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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-b3934526-f095-407c-87f3-71fc5c5bb9f7\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-b3934526-f095-407c-87f3-71fc5c5bb9f7')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-b3934526-f095-407c-87f3-71fc5c5bb9f7 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-22364d8d-7c7a-45d8-942f-fa76ef0babd1\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-22364d8d-7c7a-45d8-942f-fa76ef0babd1')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-22364d8d-7c7a-45d8-942f-fa76ef0babd1 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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The object\n","supports both integer- and label-based indexing and provides a host of\n","methods for performing operations involving the index. Statistical\n","methods from ndarray have been overridden to automatically exclude\n","missing data (currently represented as NaN).\n","\n","Operations between Series (+, -, /, \\\*, \\\*\\\*) align values based on their\n","associated index values-- they need not be the same length. The result\n","index will be the sorted union of the two indexes.\n","\n","Parameters\n","----------\n","data : array-like, Iterable, dict, or scalar value\n"," Contains data stored in Series. If data is a dict, argument order is\n"," maintained.\n","index : array-like or Index (1d)\n"," Values must be hashable and have the same length as `data`.\n"," Non-unique index values are allowed. Will default to\n"," RangeIndex (0, 1, 2, ..., n) if not provided. If data is dict-like\n"," and index is None, then the keys in the data are used as the index. If the\n"," index is not None, the resulting Series is reindexed with the index values.\n","dtype : str, numpy.dtype, or ExtensionDtype, optional\n"," Data type for the output Series. If not specified, this will be\n"," inferred from `data`.\n"," See the :ref:`user guide &lt;basics.dtypes&gt;` for more usages.\n","name : Hashable, default None\n"," The name to give to the Series.\n","copy : bool, default False\n"," Copy input data. Only affects Series or 1d ndarray input. See examples.\n","\n","Notes\n","-----\n","Please reference the :ref:`User Guide &lt;basics.series&gt;` for more information.\n","\n","Examples\n","--------\n","Constructing Series from a dictionary with an Index specified\n","\n","&gt;&gt;&gt; d = {&#x27;a&#x27;: 1, &#x27;b&#x27;: 2, &#x27;c&#x27;: 3}\n","&gt;&gt;&gt; ser = pd.Series(data=d, index=[&#x27;a&#x27;, &#x27;b&#x27;, &#x27;c&#x27;])\n","&gt;&gt;&gt; ser\n","a 1\n","b 2\n","c 3\n","dtype: int64\n","\n","The keys of the dictionary match with the Index values, hence the Index\n","values have no effect.\n","\n","&gt;&gt;&gt; d = {&#x27;a&#x27;: 1, &#x27;b&#x27;: 2, &#x27;c&#x27;: 3}\n","&gt;&gt;&gt; ser = pd.Series(data=d, index=[&#x27;x&#x27;, &#x27;y&#x27;, &#x27;z&#x27;])\n","&gt;&gt;&gt; ser\n","x NaN\n","y NaN\n","z NaN\n","dtype: float64\n","\n","Note that the Index is first build with the keys from the dictionary.\n","After this the Series is reindexed with the given Index values, hence we\n","get all NaN as a result.\n","\n","Constructing Series from a list with `copy=False`.\n","\n","&gt;&gt;&gt; r = [1, 2]\n","&gt;&gt;&gt; ser = pd.Series(r, copy=False)\n","&gt;&gt;&gt; ser.iloc[0] = 999\n","&gt;&gt;&gt; r\n","[1, 2]\n","&gt;&gt;&gt; ser\n","0 999\n","1 2\n","dtype: int64\n","\n","Due to input data type the Series has a `copy` of\n","the original data even though `copy=False`, so\n","the data is unchanged.\n","\n","Constructing Series from a 1d ndarray with `copy=False`.\n","\n","&gt;&gt;&gt; r = np.array([1, 2])\n","&gt;&gt;&gt; ser = pd.Series(r, copy=False)\n","&gt;&gt;&gt; ser.iloc[0] = 999\n","&gt;&gt;&gt; r\n","array([999, 2])\n","&gt;&gt;&gt; ser\n","0 999\n","1 2\n","dtype: int64\n","\n","Due to input data type the Series has a `view` on\n","the original data, so\n","the data is changed as well.