Practica 3
Programación 4

DOCENTE: BARRERA MENESES ALDO
ÁREA: PROGRAMACION IV
ESTUDIANTE: GUTIERREZ NAVA SALET YASMIN
FECHA: 26/07/2023

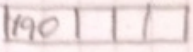
COCHABAMBA - BOLIVIA

Parte 1

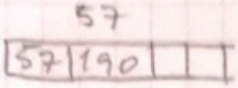
1- Dada la secuencia de claves enteras: 190, 57, 89, 90, 121, 170, 35, 48, 91, 22, 126, 132 y 80 dibuje el árbol B de orden 5

O=5
K=4

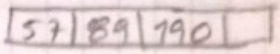
① 190



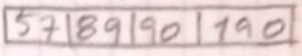
② 57



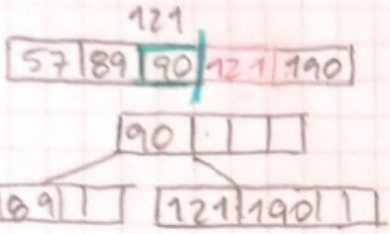
③ 89



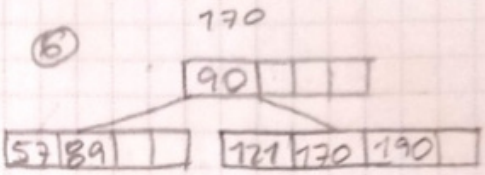
④ 90



⑤ 121



⑥ 170



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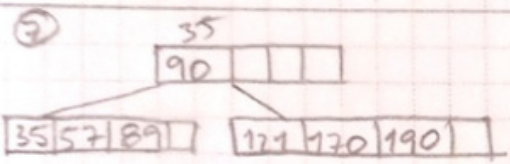
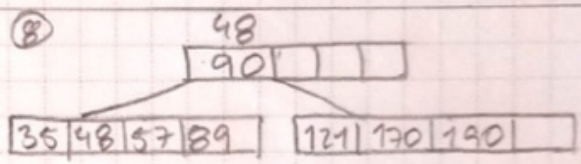
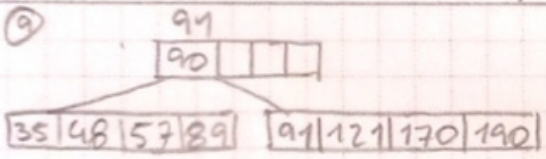


⑧ 48



⑨ 91



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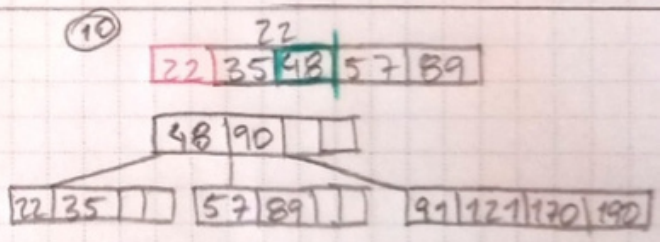

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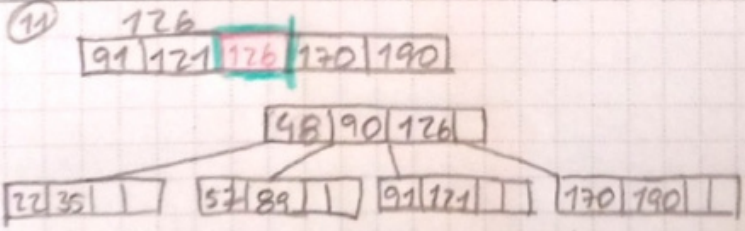
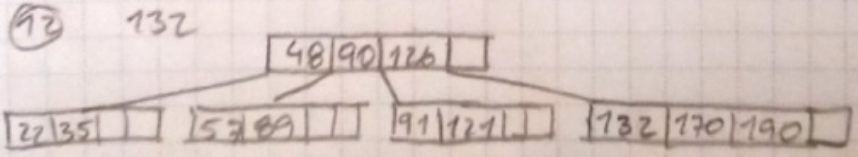
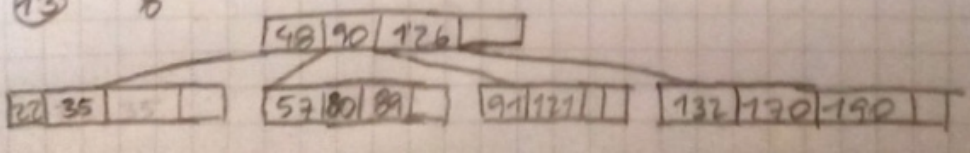


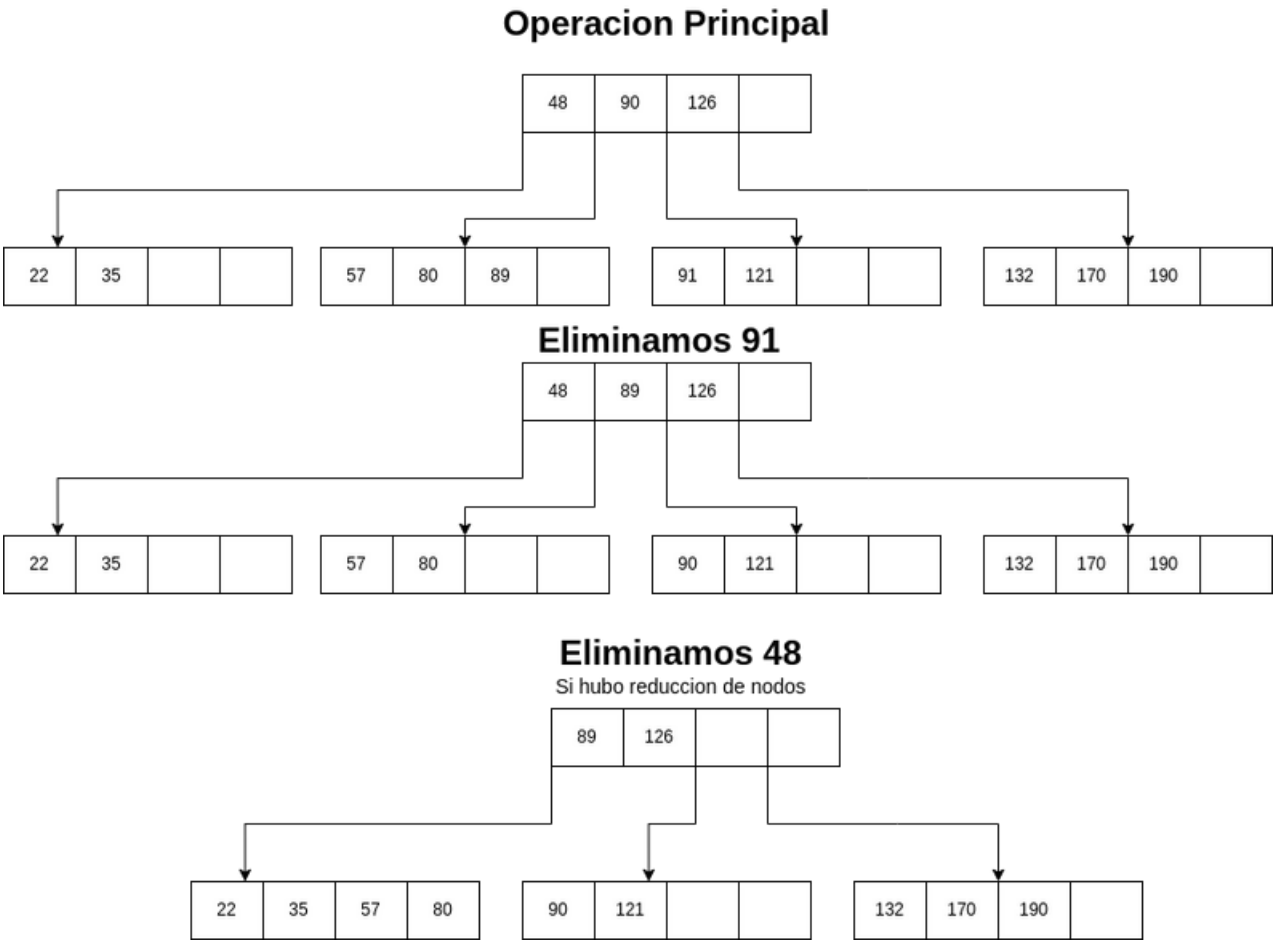
⑫ 132



⑬ 8



2. En el árbol del problema anterior,elimine la clave 91 y dibuje el árbol resultante.Elimine ahora la clave 48.Dibuje el árbol resultante,¿ha habido reducción en el número de nodos?

