# AE2ACE: Algorithms Correctness and Efficiency

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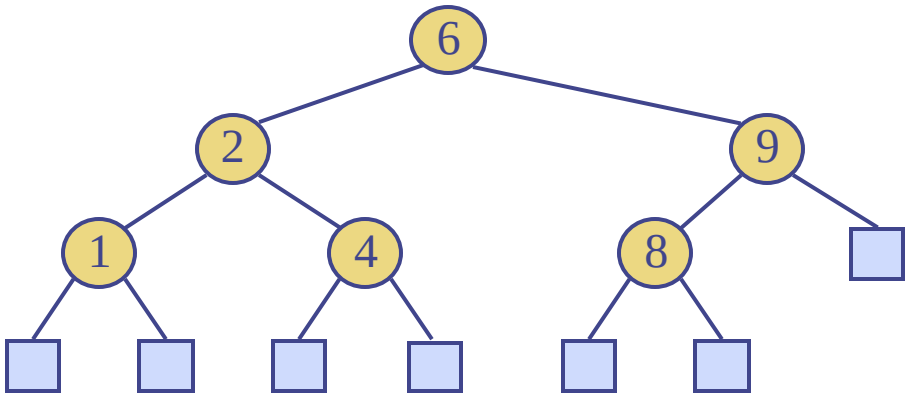
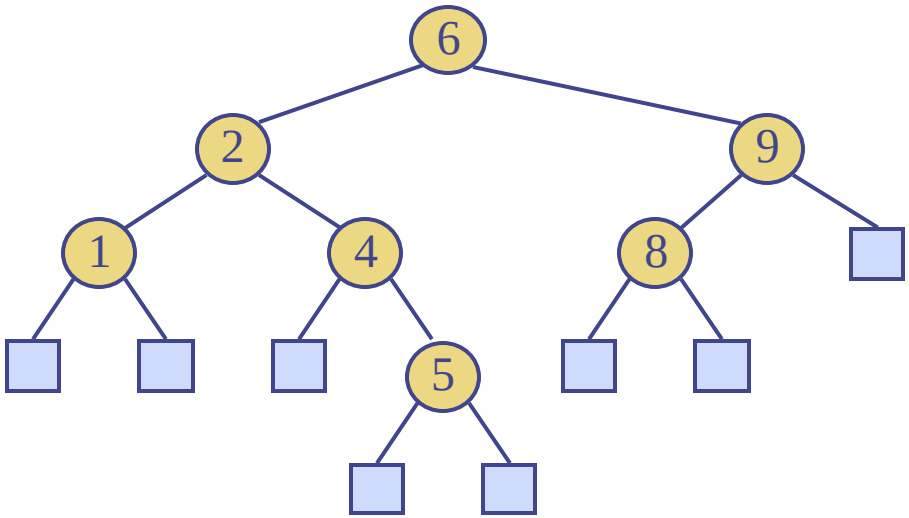
# Exercise 1

What is a binary search tree? Explain and draw figures to show the process of inserting the key 5 into the following binary search tree.

