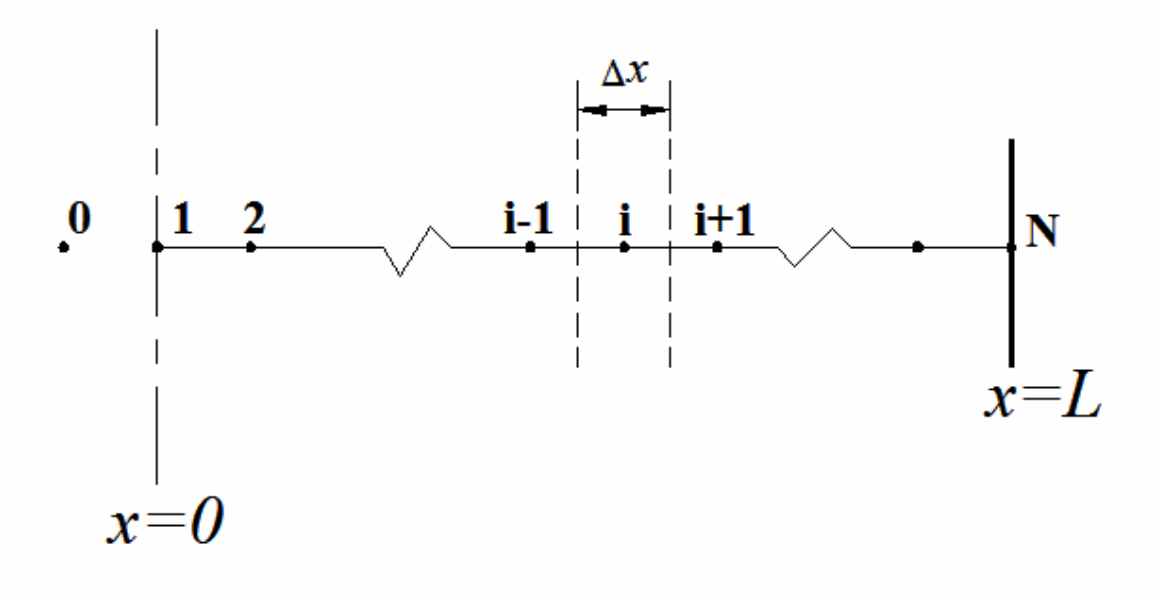

The nodal points are shown above. Boundary node 1 is on the symmetry plane and node N (N≥10) is on the surface of the slab. One of the boundary condition provides the temperature at node #N. But on the node #1 the temperature is unknown. The right way to obtain a discretized boundary condition at node #1 is to apply the energy balance to the finite volume that includes node #1, as is demonstrated on page 283 of the textbook (p.304 6th ed.). For this problem, however, there is another way to get the discretized B.C. at node #1. We can do this by applying discretized governing equation to node 1. Thus set i=1 for your finite-difference governing equation. Then you will see that we need a node at the left side of node 1 which we denote with number 0. But we have a symmetry condition at here which means that $T_0=T_2$. So for the difference equation at node 1 we can replace T_0 with T_2 and then we have the right discretized B.C. at node 1.

Sometimes people call node #0 ghost node because it is not in the node system and it eventually doesn't show up in the finite difference equations. But it is useful in getting the right B.C.