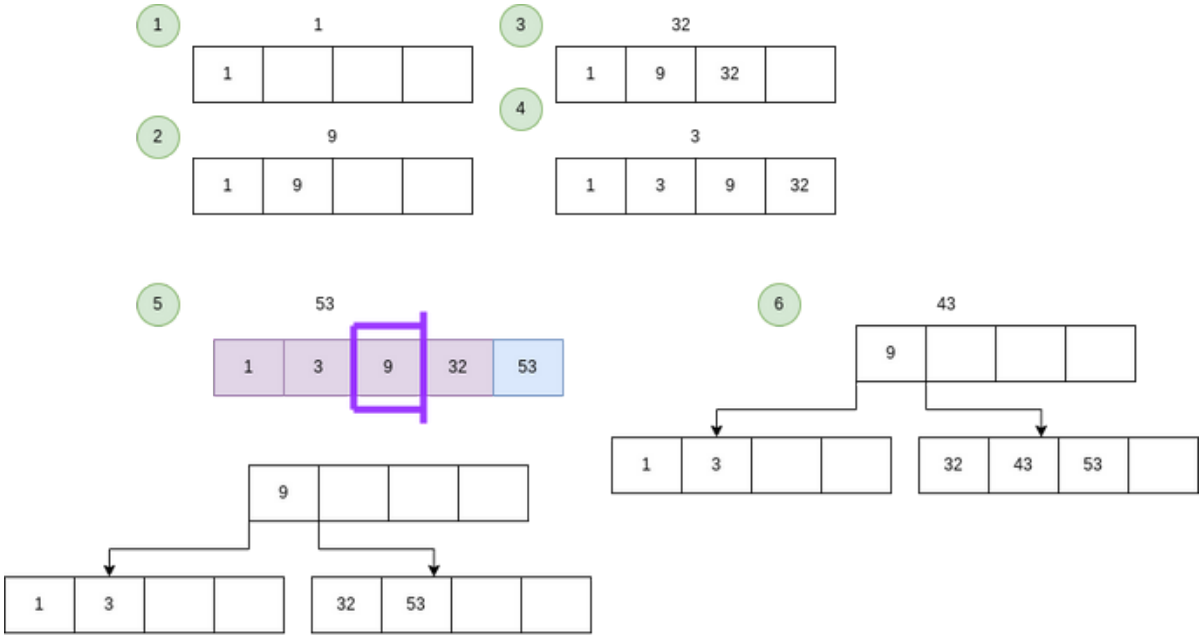


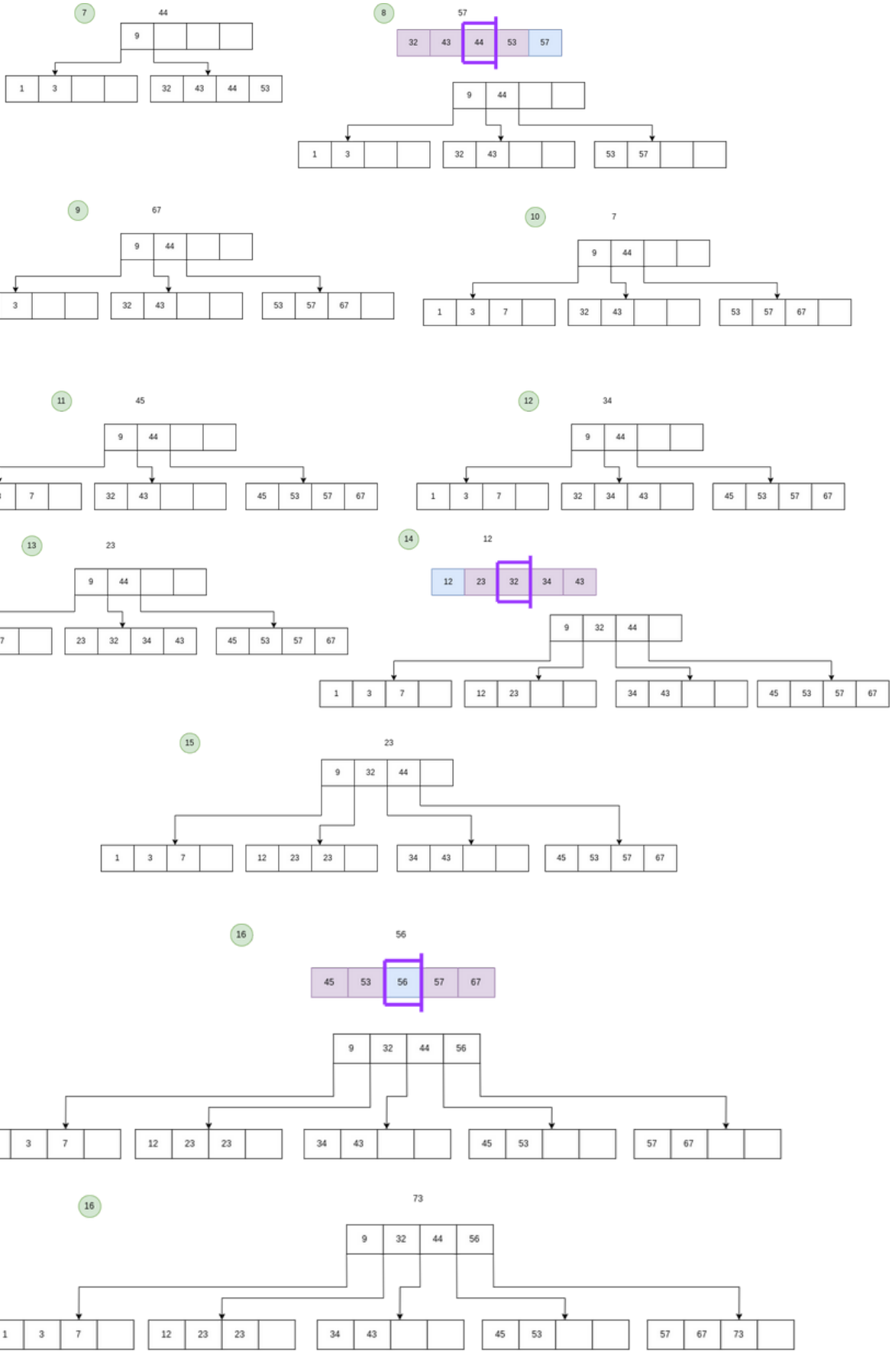
3. Dada la secuencia de claves enteras: 1,9,32,3,53,43,44,57,67,7,45,34,23,12,?23,56,73,65,49,85,89, 64,54,75,77,49, dibuje un B-árbol de orden 5

Primer caso

K= 4

O= 5

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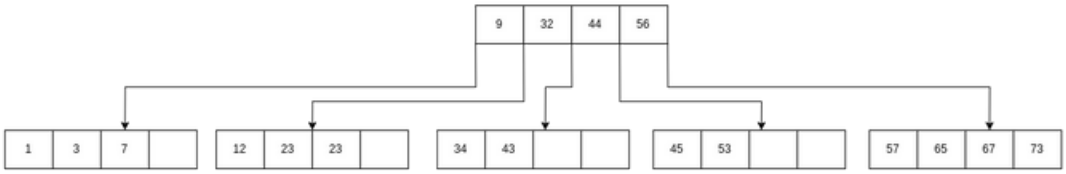

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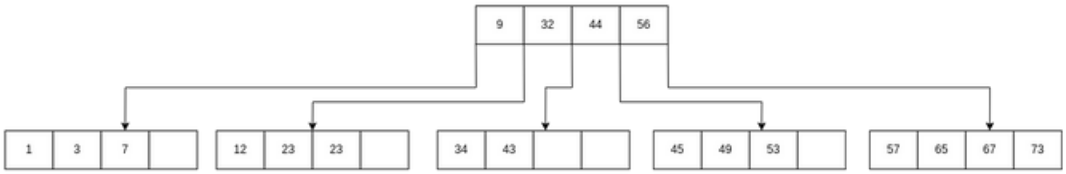

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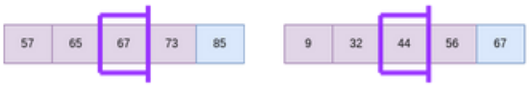