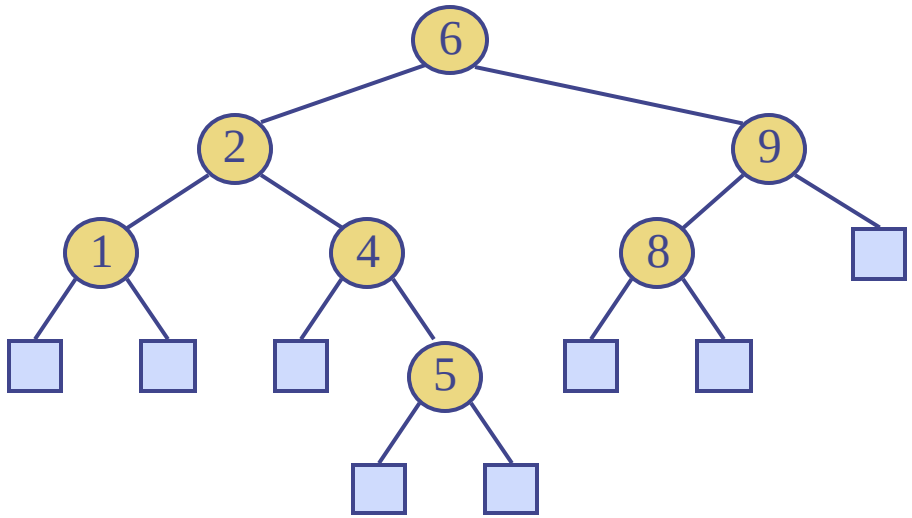


# Exercise 1: Partial Answer



# Exercise 2

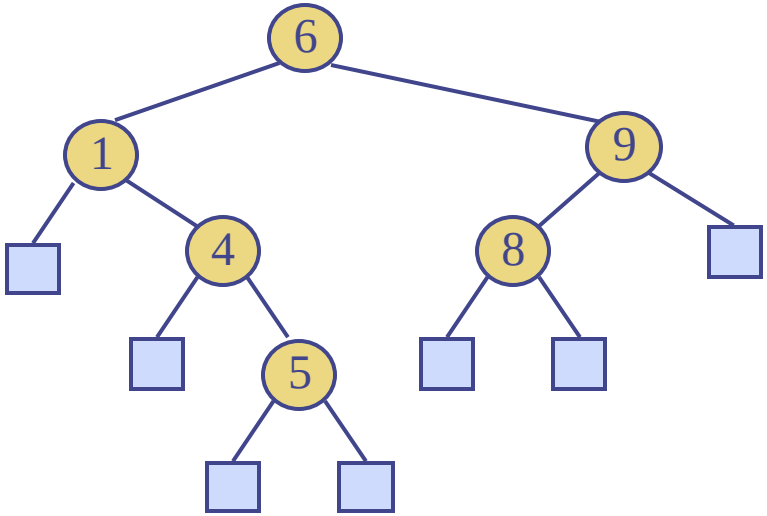
Explain and draw figures to show the process of removing the key 2 from the following binary search tree.



# Exercise 2

Explain and draw figures to show the process of removing the key 2 from the following binary search tree.

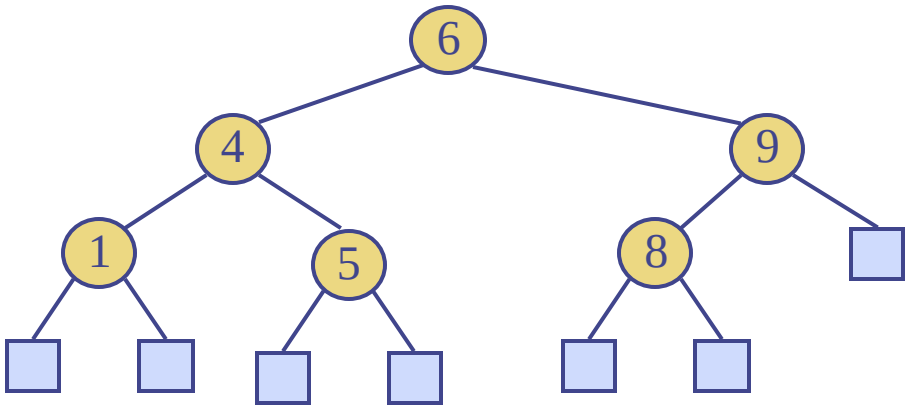
***Partial answer 1:***



# Exercise 2

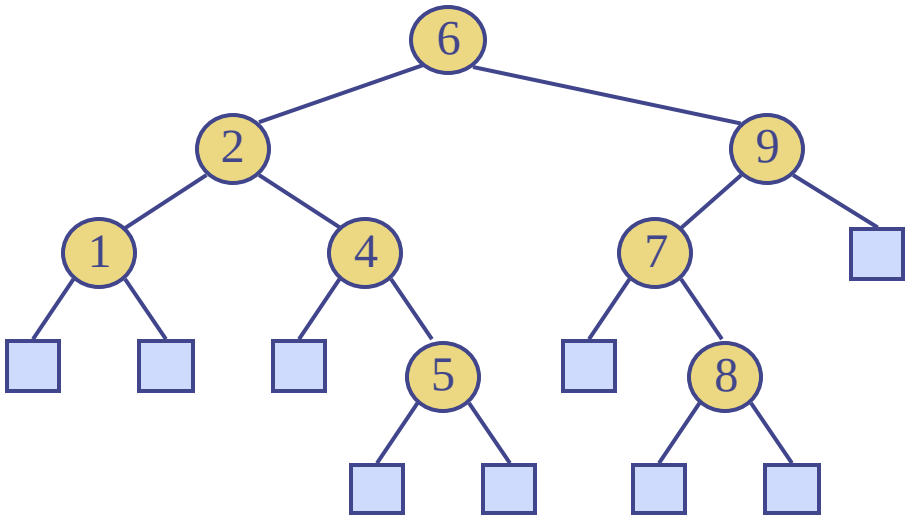
Explain and draw figures to show the process of removing the key 2 from the following binary search tree.

