# Guide to Using the AHP Mutual Fund Scheme Selection Application

This guide explains how to use the Mutual Fund Scheme Selection Application powered by the Analytical Hierarchy Process (AHP) for ranking mutual fund schemes based on user-defined criteria. The application allows users to compare various performance metrics of mutual funds and assign relative importance to them using pairwise comparisons.

## Key Features

1. Criteria Comparison: Compare important mutual fund performance metrics like return, variance, Sharpe ratio, etc.

2. Pairwise Comparisons: Use a slider to rate the importance of one criterion over another.

3. Weight Calculation: Automatically generate weights for each criterion based on your comparisons.

4. Consistency Check: Validate the consistency of your comparisons to ensure reliable results.

5. Mutual Fund Ranking: Calculate scores for mutual funds and rank them based on your preferences.

## Steps to Use the Application

### 1. Launch the Application

Once the application is open, you will see the title 'Mutual Fund Scheme Selection using AHP.' Below it, you will find instructions on how to compare criteria.

### 2. Understand the Criteria

The criteria used in this application are standard performance metrics for evaluating mutual funds:

• 4-Month Rolling Return: The return over a moving 4-month window.

• Monthly Return: The average monthly return of the mutual fund.

• Variance of Monthly Returns: A measure of how much the monthly returns vary.

• Sharpe Ratio: Risk-adjusted return (higher is better).

• CAGR (Compound Annual Growth Rate): The annualized rate of growth.

• Max Drawdown: The maximum observed loss from a peak to a trough.

### 3. Select a Comparison to Evaluate

Use the dropdown menu labeled 'Select a comparison to evaluate.' Each option will list two criteria that need to be compared. For example, you might see:

• '4 month rolling return vs monthly return'

• 'Variance of monthly returns vs Sharpe ratio'

• 'CAGR vs 4 month rolling return'

Choose one of these comparisons from the dropdown.

### 4. Rate the Importance Using the Slider

Once you've selected a comparison, a slider will appear below the dropdown. The slider allows you to rate how much more important one criterion is compared to the other.

• Slider Range: 1 to 9

• 1: Both criteria are equally important.

• 2: The first criterion is slightly more important.

• 4: The first criterion is moderately more important.

• 6: The first criterion is much more important.

• 8: The first criterion is very strongly more important.

• 9: The first criterion is absolutely more important.

Use the slider to indicate your preference.

### 5. Submit the Comparison

After selecting a value on the slider, click the 'Submit Comparison' button. This will save your comparison in the system and allow you to make additional comparisons.

### 6. Review and Manage Your Comparisons

Once you’ve made several comparisons, you can review them in a table displayed below the comparison section.

• The table shows the comparison pairs (e.g., '4 month rolling return vs monthly return') and the value you assigned.

• You can also delete any comparison by clicking the 'Delete' button next to it.

### 7. Calculate Weights and Check Consistency

When you're satisfied with your comparisons, click the 'Calculate Weights and Check Consistency' button.

The app will:

1. Generate a Pairwise Comparison Matrix: This matrix shows how each criterion compares with others based on the values you provided.

2. Check Consistency: A consistency ratio is calculated to determine how consistent your judgments were. If the ratio is below 0.1, your comparisons are deemed reliable.

### 8. View the Mutual Fund Ranking

If the consistency check passes, the application will load mutual fund data from a pre-loaded CSV file. The application will:

• Multiply the weights you calculated by the corresponding performance data for each mutual fund.

• Calculate a score for each mutual fund based on these weights.

• Sort and display the mutual funds by their scores, showing the top-performing schemes based on your preferences.

### 9. Review the Results

The application will display the top mutual fund schemes in a table. You can review their scores and make your investment decisions based on the ranking.

## Tips for Effective Use

• Make Consistent Comparisons: Try to maintain logical consistency when making comparisons to avoid a high consistency ratio.

• Review Criteria Weights: After calculating weights, review them to ensure they align with your expectations.

• Re-evaluate Comparisons: If the consistency ratio is too high, you can revisit and adjust your pairwise comparisons.

By following these steps, you can efficiently rank mutual fund schemes using the AHP methodology. The app ensures that your personal preferences and priorities are reflected in the final ranking, allowing you to make well-informed decisions.