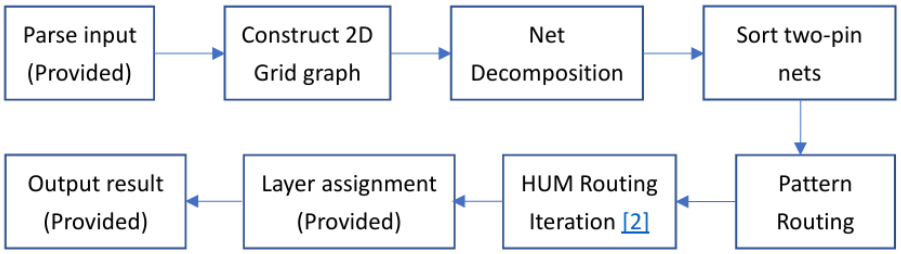

I. Implement
   A. Construct 2D Grid graph: Sum up cap in different layers.
   B. Net Decomposition
      1. <=9 pins: FLUTE
      2. >=10 pins: minimum spanning tree
   C. Sort two-pin nets: Sort by increasing order of HPWL().
   D. Pattern Routing:
      1. Same x or y: straight line
      2. Other: upper or lower L shape
   E. HUM routing: Implement as routing course 4-2.pdf
   F. Cost function: nonlinear + history cost

```
double exponent = -k * (d - cap);
double denominator = 1 + std::exp(exponent);
return h1 + (h2 / denominator) + histCost;
```

      1. Nonlinear function

$$Cost(d) = h_1 + \frac{h_2}{1 + e^{-k(d-Capacity)}}$$

      2. History cost = weight*(RipUp wire width + minSpace in curr Iter)

II. Testcase
    A. Adaptec5.gr: TOF:28, MOF:2
    B. Newblue1.gr: TOF:22, MOF:4
    C. newblue5.gr: TOF:2070, MaxOF=20
    D. Other: no overflow