***Partial answer 2:***



# Exercise 3

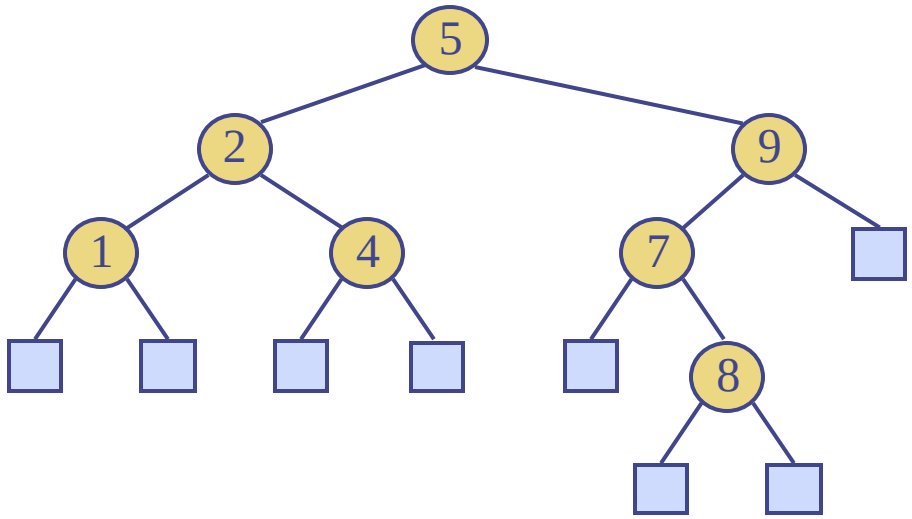
Explain and draw figures to show the process of removing the key 6 from the following binary search tree.



# Exercise 3

Explain and draw figures to show the process of removing the key 6 from the following binary search tree.

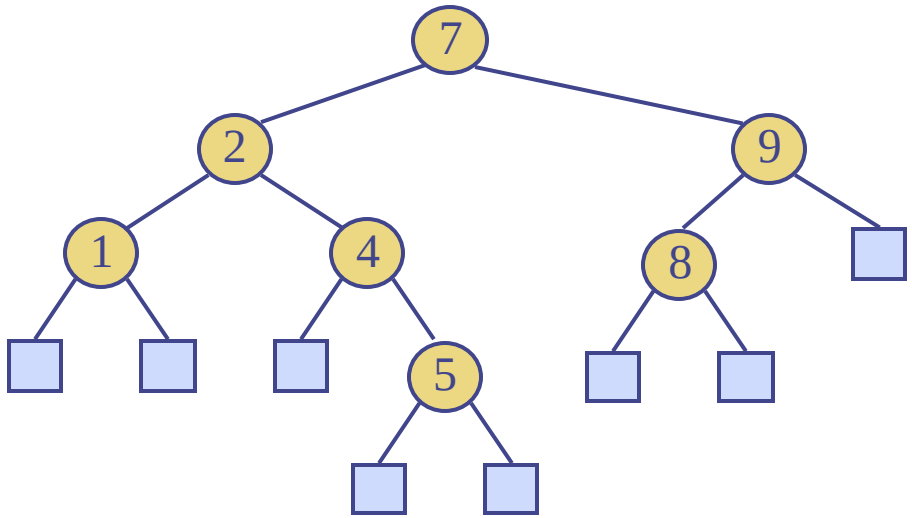
***Partial answer 1:***



# Exercise 3

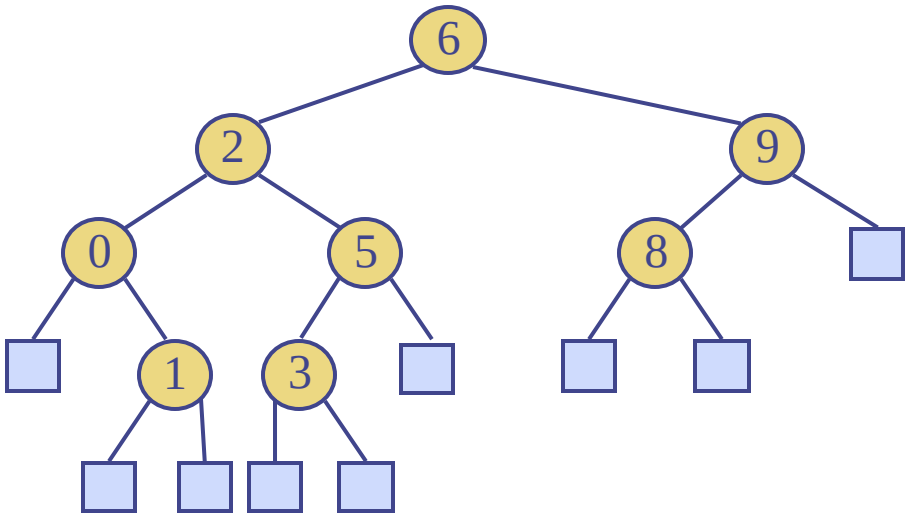
Explain and draw figures to show the process of removing the key 6 from the following binary search tree.

