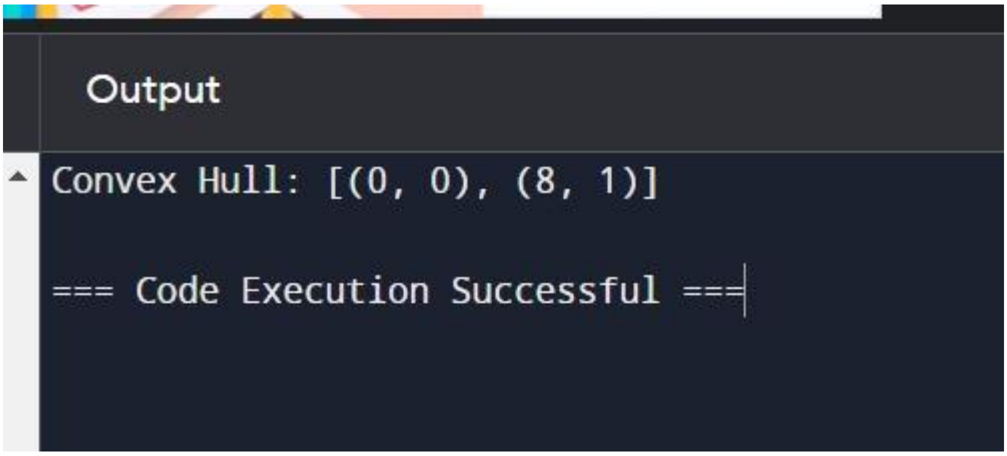
Program:-

```
def is_counter_clockwise(p, q, r):
    """ Check if three points p, q, r form a counter-clockwise turn """
    return (q[1] - p[1]) * (r[0] - q[0]) - (q[0] - p[0]) * (r[1] - q[1]) > 0


def convex_hull_brute_force(points):
    """ Find the convex hull of a set of 2D points using brute force approach """
    n = len(points)
    if n < 3:
        return points


    # Sort points lexicographically (first by x, then by y)
    points = sorted(points)


    hull = []


    for i in range(n):
        for j in range(i + 1, n):
            is_hull_edge = True
            for k in range(n):
                if k != i and k != j:
                    if is_counter_clockwise(points[i], points[j], points[k]):
                        is_hull_edge = False
                        break
            if is_hull_edge:
                if points[i] not in hull:
                    hull.append(points[i])
                if points[j] not in hull:
                    hull.append(points[j])
    return hull
```

input:-

points = [(1, 1), (4, 6), (8, 1), (0, 0), (3, 3)]

Output:-



```
Convex Hull: [(0, 0), (8, 1)]

=== Code Execution Successful ===
```

Time complexity:- O(n^3)