```cpp
int maxRectangleArea(vector<int>& heights)
{
    int maxArea = 0;
    for (int i = 0; i < heights.size(); i++)
    {
        if (i  < heights.size()-1 && heights[i] <= heights[i+1])
            continue;
        int minHeight = heights[i];

        for (int j = i; j >= 0; --j)
        {
            minHeight = min(minHeight, heights[j]);
            maxArea = max(maxArea, minHeight * (i - j + 1));
        }
    }
    return maxArea;
}
```