***Partial answer 2:***



# Exercise 4

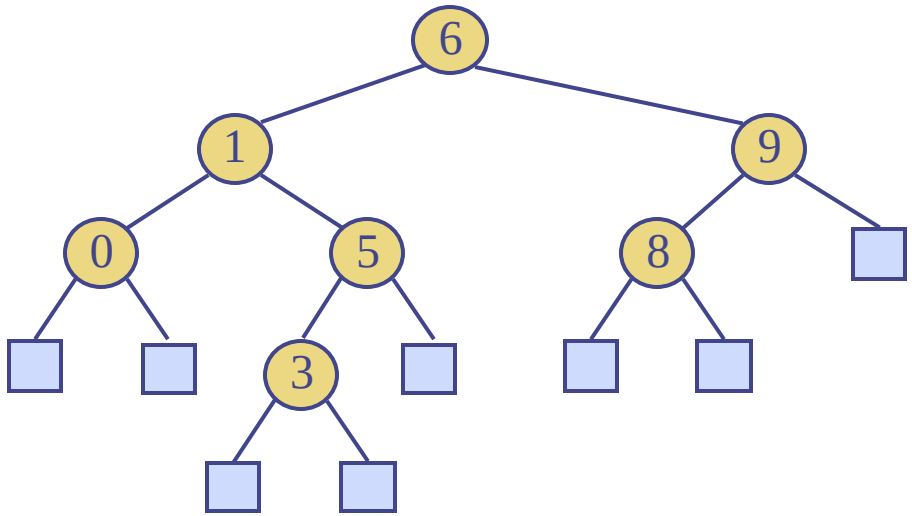
Explain and draw figures to show the process of removing the key 2 from the following binary search tree.



# Exercise 4

Explain and draw figures to show the process of removing the key 2 from the following binary search tree.

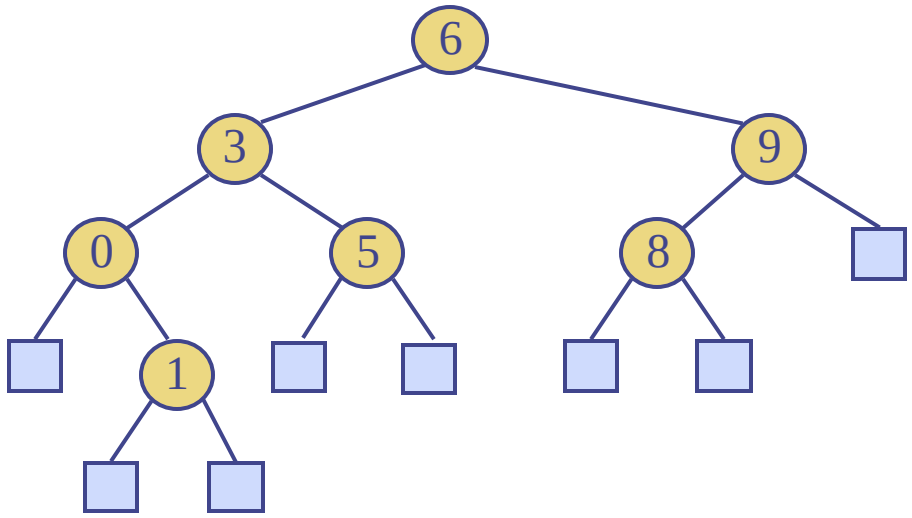
***Partial answer 1:***



# Exercise 4

Explain and draw figures to show the process of removing the key 2 from the following binary search tree.

***Partial answer 2:***



# Exercise 5

Analyze the time complexity of inserting an entry into a binary search tree using the big-Oh notation. The time complexity of the main steps involved in the insertion process should be presented in the answer.

Hint: read the textbook.