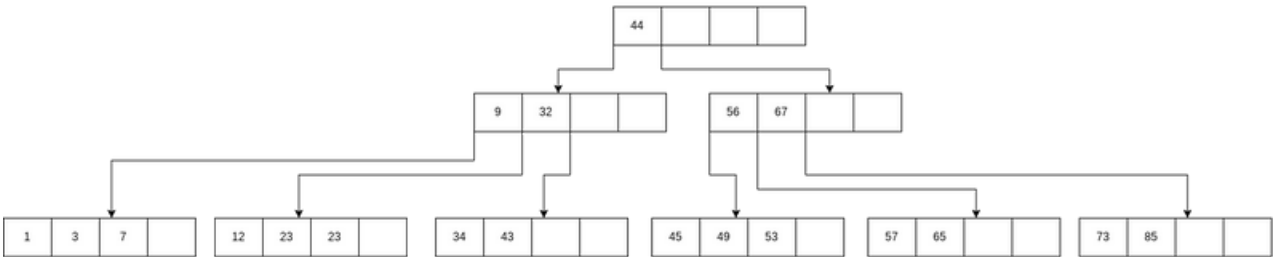

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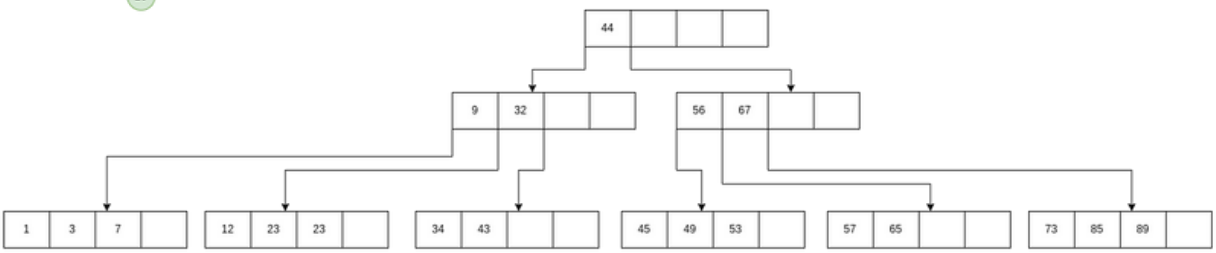

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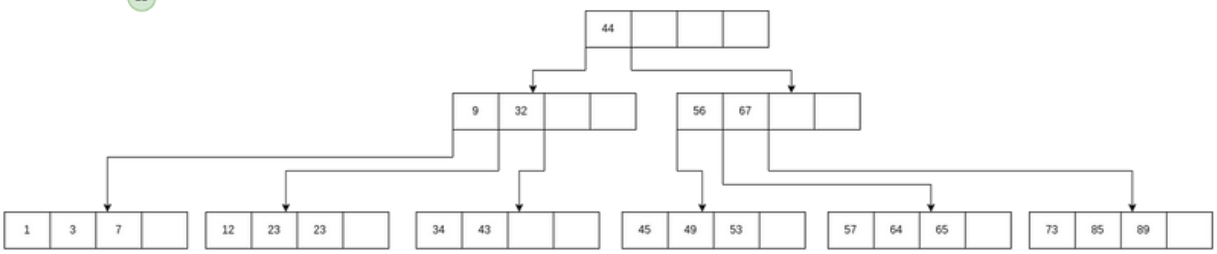

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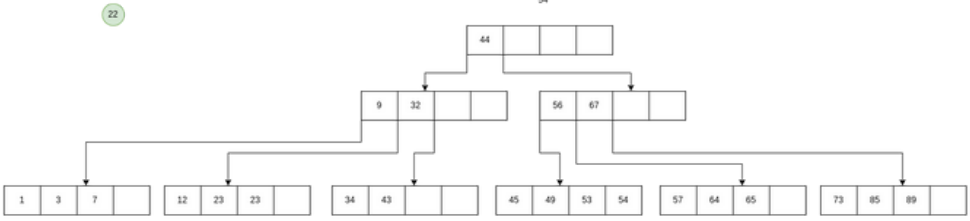

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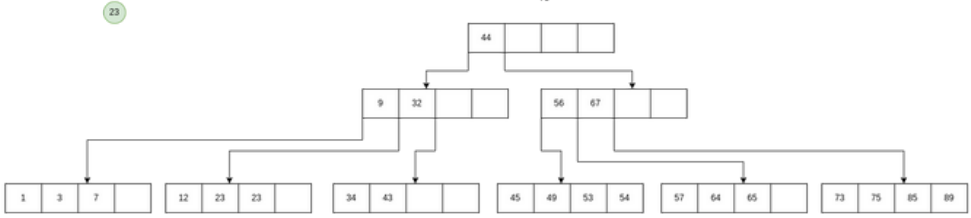

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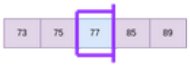

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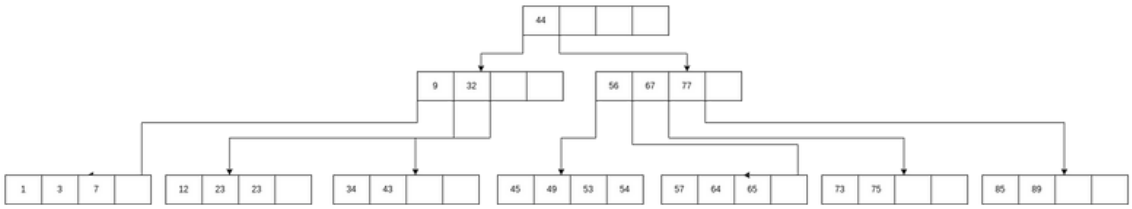

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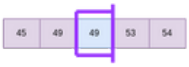

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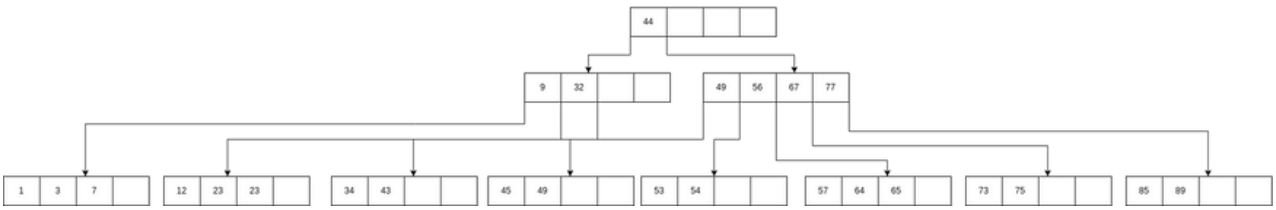
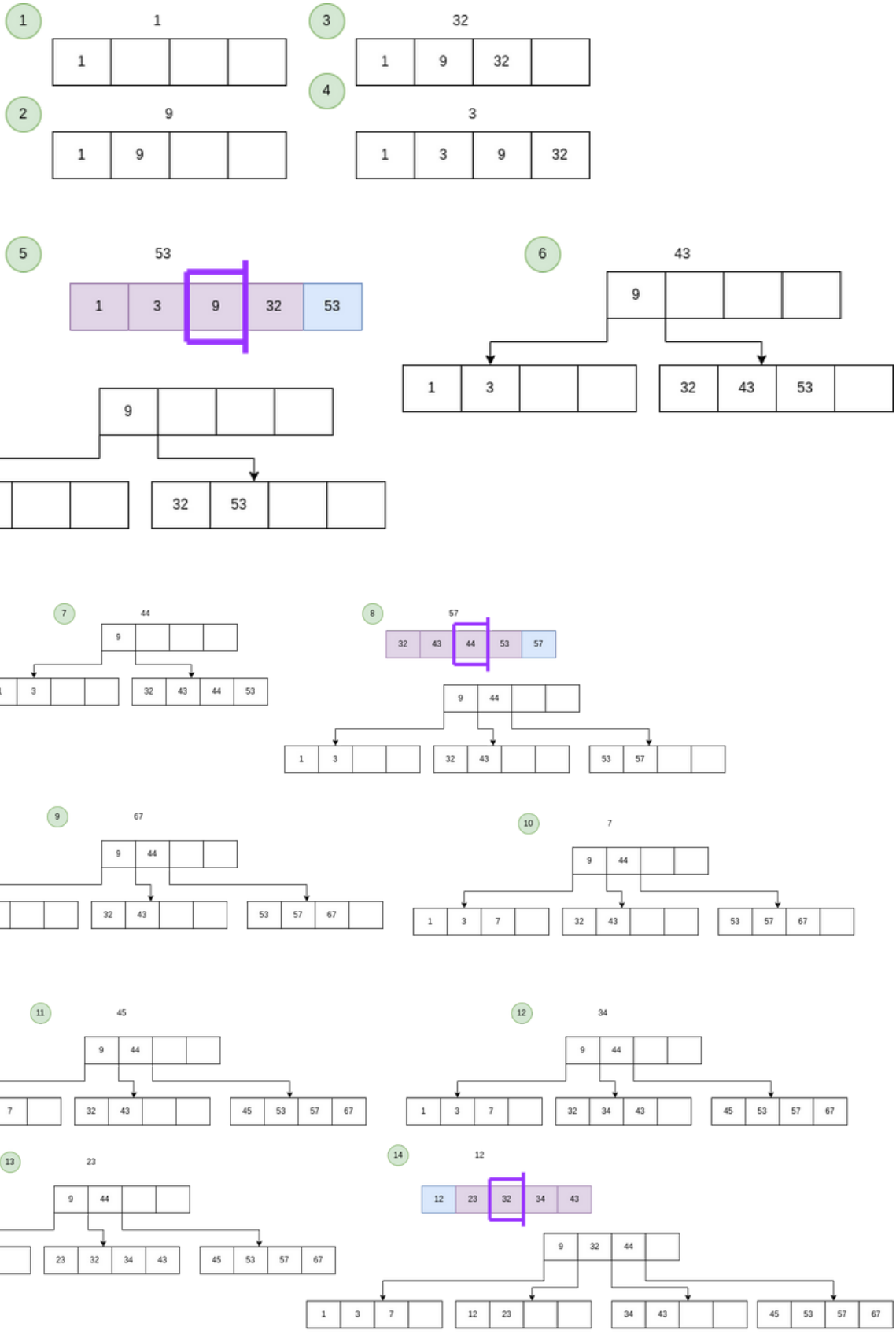


