Sigma Internship Coding Challenge

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This Code is Specified in the Colab of "**Updated Transition probability Matrix**"

In this Updated Logic, To Predict the next value using through Transition Probability matrix

So Now the Current state is "Bull"
From this gonna to predict the next it shows it as "Flat"

So the Output is:

```
Current State        : Bull


Transition Matrix as 2D array:
[[0.14285714 0.74285714 0.11428571]
 [0.14556962 0.59493671 0.25949367]
 [0.125      0.67857143 0.19642857]]


Bull Row Values  : [0.125      0.67857143 0.19642857]


Probabilities of being in each state after one time step: [0.1411901  0.62985501 0.22895489]


Index of the maximum probability   : 1


The Next day of the stock will be      : Flat
```

Making Decision through the Specified Logic through

- Calculating Returns,
- Determining Returns (classifying the states through returns),

- Updating the transition counts and probabilities
- Calculating the transition Probabilities
- Decision Making

  The method evaluates transition probabilities to decide the trading action.
  If the probability of a bullish transition is higher, a buying decision (1) is made. If the probability of a bearish transition is higher, a selling decision (-1) is made. Otherwise, a holding decision (0) is made.

- Updating the portfolio values