
recommend stock

1) Understand Tree Traversal Methods

Familiarize yourself with the different ways to traverse a tree: in-order, pre-order, and post-order.

For recommending stocks, focus on **in-order traversal**.

This method visits the nodes of the tree in a sorted manner based on their key values, which aligns with accessing stocks by their financial metrics in a specific order.

2) Apply Action-based Logic

Recognize that the recommendation logic varies depending on the user's intent to **buy or sell**.

When **buying**, you may prefer stocks with lower P/E ratios as they could represent undervalued opportunities.

Conversely, when **selling**, you might look for stocks with higher P/E ratios, indicating potentially overvalued stocks.

Adjust your traversal and selection logic based on the action.

3) Match Criteria with Stock Attributes

- Implement logic to compare each stock's attributes, particularly the P/E ratio and dividend yield, against the user's preferences.
- For a **buy** action, you might look for stocks with a P/E ratio below a user-specified threshold and a dividend yield above another threshold.
- For **selling**, the criteria might be reversed or adjusted based on other financial metrics.

4)Handle None Values Appropriately

- Prepare your function to handle scenarios where no stocks meet the user's criteria.
- In such cases, the function should return `None`, indicating that no suitable recommendation can be made based on the current stock data and user preferences.


prune function

What is the goal ?

- Your goal is to identify and remove subtrees that don't meet certain financial criteria, specifically those with a Price/Earnings (P/E) ratio below a set threshold.
- Imagine visiting each node and its children, deciding whether to keep or prune it based on this criterion.

Step 1

The primary aim of this function is to remove certain nodes from an AVL tree.

Specifically, it targets nodes representing stocks with a price-to-earnings (P/E) ratio **below a specified threshold**, indicating that these stocks might be underperforming or not aligning with the investor's criteria for investment

Step 2 : Initiating Recursive Traversal

The process begins by initiating a recursive traversal of the AVL tree.

This step is crucial because it ensures that each node in the tree is visited and evaluated.

The traversal method chosen is designed to visit every node in a way that allows for comprehensive assessment and modification of the tree structure.

Step 3 : Evaluating Nodes Against the Threshold

As the traversal reaches each node, the function compares the node's P/E ratio to the predefined threshold.

This comparison is the core of the pruning logic, determining whether a node meets the criteria for removal.

Step 4: Removing Nodes and Maintaining Tree Structure

If a node is identified as meeting the criteria for pruning (i.e., its P/E ratio is below the threshold), the function proceeds to remove this node from the tree.

However, simply removing a node isn't enough; special attention is paid to maintaining the AVL tree's balanced structure.

This involves adjusting connections between nodes and, if necessary, rebalancing the tree to keep up with the AVL properties.

Step 5: Handling Parent-Child Relationships

A significant part of the removal process involves managing the relationships between parent and child nodes.

If a node to be pruned has a parent, the function updates the parent's pointers to ensure the tree remains connected and logically structured.

This step is essential for preserving the integrity of the tree's structure.

Step 6: Rebalancing the Tree

After a node is removed, the function may need to rebalance the tree.

This is because AVL trees have strict requirements for balance to ensure efficient operations.

Step 7: Recursion Completes

The recursive process continues until all nodes in the tree have been visited and evaluated.

Nodes meeting the pruning criteria are removed, and the tree is rebalanced as necessary.

This comprehensive approach ensures that the final tree structure is both pruned of underperforming stocks and remains balanced according to AVL properties