Segundo caso



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No se puede tomar los datos repetidos ya que en un arbol B no puede tener claves repetidas, segun la explicacion en la clase.

16

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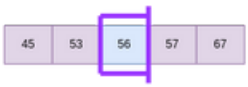

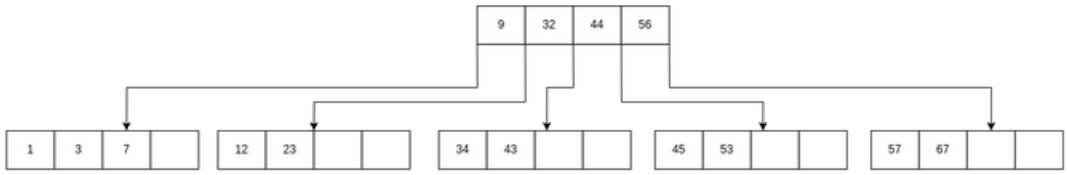

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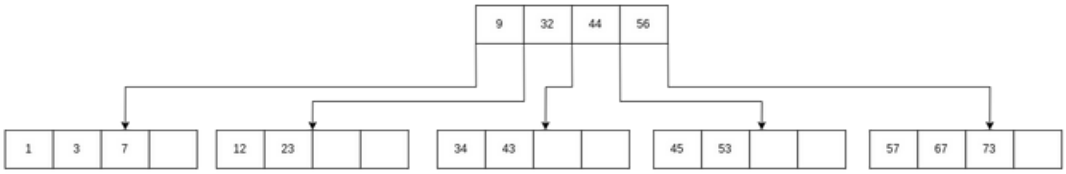

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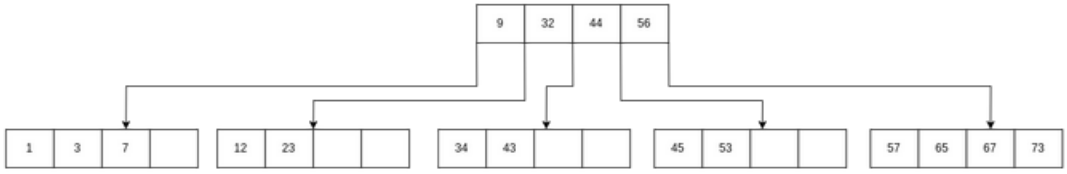

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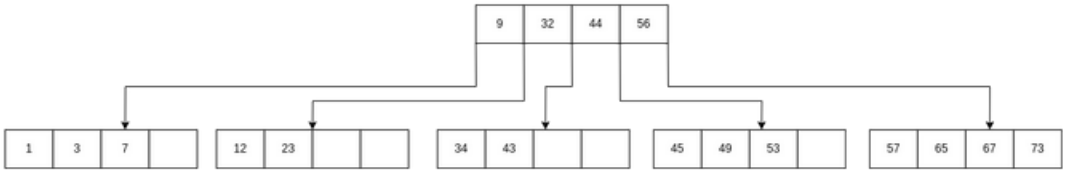

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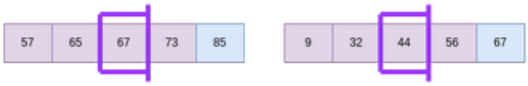

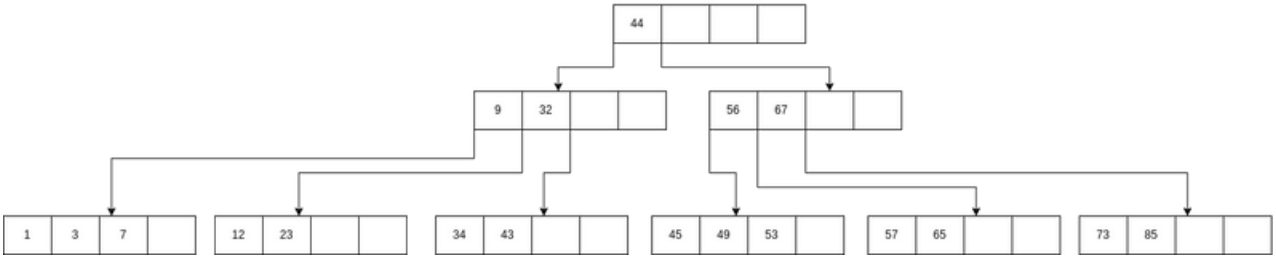

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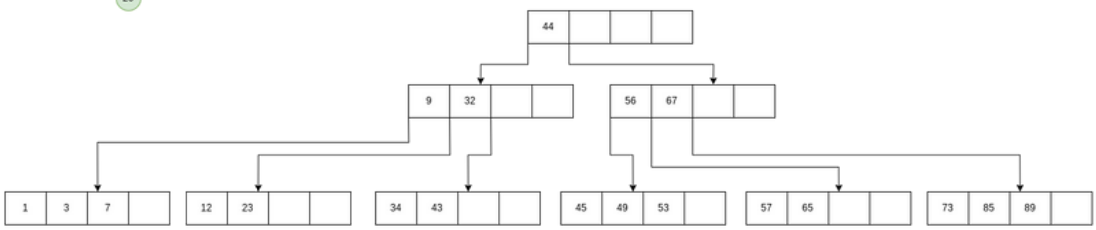

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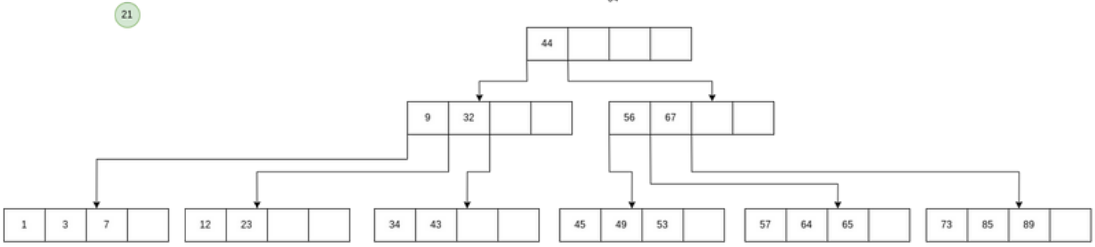

