

# Universidad de las Fuerzas Armadas ESPE

Nombre Fernando Tipa

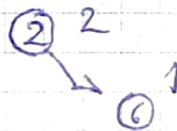
NRC 7166

Dada la siguiente secuencia de números 2, 6, 10, 1, 10, 16, 5 generar un árbol AVL se deberá ilustrar paso a paso el proceso de inserción y rebalanceo.

Insertamos 2



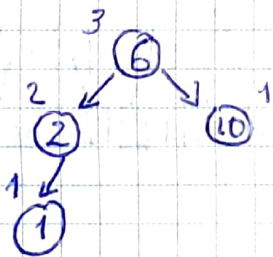
Insertamos 6



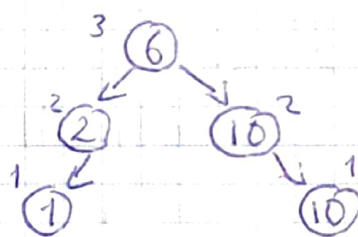
Insertamos 10



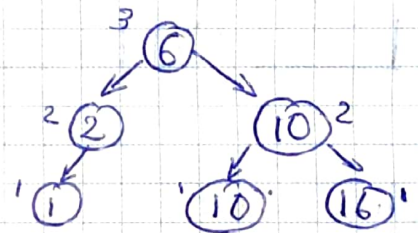
Insertamos 1



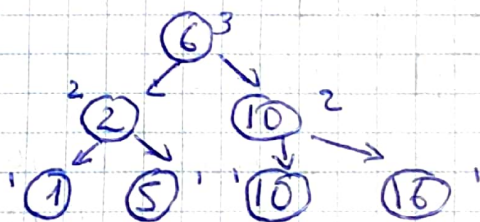
Insertamos 10



Insertamos 16



Insertamos 5



Arbol B  $\rightarrow$  Grado 3

Insertamos: 5, 6, 9, 16, 2, 10, 50, 61, 1, 7, 9

Eliminamos: 16, 2, 10, 5, 61

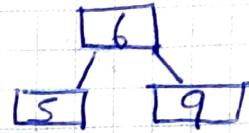
Insertamos 5



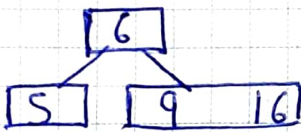
Insertamos 6



Insertamos 9



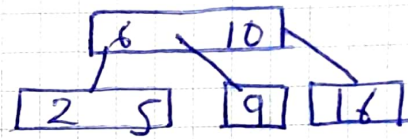
Insertamos 16



Insertamos 2



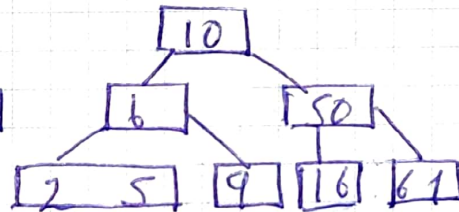
Insertamos 10



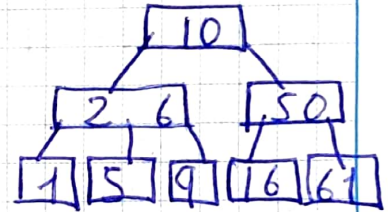
Insertamos 50



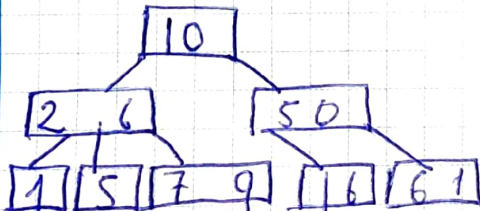
Insertamos 61



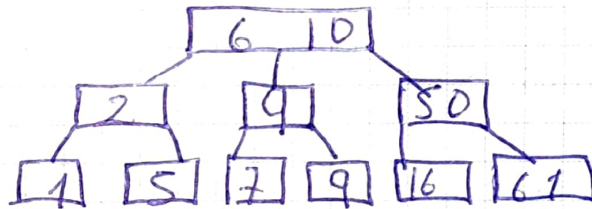
Insertamos 1



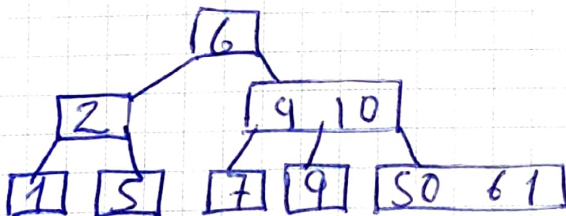
Insertamos 7



