```
function [stockMod] = simStock_Sine01(...
                        stockStruct, ...
                        currentDay)

    % This function will simulate the
    % behavior of a stock price as
    % a perfect sinewave.  It will
    % calculate the next value by
    % pulling it from a pre-set
    % array of values based on the
    % current day.  A separate
    % function will generate the array
    % of values for as many days as
    % are required.

    % The only that is changed in this
    % function is the closing price.

    % All values in the stock data struct
    % that are not changed will be set
    % to "-1" in their corresponding
    % matrices, denoting an empty value.

    % Set parameters by which to determine
    % the new stock price.

    % Amplitude ($).
    A = (0.10*stockStruct.close(1));
    % Period (days).
    T = 14;
    % Zero offset ($).
    % This will also be
    % the initial value.
    k = stockStruct.close(1);

    % Calculate the new price.
    secPerDay = 24*60*60;
    newPrice = (A*sin(2*pi*(1/(T*secPerDay)) ...
        *(currentDay(3)*secPerDay)) + k);

    % Update the stock data.
    newDataIndex = (length(stockStruct.year) + 1);
    stockStruct.currentPrice = newPrice;
    stockStruct.high(newDataIndex) = -1;
    stockStruct.low(newDataIndex) = -1;
    stockStruct.close(newDataIndex) = newPrice;
    stockStruct.volume(newDataIndex) = -1;

    % Return updated stock struct.
    stockMod = stockStruct;
```

```
    return;

end
```