

## Cody Problem 70. Alphabetize by last name

Given a list of names in a cell array, sort the list by the last name. So if

```
% list = {'Barney Google','Snuffy Smith','Dagwood Bumstead'};
```

then the output is

```
% alpha_list = {'Dagwood Bumstead','Barney Google','Snuffy Smith'}
```

### Scratch Pad

```
list = {'Barney Google','Snuffy Smith','Dagwood Bumstead'};
```

```
alphabetize(list)
```

```
ans = 1x3 cell  
'Dagwood Bumstead''Barney Google''Snuffy Smith'
```

```
list = {'Harry Truman'  
        'Dwight Eisenhower'  
        'John F. Kennedy'  
        'Lyndon Johnson'  
        'Richard Nixon'  
        'Gerald Ford'  
        'Cleve Moler'  
        'Ronald Reagan'  
        'George Bush'  
        'Bill Clinton'  
        'George Bush'  
        'Barack Obama'};  
alpha_list = {'George Bush'  
              'George Bush'  
              'Bill Clinton'  
              'Dwight Eisenhower'  
              'Gerald Ford'  
              'Lyndon Johnson'  
              'John F. Kennedy'  
              'Cleve Moler'  
              'Richard Nixon'  
              'Barack Obama'  
              'Ronald Reagan'  
              'Harry Truman'}
```

```
alpha_list = 12x1 cell  
'George Bush'  
'George Bush'  
'Bill Clinton'  
'Dwight Eisenhower'  
'Gerald Ford'
```

```
'Lyndon Johnson'  
'John F. Kennedy'  
'Cleve Moler'  
'Richard Nixon'  
'Barack Obama'  
:  
:
```

```
alphabetize(list)
```

```
ans = 12x1 cell  
'George Bush'  
'George Bush'  
'Bill Clinton'  
'Dwight Eisenhower'  
'Gerald Ford'  
'Lyndon Johnson'  
'John F. Kennedy'  
'Cleve Moler'  
'Richard Nixon'  
'Barack Obama'  
:  
:
```

```
assert(isequal(alphabetize(list),alpha_list))
```

## Solution

```
function sortedNames = alphabetize(names)  
    % Function to extract the last name from a full name  
    function lastName = extractLastName(fullName)  
        words = regexp(fullName, '\s+', 'split');  
        if length(words) > 1  
            lastName = words{end}; % Take the last word as last name  
        else  
            lastName = words{1}; % For single-word names  
        end  
    end  
  
    % Extract and sort by last names  
    [~, sortIdx] = sort(cellfun(@extractLastName, names, 'UniformOutput',  
false));  
    sortedNames = names(sortIdx);  
end
```