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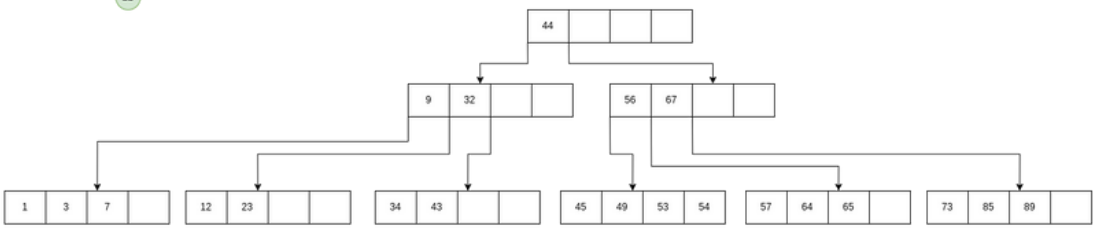

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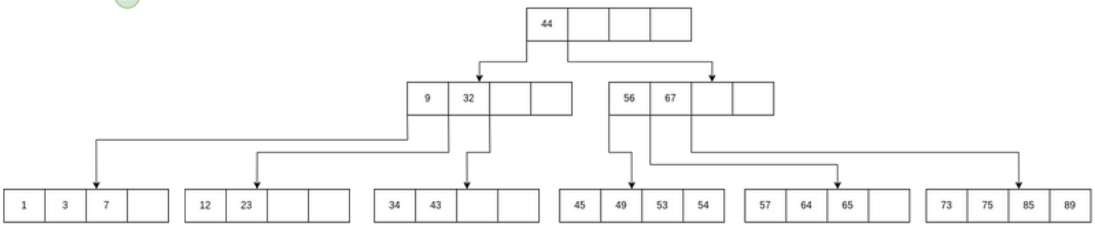

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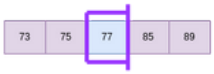

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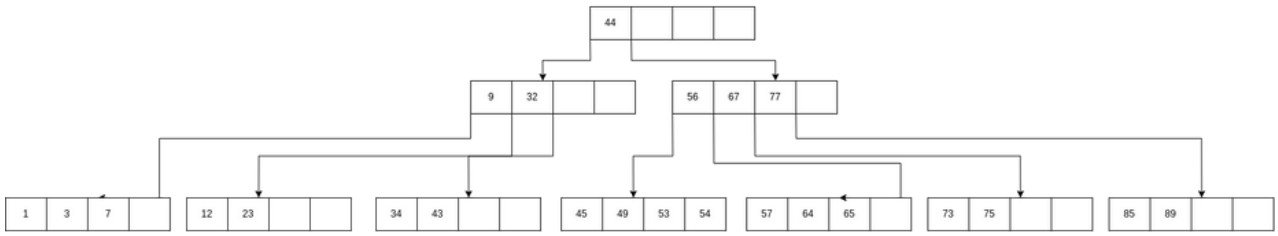

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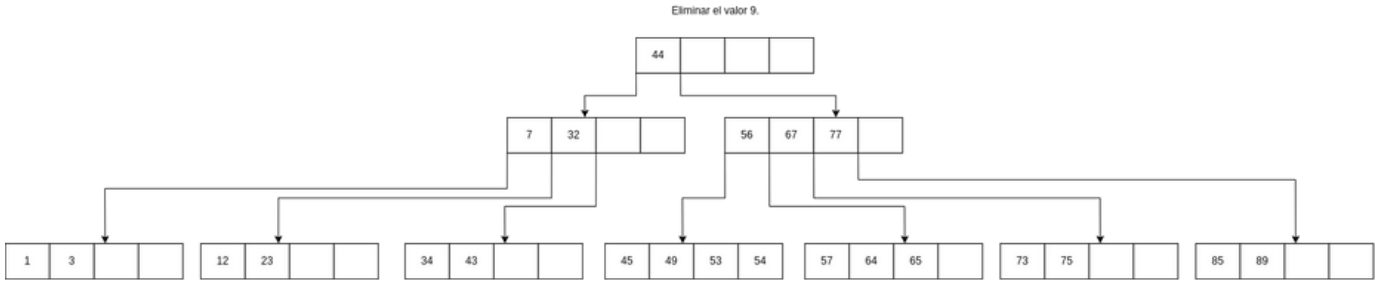
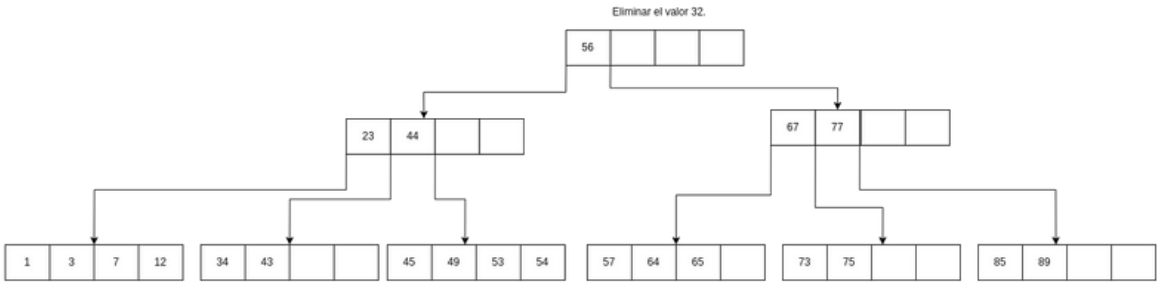
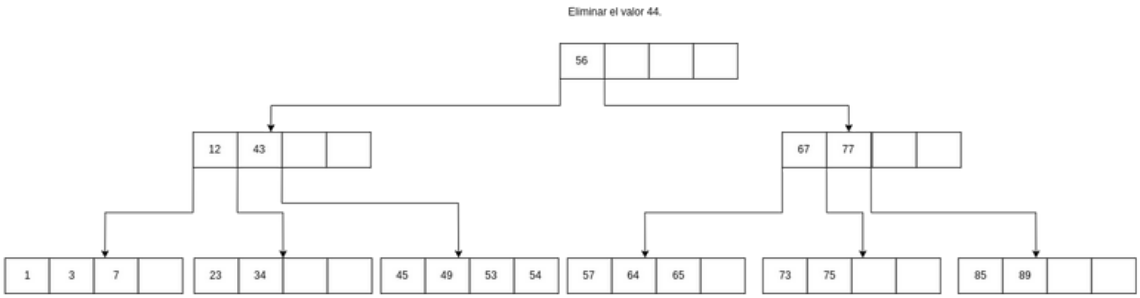
49

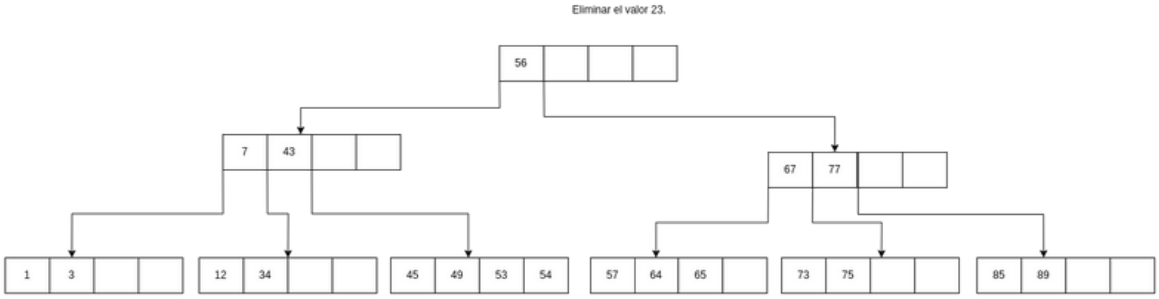
No se puede tomar los datos repetidos ya que en un arbol B no puede tener claves repetidas, segun la explicacion en la clase.