</pre>\n"," <script>\n"," if (google.colab.kernel.accessAllowed && google.colab.files && google.colab.files.view) {\n"," for (const element of document.querySelectorAll('.filepath')) {\n"," 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'block' : 'none';\n","\n"," async function convertToInteractive(key) {\n"," const element = document.querySelector('#df-c1c03b8d-c1b0-4b35-9e2a-ffeaf6ab42a9');\n"," const dataTable =\n"," await google.colab.kernel.invokeFunction('convertToInteractive',\n"," [key], {});\n"," if (!dataTable) return;\n","\n"," const docLinkHtml = 'Like what you see? Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-62c34c5f-db50-4b5b-9c41-03ebe41c305f\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-62c34c5f-db50-4b5b-9c41-03ebe41c305f')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-62c34c5f-db50-4b5b-9c41-03ebe41c305f button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 'block' : 'none';\n"," })();\n"," </script>\n","</div>\n","\n"," </div>\n"," </div>\n"],"application/vnd.google.colaboratory.intrinsic+json":{"type":"dataframe","summary":"{\n \"name\": \"df[['W','Z']]\",\n \"rows\": 10,\n \"fields\": [\n {\n \"column\": \"W\",\n \"properties\": {\n \"dtype\": \"number\",\n \"std\": 1.153056007555865,\n \"min\": -1.3829200981158674,\n \"max\": 2.154846443259472,\n \"num\_unique\_values\": 10,\n \"samples\": [\n -1.3829200981158674,\n 1.025984152081572,\n 0.3860303121135517\n ],\n \"semantic\_type\": \"\",\n \"description\": \"\"\n }\n },\n {\n \"column\": \"Z\",\n \"properties\": {\n \"dtype\": \"number\",\n \"std\": 1.1515972455457542,\n \"min\": -2.1412122910809264,\n \"max\": 1.9399323109926203,\n \"num\_unique\_values\": 10,\n \"samples\": [\n -2.1412122910809264,\n 0.6498258334908454,\n 0.23033634359240704\n ],\n \"semantic\_type\": \"\",\n \"description\": \"\"\n }\n }\n ]\n}"}},"metadata":{},"execution\_count":17}],"source":["# Pass a list of column names\n","df[['W','Z']]"]},{"cell\_type":"code","execution\_count":18,"id":"1d420eb2","metadata":{"colab":{"base\_uri":"https://localhost:8080/","height":204},"executionInfo":{"elapsed":1345,"status":"ok","timestamp":1735328997038,"user":{"displayName":"Nakul Chamariya","userId":"14936028262101279399"},"user\_tz":-330},"id":"1d420eb2","outputId":"bc1f8f7b-2c91-4d2b-df69-4a0e7ae4620f"},"outputs":[{"output\_type":"execute\_result","data":{"text/plain":["pandas.core.frame.DataFrame"],"text/html":["<div style=\"max-width:800px; border: 1px solid var(--colab-border-color);\"><style>\n"," pre.function-repr-contents {\n"," overflow-x: auto;\n"," padding: 8px 12px;\n"," max-height: 500px;\n"," }\n","\n"," pre.function-repr-contents.function-repr-contents-collapsed {\n"," cursor: pointer;\n"," max-height: 100px;\n"," }\n"," </style>\n"," <pre style=\"white-space: initial; background:\n"," var(--colab-secondary-surface-color); padding: 8px 12px;\n"," border-bottom: 1px solid var(--colab-border-color);\"><b>pandas.core.frame.DataFrame</b><br/>def \_\_init\_\_(data=None, index: Axes | None=None, columns: Axes | None=None, dtype: Dtype | None=None, copy: bool | None=None) -&gt; None</pre><pre class=\"function-repr-contents function-repr-contents-collapsed\" style=\"\"><a class=\"filepath\" style=\"display:none\" href=\"#\">/usr/local/lib/python3.10/dist-packages/pandas/core/frame.py</a>Two-dimensional, size-mutable, potentially heterogeneous tabular data.\n","\n","Data structure also contains labeled axes (rows and columns).\n","Arithmetic operations align on both row and column labels. Can be\n","thought of as a dict-like container for Series objects. The primary\n","pandas data structure.\n","\n","Parameters\n","----------\n","data : ndarray (structured or homogeneous), Iterable, dict, or DataFrame\n"," Dict can contain Series, arrays, constants, dataclass or list-like objects. If\n"," data is a dict, column order follows insertion-order. If a dict contains Series\n"," which have an index defined, it is aligned by its index. This alignment also\n"," occurs if data is a Series or a DataFrame itself. Alignment is done on\n"," Series/DataFrame inputs.\n","\n"," If data is a list of dicts, column order follows insertion-order.\n","\n","index : Index or array-like\n"," Index to use for resulting frame. Will default to RangeIndex if\n"," no indexing information part of input data and no index provided.