

Write-up④ Red-Black Trees Insertion→ Pseudocode/Algorithm

Let x be the newly inserted node

(1) Perform standard BST insertion and make its colour as red

(2) If x is root change colour of x as Black.
(Black Height increases by 1)

(3) Do the following if x 's parent is not Black & x is not the root.

(a) If x 's uncle is Red (Grandparent must have been black)

(i) change the colour of parent & uncle as Black

(ii) Colour of a grandparent as Red.

(iii) Change $x = x$'s grandparent, repeat 2 & 3 for new x .

(b) If x 's uncle is Black

(i) Left-Left case (p is left child of g & x is left child of p)

Write-up

Continued

(ii) Left-Right case (p is left child of g & x is the right child of p)

(iii) Right-Right case (Mirror of case i)

(iv) Right-left Case (Mirror of case ii)