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/**
  USAGE:

  TagDirectory(pages, tagPrefix, columnCount, listPagesOptions)
    build a multi-column tag directory for a list of pages

  PARAMETERS:

  (optional) pages : list/map/str
    list/map of pages to list; if pages is a str, then it is used as a path to a parent page to list all subpages;
    defaults to list of subpages of current page

  (optional) tagPrefix : str
    only use tags with given prefix (e.g. 'category:dog'); defaults to using only unprefixed tags

  (optional) columnCount : num
    number of columns to display; defaults to 2

  (optional) listPagesOptions : map
    options passed into the ListPages template for listing each column entry;
    defaults to { sort: 'viewcount', reverse: true, style: 'bullets' }

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var pages = $0 ?? $pages ?? page.subpages;
if(pages is str) let pages = wiki.getpage(pages).subpages;
if(pages is map) let pages = map.values(pages);
var tagprefix = $1 ?? $tagprefix;
var columns = num.max($2 ?? $columnCount ?? 2, 1);
var listPagesOptions = { sort: 'viewcount', reverse: true, style: 'bullets' } .. ($4 ?? $listPagesOptions ?? {});

// build map of all tags in pages
var tagmap = {};
foreach(var p in pages) {
  var tags = p.tags;

  // check if page has no tags; if so make up a default list
  if(!#tags) {
    let tags = [ { name: (tagprefix ? tagprefix .. ':' : '') .. '(unclassified)', type: 'text' } ];
  }

  // for each tag on the page, append the page to that tag's list
  foreach(var t in tags where t.type == 'text') {

    // check if either the tag prefix matches or there is no tag prefix
    var parts = string.split(t.name, ':', 2);
    if(tagprefix && (#parts == 2) && (string.compare(parts[0], tagprefix, true) == 0)) {
      let tagmap ..= { (parts[1]) : tagmap[parts[1]] .. [ p ] };
    } else if(!tagprefix && (#parts == 1)) {

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    let tagmap ..= { (parts[0]) : tagmap[parts[0]] .. [ p ] };
  }
}

if(#tagmap) {

  // count how many pages each tag has
  var tag_count = [ { tag: tag, count: #tagmap[tag] } foreach var tag in map.keys(tagmap) ];

  // balance columns so that their heights are as equal as possible
  var column_tags = list.new(columns, [ ]);
  var column_sums = list.new(columns, 0);

  foreach(var t in list.sort(tag_count, 'count', true)) {

    // find shortest column
    var column = list.indexof(column_sums, list.min(column_sums));

    // update column
    let column_tags = list.splice(column_tags, column) .. [ column_tags[column] .. [ t.tag ] ] ..
list.splice(column_tags, 0, column + 1);
    let column_sums = list.splice(column_sums, column) .. [ column_sums[column] +
(listPagesOptions.limit ?? t.count) + 2 ] .. list.splice(column_sums, 0, column + 1);
  }

  // emit the table with N columns
  <table width="100%" cellspacing="0" cellpadding="5" border="0" style="table-layout: fixed;">
    <tr valign="top">

      // loop over each column
      foreach(var column in column_tags) {
        <td style="padding-right: 20px;">

          // loop over all tags in column, sorted alphabetically
          foreach(var tag in list.sort(column)) {
            <h5> string.tocamelcase(tag) </h5>
            template("MindTouch/Controls/ListPages", listPagesOptions .. { pages: tagmap[tag] });
          }
        </td>
      }
    </tr>
  </table>
}

```