

## Data Dictionary

### Potential User:

- Description: A user who has not yet registered an account

### User:

- Description: An individual who interacts with the application by registering, logging in, and using its features.
- Attributes:
  - Username (string): A unique identifier chosen by the user.
  - Email Address (string): A valid email address for communication and identification.
  - Password (string): A secure password for account authentication.
  - Risk Tolerance Level (integer): A value from 1-3 representing the user's risk tolerance (1 = low, 2 = medium, 3 = high).
  - Investment Goals (string): Specific financial targets or objectives of the user.
  - Historical Investment Data (array or data structure): An array or suitable data structure to store historical investment data.

### Optimized Portfolio:

- Description: The result of the system's calculations based on user preferences and risk factors.
- Attributes:
  - Portfolio ID (unique identifier): A unique identifier for each portfolio.
  - Sharpe Ratio (float): A measure of portfolio performance.
  - User ID (foreign key): References the user for whom the portfolio is optimized.
  - Stock Allocation (list of percentages): A list of integer percentages representing the allocation of funds to specific stock assets.
  - Investment Amount (integer): The total investment amount specified by the user within a monetary range.
  - Investment Date (timestamp): The date and time when the portfolio was created.

### Stock:

- Description: Represents a specific stock asset.
- Attributes:
  - Stock Symbol (string): A unique identifier or symbol for the stock.
  - Current Stock Price (float): The current price of the stock.
  - Financial Ratios (dictionary or data structure): Relevant financial ratios for the stock.
  - Historical Performance (array or data structure): Historical stock performance data.

### Transaction:

- Description: Records of user transactions related to buying or selling stocks.
- Attributes:
  - Transaction ID (unique identifier): A unique identifier for each transaction.
  - User ID (foreign key): References the user associated with the transaction.
  - Stock Symbol (string): The symbol of the stock involved in the transaction.
  - Transaction Type (string): Indicates whether the transaction is a buy or sell.
  - Quantity (integer): The quantity of stocks involved in the transaction.
  - Price (float): The price at which the stocks were bought or sold.
  - Timestamp (timestamp): The date and time of the transaction.

#### Real-Time Stock Data:

- Description: Data retrieved from the Yahoo Finance API.
- Attributes:
  - Stock Symbol (string): The symbol of the stock.
  - Current Stock Price (float): The current price of the stock.
  - Financial Ratios (dictionary or data structure): Relevant financial ratios for the stock.
  - Historical Performance (array or data structure): Historical stock performance data.

#### Notification:

- Description: Messages sent to users regarding significant changes in tracked stocks or market updates.
- Attributes:
  - Notification ID (unique identifier): A unique identifier for each notification.
  - User ID (foreign key): References the user receiving the notification.
  - Message (string): The content of the notification message.
  - Timestamp (timestamp): The date and time when the notification was sent.

#### User Interface Filters:

- Description: Filters applied by users to narrow down their stock selection.
- Attributes:
  - Filter ID (unique identifier): A unique identifier for each filter
  - User ID (foreign key): References the user who created the filter.
  - Filter Type (string): Indicates the type of filter (e.g., percentage change in the last 24 hours).
  - Filter Criteria (float or range): The criteria or value used for filtering.