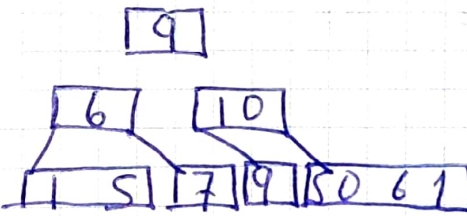
Insertamos 9



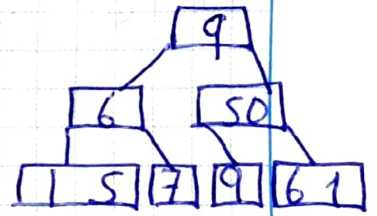
Eliminamos 16



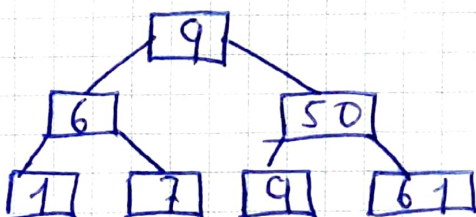
Eliminamos 2



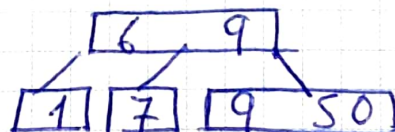
Eliminamos 10



Eliminamos 5



Eliminamos 61





Arbol B → Grado 4

Insertamos : 90, 60, 81, 5, 10, 1, 60, 75

Eliminamos : 60, 5, 81

Insertamos 90

[90]

Insertamos 60

[60 90]

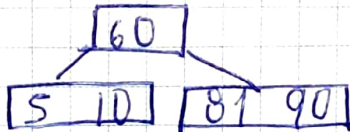
Insertamos 81

[60 81 90]

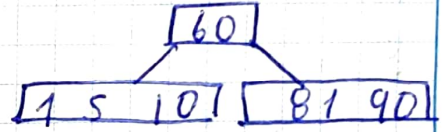
Insertamos 5



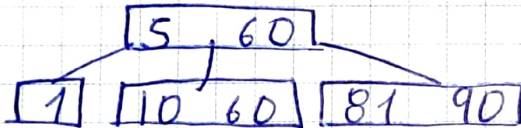
Insertamos 10



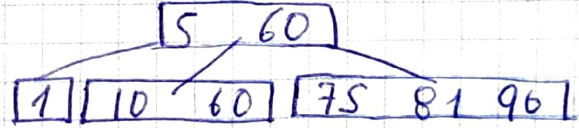
Insertamos 1



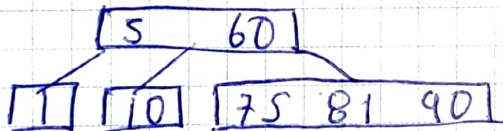
Insertamos 60



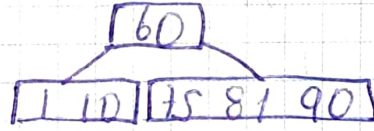
Insertamos 75



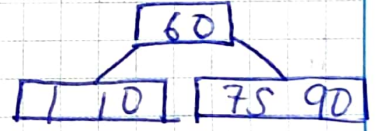
Eliminamos 60



Eliminamos 5



Eliminamos 81



Arbol B → Grado 5

Insertamos : 3, 4, 8, 1, 11, 16, 1, 3

Eliminamos : 4, 8, 1

Insertamos 3

[3]

Insertamos 4

[3 4]

Insertamos 8

[3 4 8]

Insertamos 1

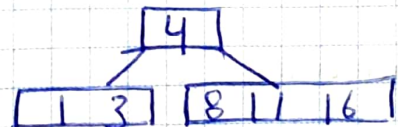
[1 3 4 8]

Insertamos 11

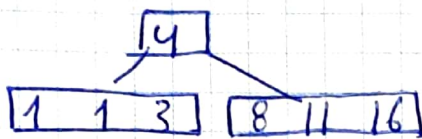
[4]

Insertamos 16

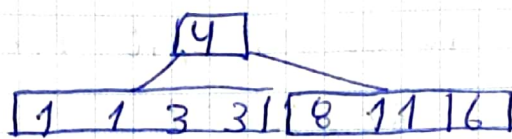
[1 3 8 11]