\n","columns : Index or array-like\n"," Column labels to use for resulting frame when data does not have them,\n"," defaulting to RangeIndex(0, 1, 2, ..., n). If data contains column labels,\n"," will perform column selection instead.\n","dtype : dtype, default None\n"," Data type to force. Only a single dtype is allowed. If None, infer.\n","copy : bool or None, default None\n"," Copy data from inputs.\n"," For dict data, the default of None behaves like ``copy=True``. For DataFrame\n"," or 2d ndarray input, the default of None behaves like ``copy=False``.\n"," If data is a dict containing one or more Series (possibly of different dtypes),\n"," ``copy=False`` will ensure that these inputs are not copied.\n","\n"," .. versionchanged:: 1.3.0\n","\n","See Also\n","--------\n","DataFrame.from\_records : Constructor from tuples, also record arrays.\n","DataFrame.from\_dict : From dicts of Series, arrays, or dicts.\n","read\_csv : Read a comma-separated values (csv) file into DataFrame.\n","read\_table : Read general delimited file into DataFrame.\n","read\_clipboard : Read text from clipboard into DataFrame.\n","\n","Notes\n","-----\n","Please reference the :ref:`User Guide &lt;basics.dataframe&gt;` for more information.\n","\n","Examples\n","--------\n","Constructing DataFrame from a dictionary.\n","\n","&gt;&gt;&gt; d = {&#x27;col1&#x27;: [1, 2], &#x27;col2&#x27;: [3, 4]}\n","&gt;&gt;&gt; df = pd.DataFrame(data=d)\n","&gt;&gt;&gt; df\n"," col1 col2\n","0 1 3\n","1 2 4\n","\n","Notice that the inferred dtype is int64.\n","\n","&gt;&gt;&gt; df.dtypes\n","col1 int64\n","col2 int64\n","dtype: object\n","\n","To enforce a single dtype:\n","\n","&gt;&gt;&gt; df = pd.DataFrame(data=d, dtype=np.int8)\n","&gt;&gt;&gt; df.dtypes\n","col1 int8\n","col2 int8\n","dtype: object\n","\n","Constructing DataFrame from a dictionary including Series:\n","\n","&gt;&gt;&gt; d = {&#x27;col1&#x27;: [0, 1, 2, 3], &#x27;col2&#x27;: pd.Series([2, 3], index=[2, 3])}\n","&gt;&gt;&gt; pd.DataFrame(data=d, index=[0, 1, 2, 3])\n"," col1 col2\n","0 0 NaN\n","1 1 NaN\n","2 2 2.0\n","3 3 3.0\n","\n","Constructing DataFrame from numpy ndarray:\n","\n","&gt;&gt;&gt; df2 = pd.DataFrame(np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9]]),\n","... columns=[&#x27;a&#x27;, &#x27;b&#x27;, &#x27;c&#x27;])\n","&gt;&gt;&gt; df2\n"," a b c\n","0 1 2 3\n","1 4 5 6\n","2 7 8 9\n","\n","Constructing DataFrame from a numpy ndarray that has labeled columns:\n","\n","&gt;&gt;&gt; data = np.array([(1, 2, 3), (4, 5, 6), (7, 8, 9)],\n","... dtype=[(&quot;a&quot;, &quot;i4&quot;), (&quot;b&quot;, &quot;i4&quot;), (&quot;c&quot;, &quot;i4&quot;)])\n","&gt;&gt;&gt; df3 = pd.DataFrame(data, columns=[&#x27;c&#x27;, &#x27;a&#x27;])\n","...\n","&gt;&gt;&gt; df3\n"," c a\n","0 3 1\n","1 6 4\n","2 9 7\n","\n","Constructing DataFrame from dataclass:\n","\n","&gt;&gt;&gt; from dataclasses import make\_dataclass\n","&gt;&gt;&gt; Point = make\_dataclass(&quot;Point&quot;, [(&quot;x&quot;, int), (&quot;y&quot;, int)])\n","&gt;&gt;&gt; pd.DataFrame([Point(0, 0), Point(0, 3), Point(2, 3)])\n"," x y\n","0 0 0\n","1 0 3\n","2 2 3\n","\n","Constructing DataFrame from Series/DataFrame:\n","\n","&gt;&gt;&gt; ser = pd.Series([1, 2, 3], index=[&quot;a&quot;, &quot;b&quot;, &quot;c&quot;])\n","&gt;&gt;&gt; df = pd.DataFrame(data=ser, index=[&quot;a&quot;, &quot;c&quot;])\n","&gt;&gt;&gt; df\n"," 0\n","a 1\n","c 3\n","\n","&gt;&gt;&gt; df1 = pd.DataFrame([1, 2, 3], index=[&quot;a&quot;, &quot;b&quot;, &quot;c&quot;], columns=[&quot;x&quot;])\n","&gt;&gt;&gt; df2 = pd.DataFrame(data=df1, index=[&quot;a&quot;, &quot;c&quot;])\n","&gt;&gt;&gt; df2\n"," x\n","a 1\n","c 3</pre>\n"," <script>\n"," if (google.colab.kernel.accessAllowed && google.colab.files && google.colab.files.view) {\n"," for (const element of document.querySelectorAll('.filepath')) {\n"," element.style.display = 'block'\n"," element.onclick = (event) => {\n"," event.preventDefault();\n"," event.stopPropagation();\n"," google.colab.files.view(element.textContent, 509);\n"," };\n"," }\n"," }\n"," for (const element of document.querySelectorAll('.function-repr-contents')) {\n"," element.onclick = (event) => {\n"," event.preventDefault();\n"," event.stopPropagation();\n"," element.classList.toggle('function-repr-contents-collapsed');\n"," };\n"," }\n"," </script>\n"," </div>"]},"metadata":{},"execution\_count":18}],"source":["type(df[['W', 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-da8aa171-26c9-41b7-bf1d-7e3675a7e6d6\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-da8aa171-26c9-41b7-bf1d-7e3675a7e6d6')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-da8aa171-26c9-41b7-bf1d-7e3675a7e6d6 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-48469fd3-a2d7-486c-acb4-28c18493da2a\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-48469fd3-a2d7-486c-acb4-28c18493da2a')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-48469fd3-a2d7-486c-acb4-28c18493da2a button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-042d1f41-fd30-43f3-bee5-2f8d1931bad0\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-042d1f41-fd30-43f3-bee5-2f8d1931bad0')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-042d1f41-fd30-43f3-bee5-2f8d1931bad0 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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'block' : 'none';\n","\n"," buttonEl.onclick = () => {\n"," google.colab.notebook.generateWithVariable('df');\n"," }\n"," })();\n"," </script>\n"," </div>\n","\n"," </div>\n"," </div>\n"],"application/vnd.google.colaboratory.intrinsic+json":{"type":"dataframe","variable\_name":"df","summary":"{\n \"name\": \"df\",\n \"rows\": 10,\n \"fields\": [\n {\n \"column\": \"W\",\n \"properties\": {\n \"dtype\": \"number\",\n \"std\": 1.153056007555865,\n \"min\": -1.3829200981158674,\n \"max\": 2.154846443259472,\n \"num\_unique\_values\": 10,\n \"samples\": [\n -1.3829200981158674,\n 1.025984152081572,\n 0.3860303121135517\n ],\n \"semantic\_type\": \"\",\n \"description\": \"\"\n }\n },\n {\n \"column\": \"X\",\n \"properties\": {\n \"dtype\": \"number\",\n \"std\": 1.0687247198092023,\n \"min\": -0.7417897046689249,\n \"max\": 2.084018530338962,\n \"num\_unique\_values\": 10,\n \"samples\": [\n 1.48249549608345,\n -0.1565979042889875,\n 2.084018530338962\n ],\n \"semantic\_type\": \"\",\n 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-9e812503-db84-40c1-bc2c-c0c92c6039fa\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-9e812503-db84-40c1-bc2c-c0c92c6039fa')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-9e812503-db84-40c1-bc2c-c0c92c6039fa button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-a45eec6a-7822-4f6c-9d22-94057a2e0802\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-a45eec6a-7822-4f6c-9d22-94057a2e0802')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-a45eec6a-7822-4f6c-9d22-94057a2e0802 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-38d62754-2045-4fce-bd6b-61eba017fe1b\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-38d62754-2045-4fce-bd6b-61eba017fe1b')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-38d62754-2045-4fce-bd6b-61eba017fe1b button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-cc836e0d-1e55-41eb-b832-09747aede2e9\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-cc836e0d-1e55-41eb-b832-09747aede2e9')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-cc836e0d-1e55-41eb-b832-09747aede2e9 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-e15fb83c-221e-41be-87bc-657fa2f44a0a\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-e15fb83c-221e-41be-87bc-657fa2f44a0a')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-e15fb83c-221e-41be-87bc-657fa2f44a0a button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-efe09fa0-9a7d-4976-9fdc-ce1ae8708185\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-efe09fa0-9a7d-4976-9fdc-ce1ae8708185')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-efe09fa0-9a7d-4976-9fdc-ce1ae8708185 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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'block' : 'none';\n","\n"," buttonEl.onclick = () => {\n"," google.colab.notebook.generateWithVariable('df');\n"," }\n"," })();\n"," </script>\n"," </div>\n","\n"," </div>\n"," </div>\n"],"application/vnd.google.colaboratory.intrinsic+json":{"type":"dataframe","variable\_name":"df","summary":"{\n \"name\": \"df\",\n \"rows\": 4,\n \"fields\": [\n {\n \"column\": \"W\",\n \"properties\": {\n \"dtype\": \"number\",\n \"std\": 1.3343679896761527,\n \"min\": -0.993263499973366,\n \"max\": 2.154846443259472,\n \"num\_unique\_values\": 4,\n \"samples\": [\n 1.025984152081572,\n 0.1470267713241236,\n -0.993263499973366\n ],\n \"semantic\_type\": \"\",\n \"description\": \"\"\n }\n },\n {\n \"column\": \"X\",\n \"properties\": {\n \"dtype\": \"number\",\n \"std\": 0.36063550454936577,\n \"min\": -0.6102588558227414,\n \"max\": 0.19679950499134005,\n \"num\_unique\_values\": 4,\n \"samples\": [\n -0.1565979042889875,\n -0.47944803904109595,\n 0.19679950499134005\n ],\n \"semantic\_type\": \"\",\n \"description\": \"\"\n }\n },\n {\n \"column\": \"Y\",\n \"properties\": {\n \"dtype\": \"number\",\n \"std\": 0.7549926943792649,\n \"min\": -1.1366445936091856,\n \"max\": 0.558769406443067,\n \"num\_unique\_values\": 4,\n \"samples\": [\n -0.031579143908112575,\n 0.558769406443067,\n -1.1366445936091856\n ],\n \"semantic\_type\": \"\",\n \"description\": \"\"\n }\n },\n {\n \"column\": \"Z\",\n \"properties\": {\n \"dtype\": \"number\",\n \"std\": 0.6194706650788405,\n \"min\": -0.34641850351854453,\n \"max\": 1.0248102783372157,\n \"num\_unique\_values\": 4,\n \"samples\": [\n 0.6498258334908454,\n 1.0248102783372157,\n 0.000366479605643592\n ],\n \"semantic\_type\": \"\",\n \"description\": \"\"\n }\n }\n ]\n}"}},"metadata":{},"execution\_count":49}]},{"cell\_type":"code","execution\_count":50,"id":"977d4b8e","metadata":{"colab":{"base\_uri":"https://localhost:8080/","height":81},"executionInfo":{"elapsed":158,"status":"ok","timestamp":1735328999279,"user":{"displayName":"Nakul Chamariya","userId":"14936028262101279399"},"user\_tz":-330},"id":"977d4b8e","outputId":"a2a26bd2-494b-4dd8-babf-d24ff34aa32b"},"outputs":[{"output\_type":"execute\_result","data":{"text/plain":[" W X Y Z\n","D 0.147027 -0.479448 0.558769 1.02481"],"text/html":["\n"," <div id=\"df-2d0d3648-9262-4524-a334-b929fb340ff2\" class=\"colab-df-container\">\n"," <div>\n","<style scoped>\n"," .dataframe tbody tr th:only-of-type {\n"," vertical-align: middle;\n"," }\n","\n"," .dataframe tbody tr th {\n"," vertical-align: top;\n"," }\n","\n"," .dataframe thead th {\n"," text-align: right;\n"," }\n","</style>\n","<table border=\"1\" class=\"dataframe\">\n"," <thead>\n"," <tr style=\"text-align: right;\">\n"," <th></th>\n"," <th>W</th>\n"," <th>X</th>\n"," <th>Y</th>\n"," <th>Z</th>\n"," </tr>\n"," </thead>\n"," <tbody>\n"," <tr>\n"," <th>D</th>\n"," <td>0.147027</td>\n"," <td>-0.479448</td>\n"," <td>0.558769</td>\n"," <td>1.02481</td>\n"," </tr>\n"," </tbody>\n","</table>\n","</div>\n"," <div class=\"colab-df-buttons\">\n","\n"," <div class=\"colab-df-container\">\n"," <button class=\"colab-df-convert\" onclick=\"convertToInteractive('df-2d0d3648-9262-4524-a334-b929fb340ff2')\"\n"," title=\"Convert this dataframe to an interactive table.\"\n"," style=\"display:none;\">\n","\n"," <svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\" viewBox=\"0 -960 960 960\">\n"," <path d=\"M120-120v-720h720v720H120Zm60-500h600v-160H180v160Zm220 220h160v-160H400v160Zm0 220h160v-160H400v160ZM180-400h160v-160H180v160Zm440 0h160v-160H620v160ZM180-180h160v-160H180v160Zm440 0h160v-160H620v160Z\"/>\n"," </svg>\n"," </button>\n","\n"," <style>\n"," .colab-df-container {\n"," display:flex;\n"," gap: 12px;\n"," }\n","\n"," .colab-df-convert {\n"," background-color: #E8F0FE;\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: #1967D2;\n"," height: 32px;\n"," padding: 0 0 0 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-convert:hover {\n"," background-color: #E2EBFA;\n"," box-shadow: 0px 1px 2px rgba(60, 64, 67, 0.3), 0px 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: #174EA6;\n"," }\n","\n"," .colab-df-buttons div {\n"," margin-bottom: 4px;\n"," }\n","\n"," [theme=dark] .colab-df-convert {\n"," background-color: #3B4455;\n"," fill: #D2E3FC;\n"," }\n","\n"," [theme=dark] .colab-df-convert:hover {\n"," background-color: #434B5C;\n"," box-shadow: 0px 1px 3px 1px rgba(0, 0, 0, 0.15);\n"," filter: drop-shadow(0px 1px 2px rgba(0, 0, 0, 0.3));\n"," fill: #FFFFFF;\n"," }\n"," </style>\n","\n"," <script>\n"," const buttonEl =\n"," document.querySelector('#df-2d0d3648-9262-4524-a334-b929fb340ff2 button.colab-df-convert');\n"," buttonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n"," </div>\n"," </div>\n"],"application/vnd.google.colaboratory.intrinsic+json":{"type":"dataframe","summary":"{\n \"name\": \"df[(df['W'] > 0) & (df['Y'] > 0)]\",\n \"rows\": 1,\n \"fields\": [\n {\n \"column\": \"W\",\n \"properties\": {\n \"dtype\": \"number\",\n \"std\": null,\n \"min\": 0.1470267713241236,\n \"max\": 0.1470267713241236,\n \"num\_unique\_values\": 1,\n \"samples\": [\n 0.1470267713241236\n ],\n \"semantic\_type\": \"\",\n \"description\": \"\"\n }\n },\n {\n \"column\": 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-6b6a791b-73ad-4196-9e1e-4f9b75c3212e\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-6b6a791b-73ad-4196-9e1e-4f9b75c3212e')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-6b6a791b-73ad-4196-9e1e-4f9b75c3212e button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-a50b6dbf-7866-498e-8c2d-077a77651aae\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-a50b6dbf-7866-498e-8c2d-077a77651aae')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-a50b6dbf-7866-498e-8c2d-077a77651aae button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-a2be5ef1-f043-4efa-a080-297fb82d23e5\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-a2be5ef1-f043-4efa-a080-297fb82d23e5')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-a2be5ef1-f043-4efa-a080-297fb82d23e5 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-1ee086f7-bdff-4450-9fbb-902ef0cf2971\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-1ee086f7-bdff-4450-9fbb-902ef0cf2971')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-1ee086f7-bdff-4450-9fbb-902ef0cf2971 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-2b84f581-33b0-48e3-b53f-254b2367cb85\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-2b84f581-33b0-48e3-b53f-254b2367cb85')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-2b84f581-33b0-48e3-b53f-254b2367cb85 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-26ddca3e-f99b-44a9-a1b2-9a5ae4e3aeea\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-26ddca3e-f99b-44a9-a1b2-9a5ae4e3aeea')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-26ddca3e-f99b-44a9-a1b2-9a5ae4e3aeea button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-4ea405ef-c15e-4cbc-9d52-5c0ac0c58c86\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-4ea405ef-c15e-4cbc-9d52-5c0ac0c58c86')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-4ea405ef-c15e-4cbc-9d52-5c0ac0c58c86 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-c011007d-0010-41b3-b70b-4fb01805d1fe\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-c011007d-0010-41b3-b70b-4fb01805d1fe')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-c011007d-0010-41b3-b70b-4fb01805d1fe button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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For instance let's group based off of Company. This will create a DataFrameGroupBy object:\*\*"]},{"cell\_type":"code","execution\_count":75,"id":"1d33cdb6","metadata":{"colab":{"base\_uri":"https://localhost:8080/"},"executionInfo":{"elapsed":137,"status":"ok","timestamp":1735328999283,"user":{"displayName":"Nakul Chamariya","userId":"14936028262101279399"},"user\_tz":-330},"id":"1d33cdb6","outputId":"b786c199-aa09-4894-df0e-377daa1b9a0b"},"outputs":[{"output\_type":"execute\_result","data":{"text/plain":["<pandas.core.groupby.generic.DataFrameGroupBy object at 0x7b47482a6ef0>"]},"metadata":{},"execution\_count":75}],"source":["df.groupby('Company')"]},{"cell\_type":"code","source":["df"],"metadata":{"colab":{"base\_uri":"https://localhost:8080/","height":237},"id":"Zzp1NtHKlQtl","executionInfo":{"status":"ok","timestamp":1735328999283,"user\_tz":-330,"elapsed":134,"user":{"displayName":"Nakul