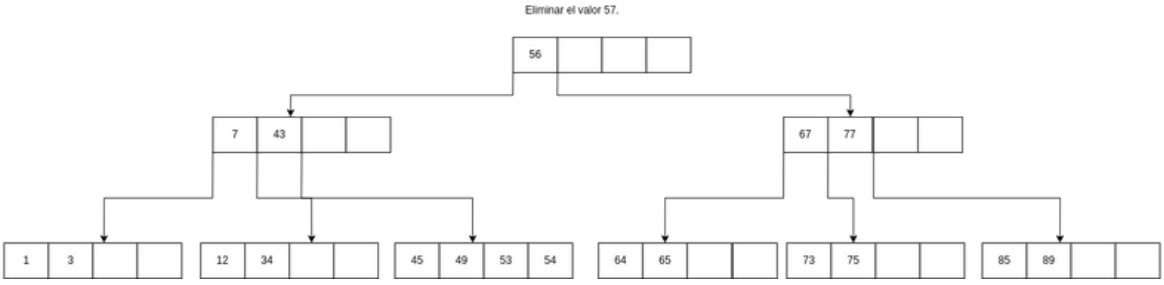
4. En el anterior arbol elimine 9,32,44,57,23,56,85,89,75,77



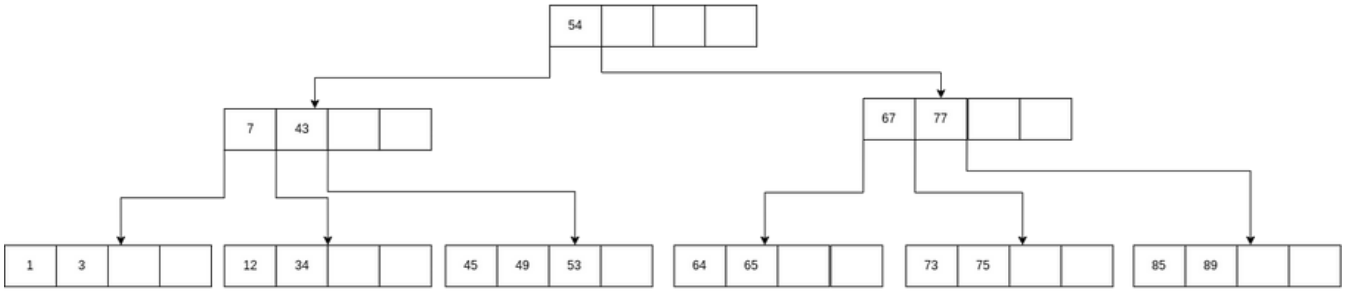




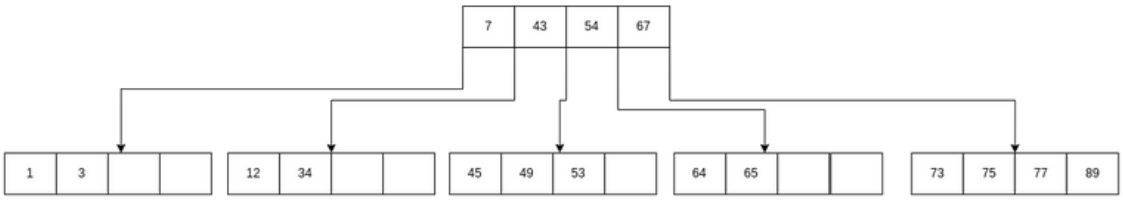




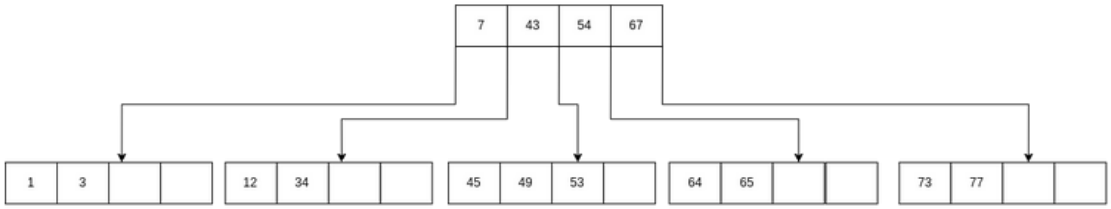
Eliminar el valor 56.



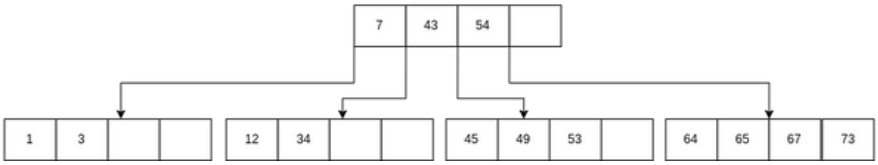
Eliminar el valor 85.



Eliminar el valor 89,75.

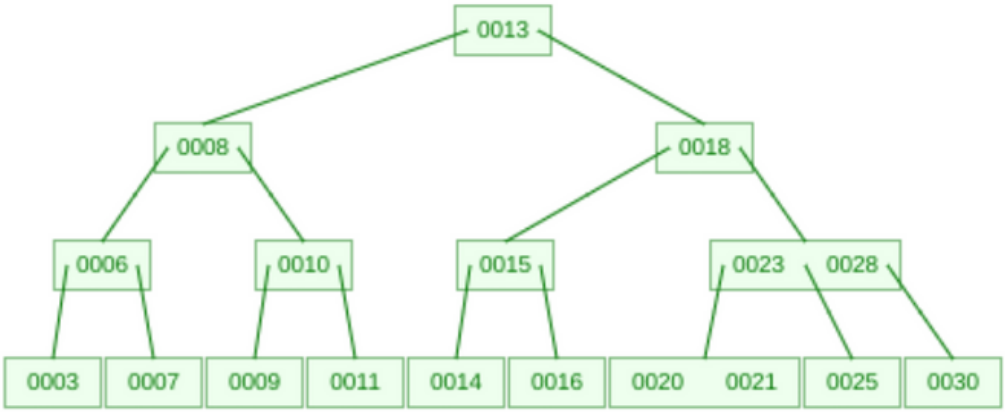


Eliminar el valor 77.

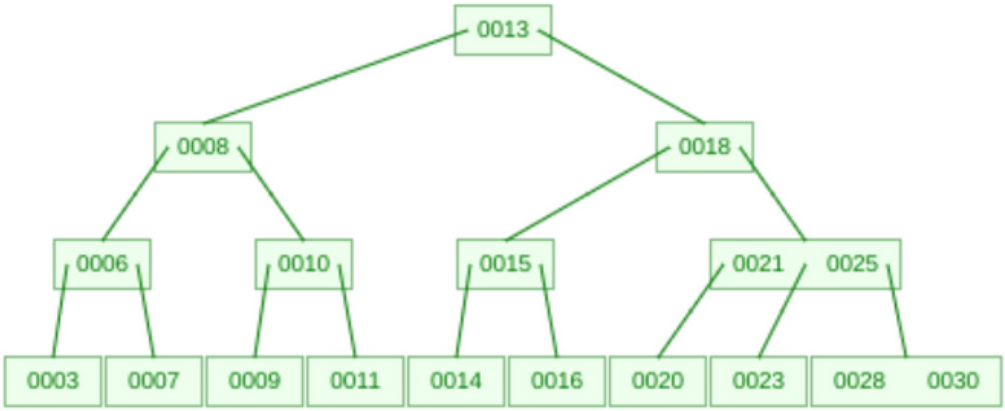


5. Supongamos que se insertan un conjunto de elementos en un B-árbol en un determinado orden.¿La altura del B-árbol resultado es independiente del orden en que se han insertado los elementos?, de ejemplos.

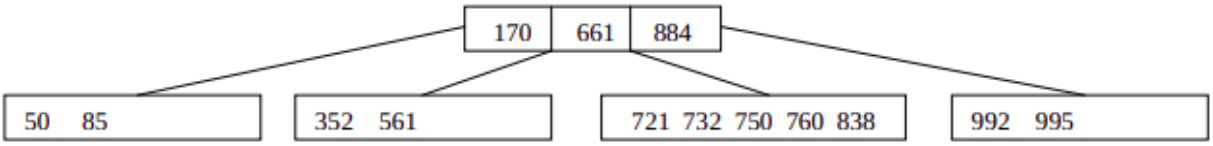
R. Sí, la independencia es evidente, dado que no impacta en la altura final del árbol debido a que se reestructura durante las inserciones para conservar el equilibrio.
1) 13, 8, 18, 6, 10, 15, 23, 3, 7, 9, 11, 14, 16, 21, 28, 30, 20, 25



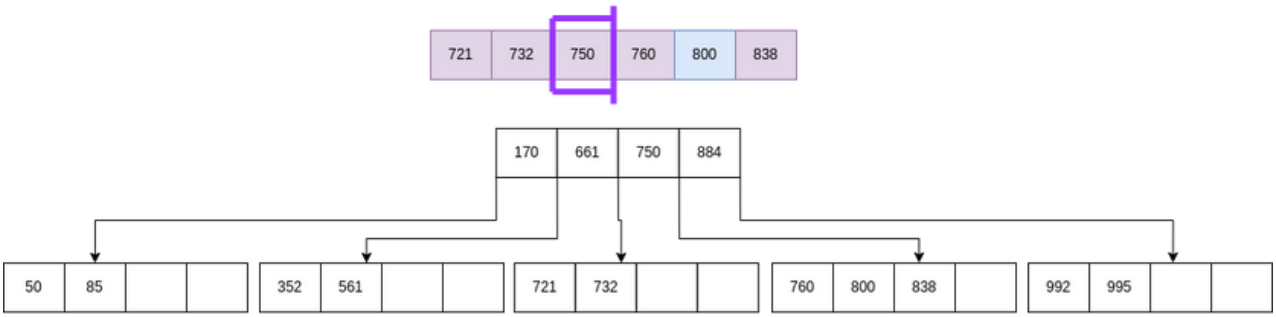
2) 3, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 18, 20, 21, 23, 25, 28, 30