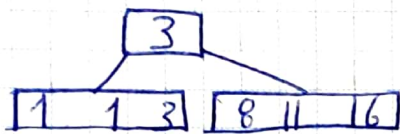
Insertamos 1



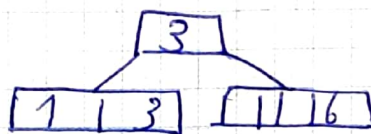
Insertamos 3



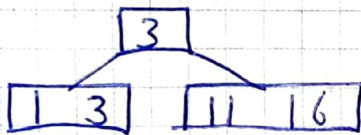
Eliminamos 4



Eliminamos 8



Eliminamos 1



Arbol B -> Grado 6

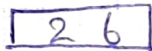
Insertamos: 2, 6, 10, 1, 10, 3, 5, 1, 7

Eliminamos: 6, 3, 2, 5

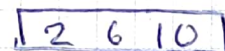
Insertamos 2



Insertamos 6



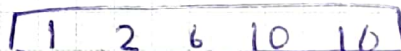
Insertamos 10



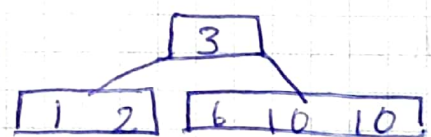
Insertamos 1



Insertamos 10



Insertamos 3



Insertamos 5



Insertamos 1



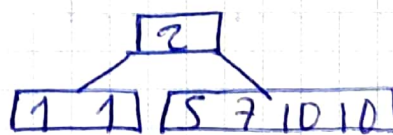
Insertamos 7



Eliminamos 6



Eliminamos 3



Eliminamos 2





Eliminamos 5



Arbol B  $\rightarrow$  Grado 7

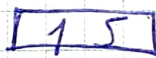
Insertamos: 1, 5, 2, 4, 11, 9, 7, 1, 2

Eliminamos: 2, 2, 1, 4

Insertamos 1



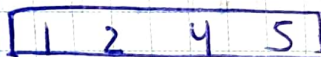
Insertamos 5



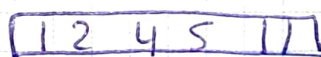
Insertamos 2



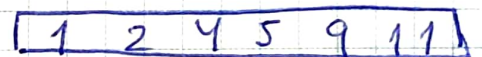
Insertamos 4



Insertamos 11



Insertamos 9



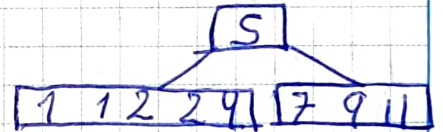
Insertamos 7



Insertamos 1



Insertamos 2



Eliminamos 2



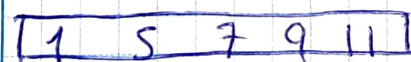
Eliminamos 2



Eliminamos 1



Eliminamos 4



Arbol B<sup>+</sup> -> Grado 3

Insertamos: 10, 30, 12, 15, 2, 3, 10

Eliminamos: 30, 12, 2, 10

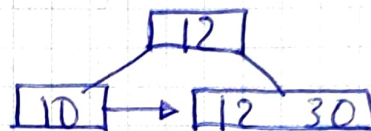
Insertamos 10

[10]

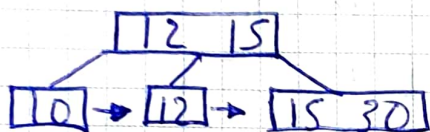
Insertamos 30

[10 30]