Chamariya","userId":"14936028262101279399"}},"outputId":"1a605ecf-b804-4b6c-92e9-bad5da66ab2a"},"id":"Zzp1NtHKlQtl","execution\_count":76,"outputs":[{"output\_type":"execute\_result","data":{"text/plain":[" Company Person Sales\n","0 GOOG Sam 200\n","1 GOOG Charlie 120\n","2 MSFT Amy 340\n","3 MSFT Vanessa 124\n","4 FB Carl 243\n","5 FB Sarah 350"],"text/html":["\n"," <div id=\"df-f8cea910-65c7-4136-b33c-b4c926de963f\" class=\"colab-df-container\">\n"," <div>\n","<style scoped>\n"," .dataframe tbody tr th:only-of-type {\n"," vertical-align: middle;\n"," }\n","\n"," .dataframe tbody tr th {\n"," vertical-align: top;\n"," }\n","\n"," .dataframe thead th {\n"," text-align: right;\n"," }\n","</style>\n","<table border=\"1\" class=\"dataframe\">\n"," <thead>\n"," <tr style=\"text-align: right;\">\n"," <th></th>\n"," <th>Company</th>\n"," <th>Person</th>\n"," <th>Sales</th>\n"," </tr>\n"," </thead>\n"," <tbody>\n"," <tr>\n"," <th>0</th>\n"," <td>GOOG</td>\n"," <td>Sam</td>\n"," <td>200</td>\n"," </tr>\n"," <tr>\n"," <th>1</th>\n"," <td>GOOG</td>\n"," <td>Charlie</td>\n"," <td>120</td>\n"," </tr>\n"," <tr>\n"," <th>2</th>\n"," <td>MSFT</td>\n"," <td>Amy</td>\n"," <td>340</td>\n"," </tr>\n"," <tr>\n"," <th>3</th>\n"," <td>MSFT</td>\n"," <td>Vanessa</td>\n"," <td>124</td>\n"," </tr>\n"," <tr>\n"," <th>4</th>\n"," <td>FB</td>\n"," <td>Carl</td>\n"," <td>243</td>\n"," </tr>\n"," <tr>\n"," <th>5</th>\n"," <td>FB</td>\n"," <td>Sarah</td>\n"," <td>350</td>\n"," </tr>\n"," </tbody>\n","</table>\n","</div>\n"," <div class=\"colab-df-buttons\">\n","\n"," <div class=\"colab-df-container\">\n"," <button class=\"colab-df-convert\" onclick=\"convertToInteractive('df-f8cea910-65c7-4136-b33c-b4c926de963f')\"\n"," title=\"Convert this dataframe to an interactive table.\"\n"," style=\"display:none;\">\n","\n"," <svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\" viewBox=\"0 -960 960 960\">\n"," <path d=\"M120-120v-720h720v720H120Zm60-500h600v-160H180v160Zm220 220h160v-160H400v160Zm0 220h160v-160H400v160ZM180-400h160v-160H180v160Zm440 0h160v-160H620v160ZM180-180h160v-160H180v160Zm440 0h160v-160H620v160Z\"/>\n"," </svg>\n"," </button>\n","\n"," <style>\n"," .colab-df-container {\n"," display:flex;\n"," gap: 12px;\n"," }\n","\n"," .colab-df-convert {\n"," background-color: #E8F0FE;\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: #1967D2;\n"," height: 32px;\n"," padding: 0 0 0 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-convert:hover {\n"," background-color: #E2EBFA;\n"," box-shadow: 0px 1px 2px rgba(60, 64, 67, 0.3), 0px 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: #174EA6;\n"," }\n","\n"," .colab-df-buttons div {\n"," margin-bottom: 4px;\n"," }\n","\n"," [theme=dark] .colab-df-convert {\n"," background-color: #3B4455;\n"," fill: #D2E3FC;\n"," }\n","\n"," [theme=dark] .colab-df-convert:hover {\n"," background-color: #434B5C;\n"," box-shadow: 0px 1px 3px 1px rgba(0, 0, 0, 0.15);\n"," filter: drop-shadow(0px 1px 2px rgba(0, 0, 0, 0.3));\n"," fill: #FFFFFF;\n"," }\n"," </style>\n","\n"," <script>\n"," const buttonEl =\n"," document.querySelector('#df-f8cea910-65c7-4136-b33c-b4c926de963f button.colab-df-convert');\n"," buttonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-cf7156f2-0bd6-47d3-b864-b6f115df80cc\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-cf7156f2-0bd6-47d3-b864-b6f115df80cc')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-cf7156f2-0bd6-47d3-b864-b6f115df80cc button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-c08b708b-fc23-4705-b968-c0003aad7371\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-c08b708b-fc23-4705-b968-c0003aad7371')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-c08b708b-fc23-4705-b968-c0003aad7371 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-f1d0f35c-0947-4c38-8331-cf3422241906\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-f1d0f35c-0947-4c38-8331-cf3422241906')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-f1d0f35c-0947-4c38-8331-cf3422241906 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-1f23a0f1-0152-4771-a3b2-18ab56f8368b\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-1f23a0f1-0152-4771-a3b2-18ab56f8368b')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-1f23a0f1-0152-4771-a3b2-18ab56f8368b