

# Review of Closest-Pair Algorithm

```
double FindClosestPairDist (pts By X, pts By Y) {
```

```
    n = pts By X.length;
```

termination condition

```
    if (n == 1) return ∞;
```

```
    if (n == 2) return pts By X[0].dist (pts By X[1]);
```

divide points into left half + right half

```
    Create pts By X Left + pts By Y Left of size  $\lfloor n/2 \rfloor$ 
```

```
    Create pts By X Right + pts By Y Right of size  $\lfloor n/2 \rfloor$ 
```

```
    Construct pts By X Left + pts By X Right from pts By X
```

```
    Construct pts By Y Left + pts By Y Right from pts By Y
```

conquer

```
    dL = FindClosestPairDist (pts By X Left, pts By Y Left);
```

```
    dR = FindClosestPairDist (pts By X Right, pts By Y Right);
```

combine

```
    d = min (dL, dR);
```

```
    create + construct yStrip to hold all points  
    where  $x_R - d < x\text{-coord} < x_L + d$   
    ( $x_R + x_L$  defined as in last class)
```

```
    as shown last class update d using yStrip
```

```
    return d;
```

```
}
```