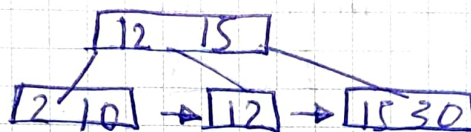
Insertamos 12



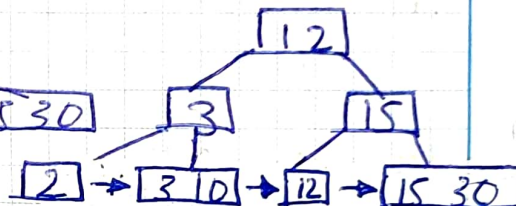
Insertamos 15



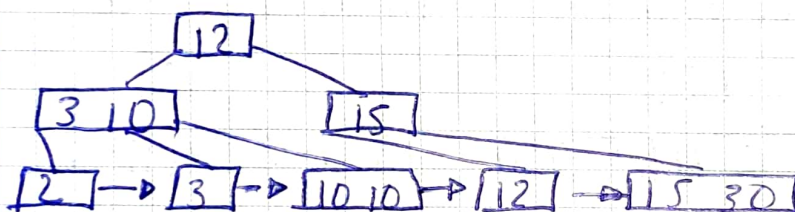
Insertamos 2



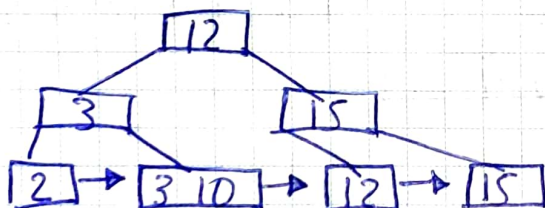
Insertamos 3



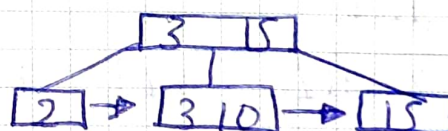
Insertamos 10



Eliminamos 30



Eliminamos 12



Eliminamos 2



Eliminamos 10





Arbol B<sup>+</sup> → Grado 4

Insertamos: 12, 5, 1, 3, 25, 50, 32

Eliminamos: 1, 12, 5, 25

Insertamos 12

[12]

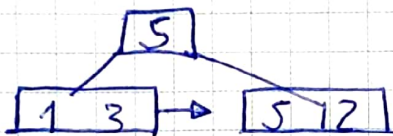
Insertamos 5

[5 12]

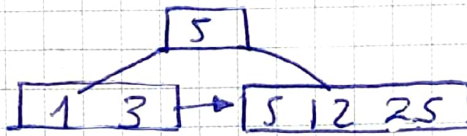
Insertamos 1

[1 5 12]

Insertamos 3



Insertamos 25



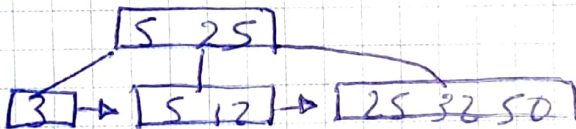
Insertamos 50



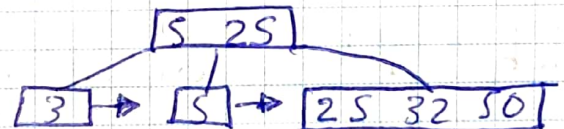
Insertamos 32



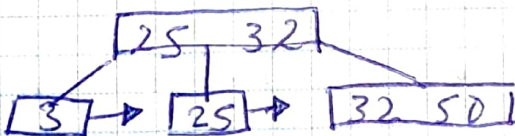
Eliminamos 1



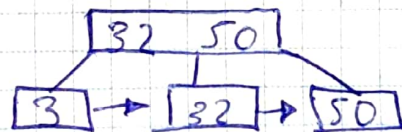
Eliminamos 12



Eliminamos 5



Eliminamos 25



Arbol B<sup>+</sup> → Grado 5

Insertamos: 3, 4, 8, 1, 12, 16, 3, 1

Eliminamos: 4, 8, 1, 3

Insertamos 3

[3]

Insertamos 4

[3 4]

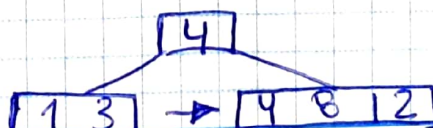
Insertamos 8

[3 4 8]

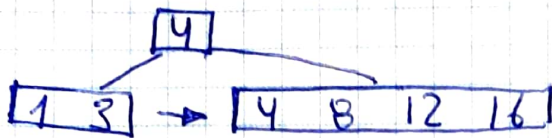
Insertamos 1

1 3 4 8

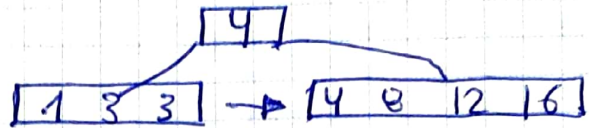
Insertamos 12



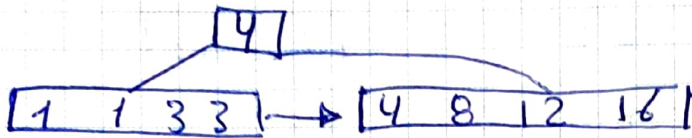
Insertamos 16



Insertamos 3



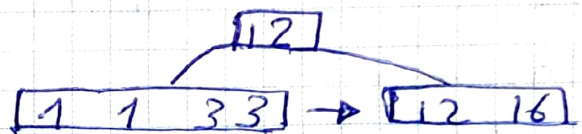
Insertamos 1



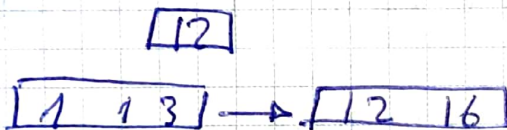
Eliminamos 4



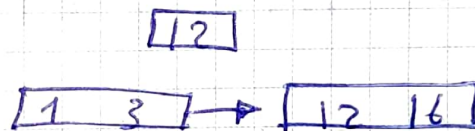
Eliminamos 8



Eliminamos 1



Eliminamos 3



Arbol B<sup>+</sup> → Grado 6

Insertamos: 3, 6, 11, 1, 11, 3, 5, 2

Eliminamos: 11, 3, 5, 2

Insertamos 3

[3]

