function res = bucketSortStrings(strs)
    [m n] = size(strs);

    % Go through every element in the strs cell array to find the
    % longest length.
    s = 0; % initialise the longest length to be zero first
    for ii = 1:m
        for jj = 1:n
            cl = length(strs{ii,jj}); % cl - current length
            % update the longest length if the current length is longer.
            if s<cl
                s = cl;
            end
        end
    end

    % Create a cell array of "s" many rows.
    res = cell(s,1);
    % Create a column vector, each element counts the number of columns
    % for each resulting row.
    count = zeros(s, 1);

    for ii = 1:m
        for jj = 1:n
            % work out the current length
            cl = length(strs{ii,jj});
            % if the string is not empty, put it at the
            % right place in the resulting cell array,
            % and increase the column counter.
            if(cl>0)
                count(cl) = count(cl) + 1;
                res{cl}{count(cl)} = strs(ii,jj);
            end
        end
    end