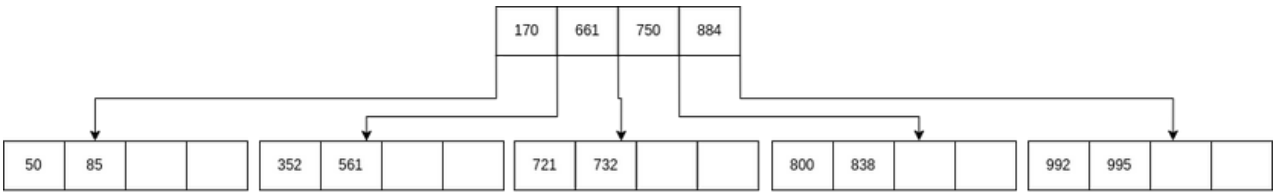
6. Dado el árbol B de orden 6 que se muestra abajo. Justificar cada operación.



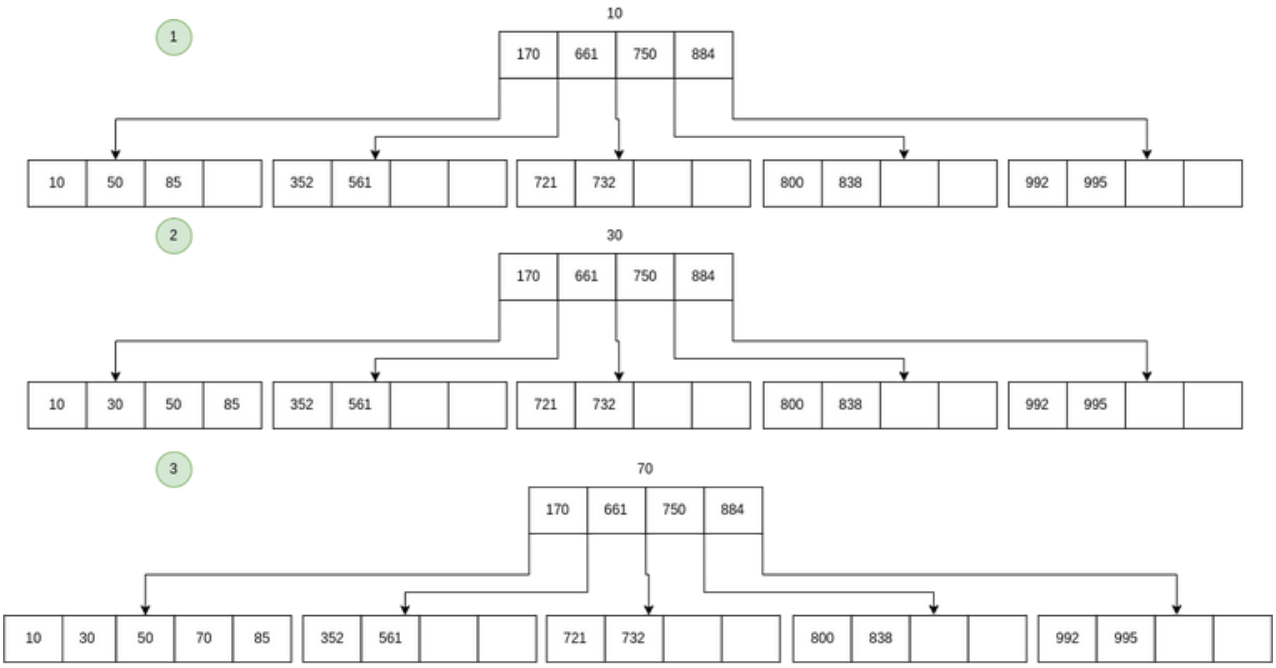
- **Insertar el valor 800.**

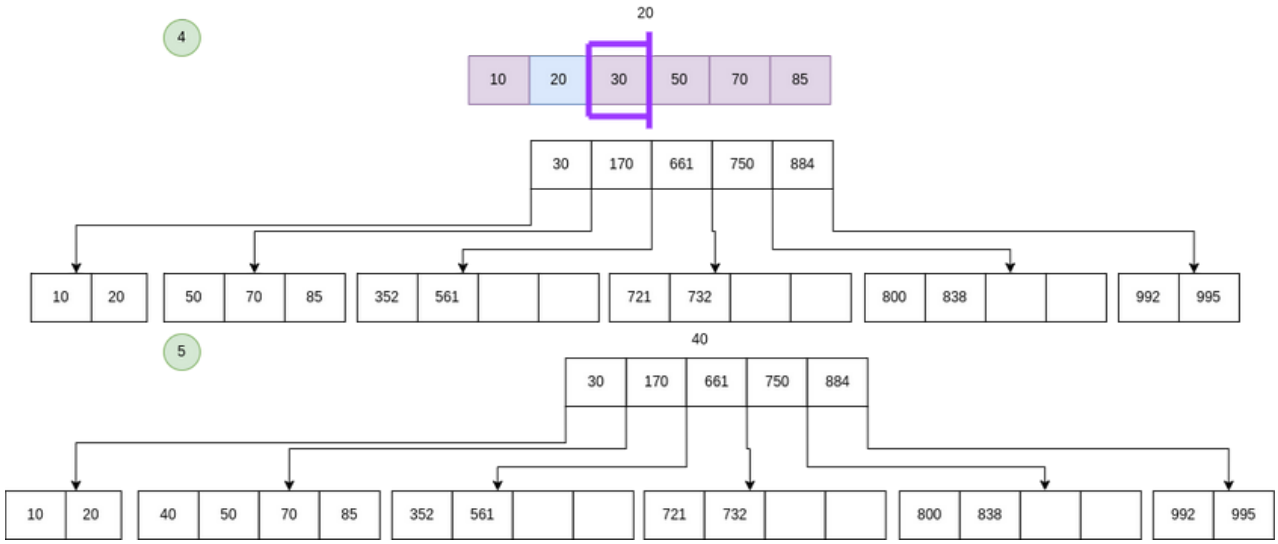


- **Eliminar el valor 760.**



- **Insertar los valores 10, 30, 70, 20 y 40.**

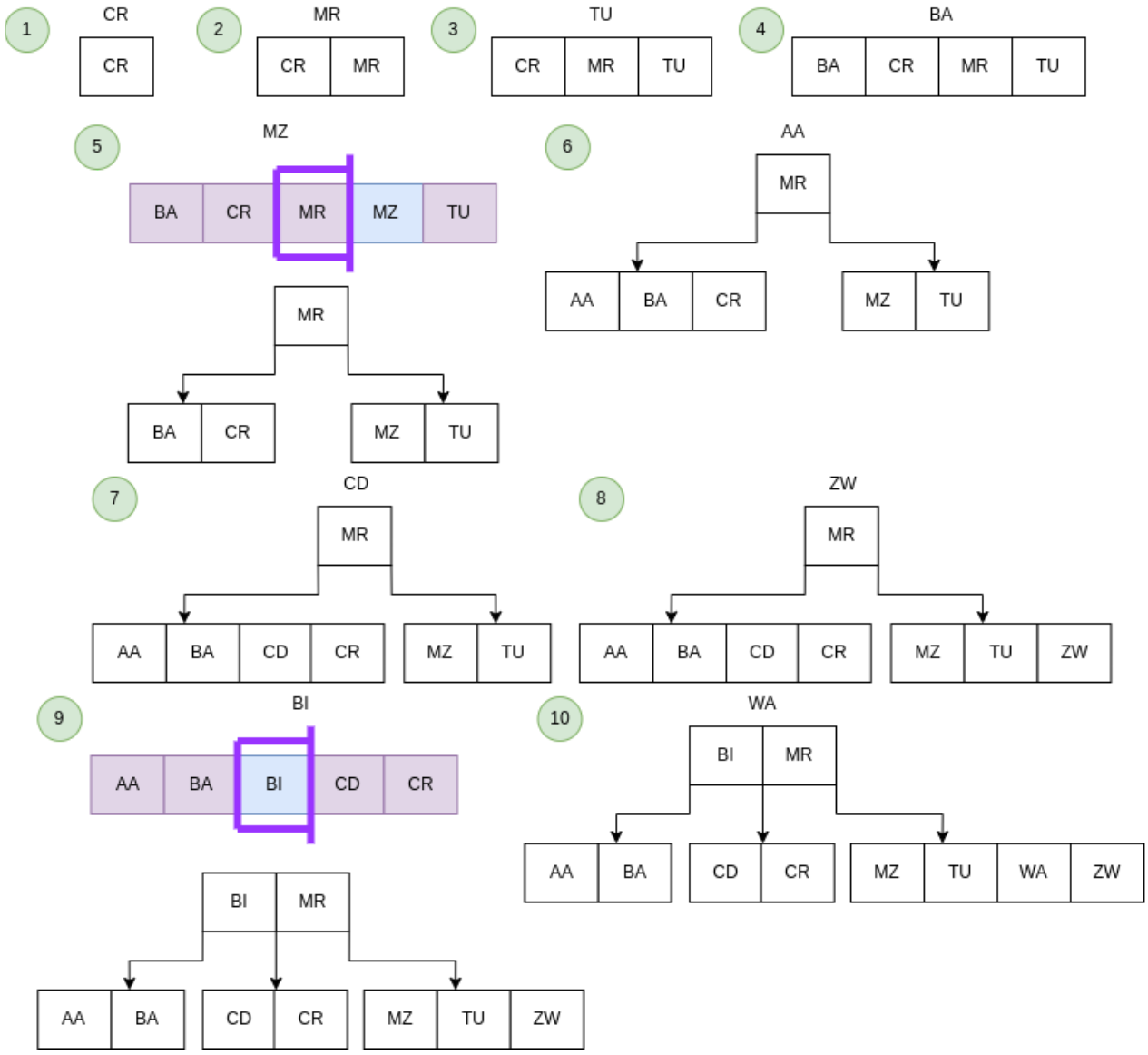