Insertamos 6

[3 6]

Insertamos 11

[3 6 11]

Insertamos 1

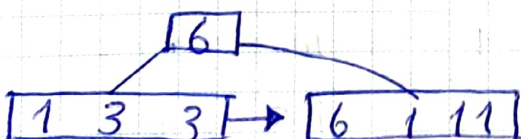
[1 3 6 11]

Insertamos 11

[1 3 6 11 11]

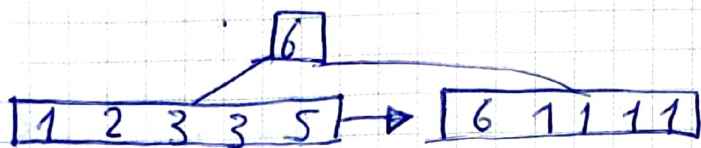
Insertamos 3

Insertamos 5

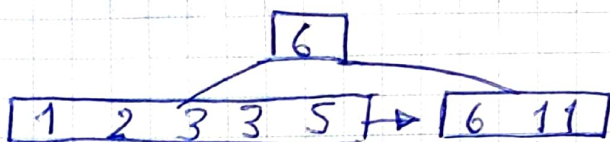




Insertamos 2



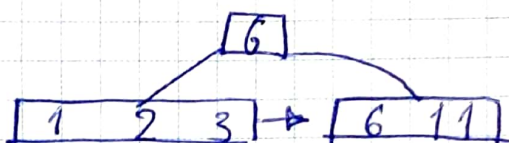
Eliminamos 11



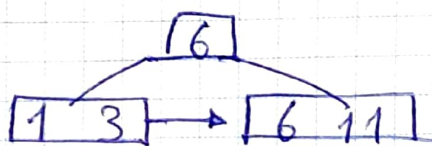
Eliminamos 3



Eliminamos 5



Eliminamos 2



Arbol B<sup>+</sup> → Grado 7

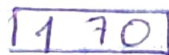
Insertaremos: 1, 70, 73, 90, 15, 23, 70, 90

Eliminaremos: 70, 90, 15, 23

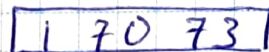
Insertaremos 1



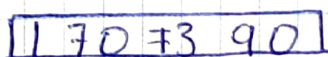
Insertaremos 70



Insertaremos 73



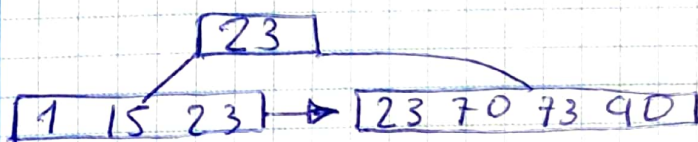
Insertaremos 90



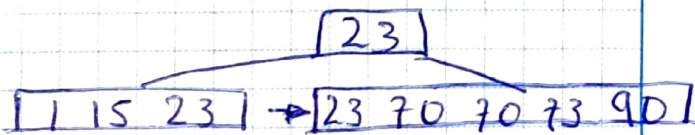
Insertaremos 15



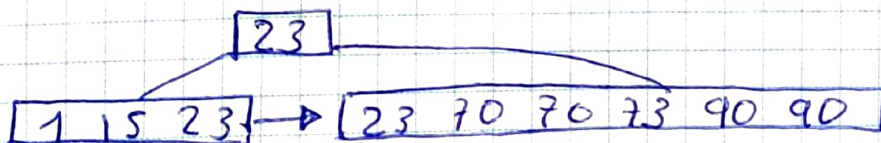
Insertaremos 23



Insertaremos 70



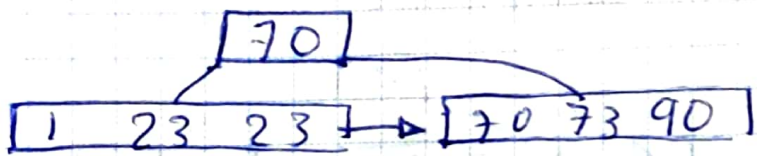
Insertaremos 90



[1 15 23] → [23 70 73 90 90] | [1 15 23] → [23 70 73 90 90]

Eliminaremos 15

Eliminaremos 23



[1 23 70 73 90]