01-E-07

Convex Hull

Jarvis March

- Implementation

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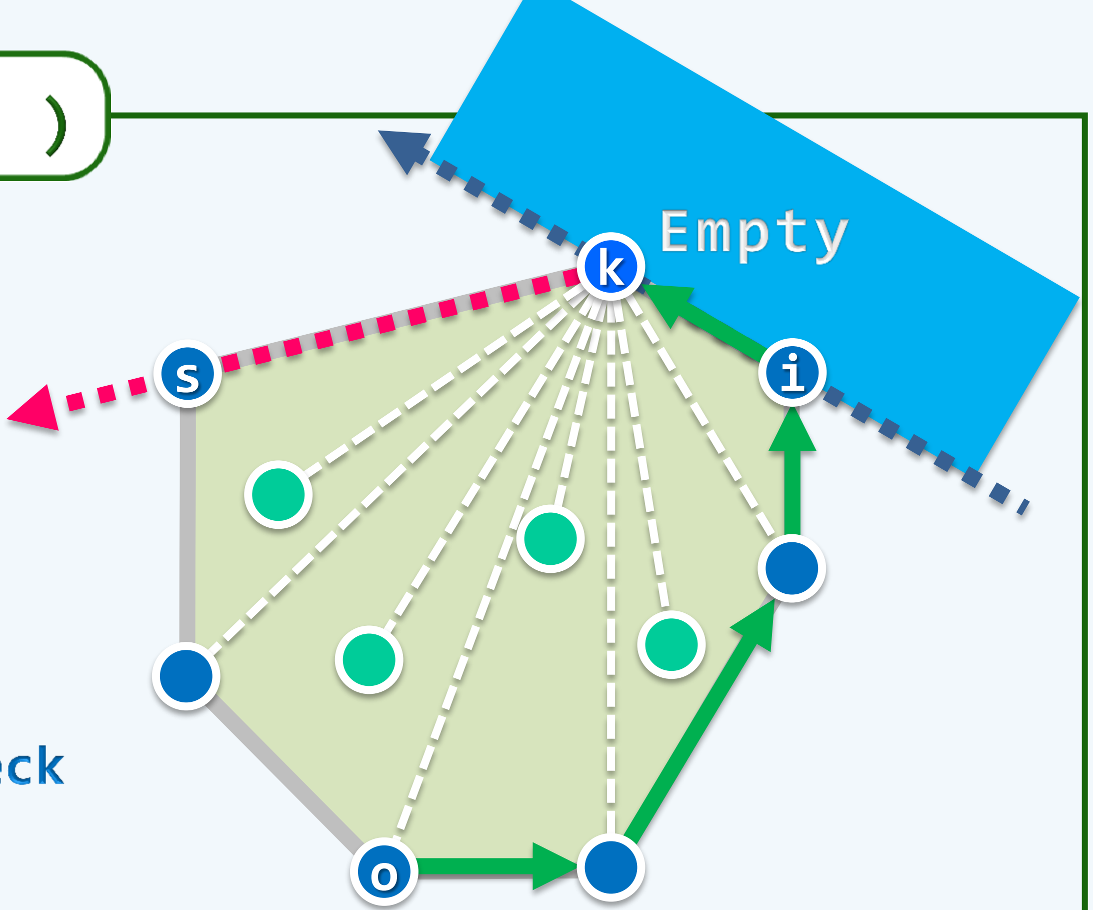
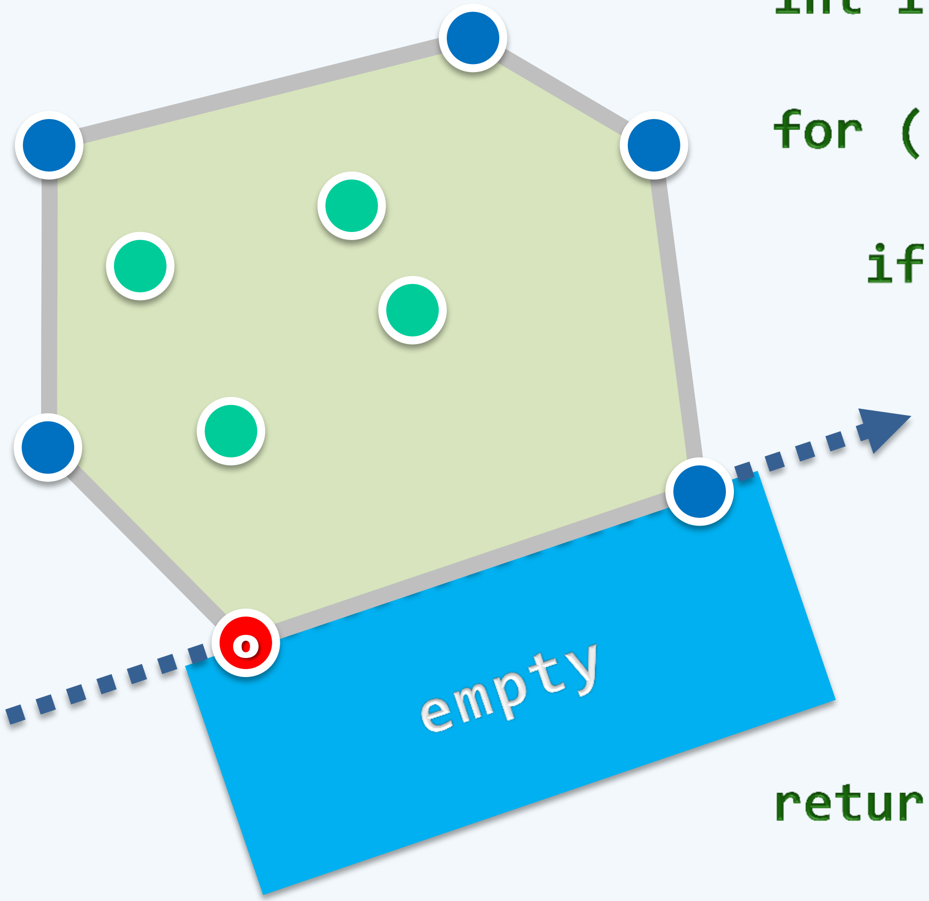
```
void Jarvis( Point P[], int n )

❖ for ( int k = 0; k < n; k++ )
     P[k].extreme = FALSE;
  int ltl = LTL(S, n); int k = ltl;
  do { //start with LTL
     P[k].extreme = TRUE; int s = -1;
     for ( int t = 0; t < n; t++ ) //check
        if ( t != k  &&  //each
             ( s == -1 || ! ToLeft( P[k], P[s], P[t] ) ) ) //candidate t
           s = t; //update s if t lies right to pq
     P[k].succ = s; k = s; //new EE (p, q) identified
  } while ( ltl != k); //quit when LTL reached
```



Finding LTL



```
int LTL( Point P[], int n ) { //n > 2
  int ltl = 0; //the lowest-then-leftmost point
  for ( int k = 1; k < n; k++ ) //test all points
    if ( P[k].y < P[ltl].y  || //lower
         ( P[k].y == P[ltl].y && //break y-tie
           P[k].x < P[ltl].x ) ) //by x
       ltl = k;
  return ltl;
}
```