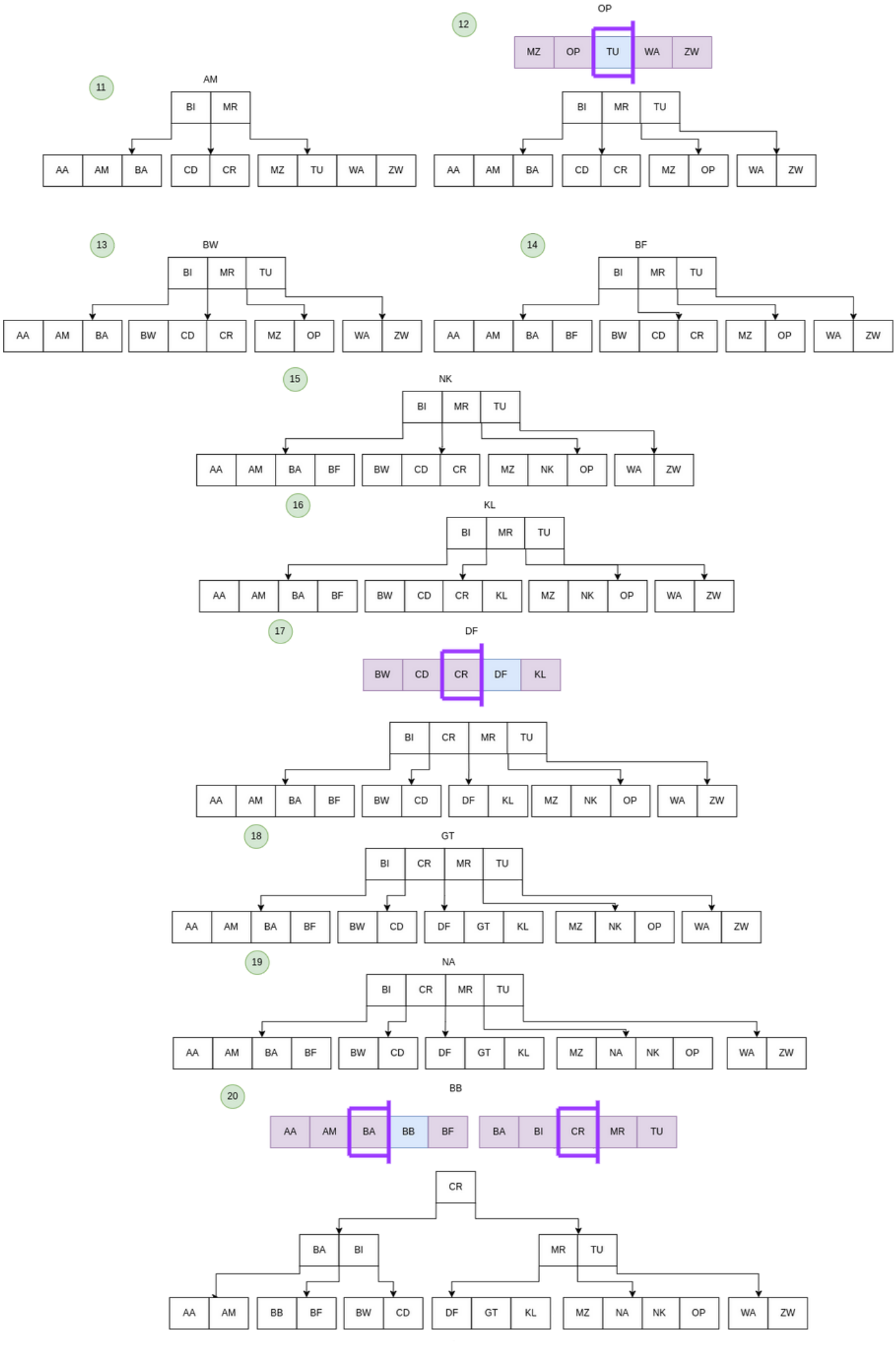


7. Dado el siguiente conjunto de elementos:

CR MR TU BA MZ AA CD ZW BI WA AM OP BW BF NK KL DF GT NA BB ÑQ

- **Generar un árbol B de orden 5.**

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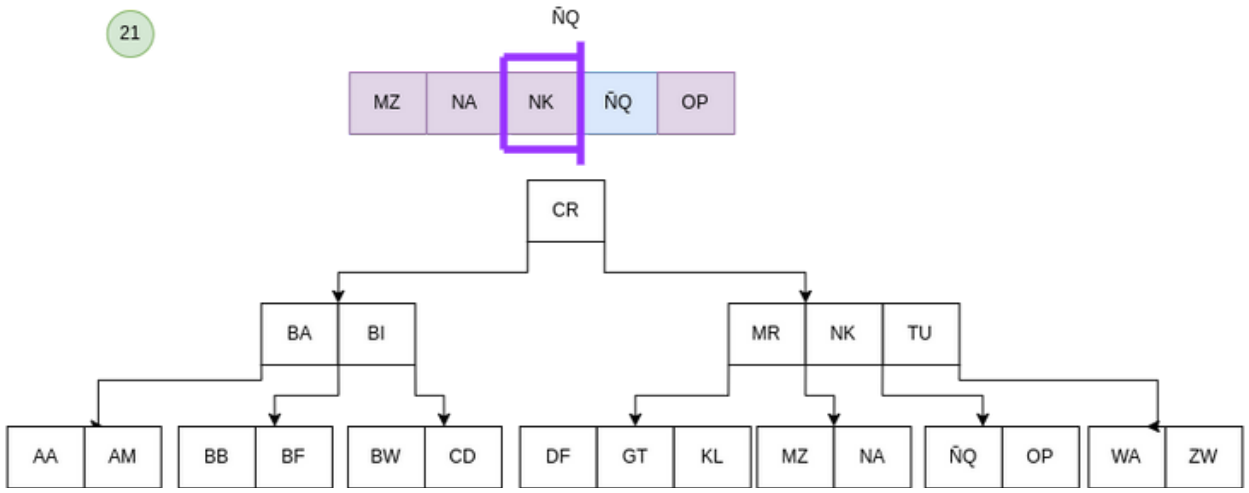

- **Mostrar cómo queda el árbol generado en el punto anterior, luego de eliminar CR y MZ.**