button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-59510a4b-ef00-4904-9b42-654e043b529e\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-59510a4b-ef00-4904-9b42-654e043b529e')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-59510a4b-ef00-4904-9b42-654e043b529e button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-8fc0e3dd-2e4b-4524-b0d6-81dae05ee967\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-8fc0e3dd-2e4b-4524-b0d6-81dae05ee967')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-8fc0e3dd-2e4b-4524-b0d6-81dae05ee967 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-8dc7e317-5284-4093-92e6-aeb721ae945b\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-8dc7e317-5284-4093-92e6-aeb721ae945b')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-8dc7e317-5284-4093-92e6-aeb721ae945b button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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Visit the ' +\n"," '<a target=\"\_blank\" href=https://colab.research.google.com/notebooks/data\_table.ipynb>data table notebook</a>'\n"," + ' to learn more about interactive tables.';\n"," element.innerHTML = '';\n"," dataTable['output\_type'] = 'display\_data';\n"," await google.colab.output.renderOutput(dataTable, element);\n"," const docLink = document.createElement('div');\n"," docLink.innerHTML = docLinkHtml;\n"," element.appendChild(docLink);\n"," }\n"," </script>\n"," </div>\n","\n","\n","<div id=\"df-0be0805b-3927-40c0-8b9d-219ae4d0c036\">\n"," <button class=\"colab-df-quickchart\" onclick=\"quickchart('df-0be0805b-3927-40c0-8b9d-219ae4d0c036')\"\n"," title=\"Suggest charts\"\n"," style=\"display:none;\">\n","\n","<svg xmlns=\"http://www.w3.org/2000/svg\" height=\"24px\"viewBox=\"0 0 24 24\"\n"," width=\"24px\">\n"," <g>\n"," <path d=\"M19 3H5c-1.1 0-2 .9-2 2v14c0 1.1.9 2 2 2h14c1.1 0 2-.9 2-2V5c0-1.1-.9-2-2-2zM9 17H7v-7h2v7zm4 0h-2V7h2v10zm4 0h-2v-4h2v4z\"/>\n"," </g>\n","</svg>\n"," </button>\n","\n","<style>\n"," .colab-df-quickchart {\n"," --bg-color: #E8F0FE;\n"," --fill-color: #1967D2;\n"," --hover-bg-color: #E2EBFA;\n"," --hover-fill-color: #174EA6;\n"," --disabled-fill-color: #AAA;\n"," --disabled-bg-color: #DDD;\n"," }\n","\n"," [theme=dark] .colab-df-quickchart {\n"," --bg-color: #3B4455;\n"," --fill-color: #D2E3FC;\n"," --hover-bg-color: #434B5C;\n"," --hover-fill-color: #FFFFFF;\n"," --disabled-bg-color: #3B4455;\n"," --disabled-fill-color: #666;\n"," }\n","\n"," .colab-df-quickchart {\n"," background-color: var(--bg-color);\n"," border: none;\n"," border-radius: 50%;\n"," cursor: pointer;\n"," display: none;\n"," fill: var(--fill-color);\n"," height: 32px;\n"," padding: 0;\n"," width: 32px;\n"," }\n","\n"," .colab-df-quickchart:hover {\n"," background-color: var(--hover-bg-color);\n"," box-shadow: 0 1px 2px rgba(60, 64, 67, 0.3), 0 1px 3px 1px rgba(60, 64, 67, 0.15);\n"," fill: var(--button-hover-fill-color);\n"," }\n","\n"," .colab-df-quickchart-complete:disabled,\n"," .colab-df-quickchart-complete:disabled:hover {\n"," background-color: var(--disabled-bg-color);\n"," fill: var(--disabled-fill-color);\n"," box-shadow: none;\n"," }\n","\n"," .colab-df-spinner {\n"," border: 2px solid var(--fill-color);\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," animation:\n"," spin 1s steps(1) infinite;\n"," }\n","\n"," @keyframes spin {\n"," 0% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," border-left-color: var(--fill-color);\n"," }\n"," 20% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 30% {\n"," border-color: transparent;\n"," border-left-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," border-right-color: var(--fill-color);\n"," }\n"," 40% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-top-color: var(--fill-color);\n"," }\n"," 60% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," }\n"," 80% {\n"," border-color: transparent;\n"," border-right-color: var(--fill-color);\n"," border-bottom-color: var(--fill-color);\n"," }\n"," 90% {\n"," border-color: transparent;\n"," border-bottom-color: var(--fill-color);\n"," }\n"," }\n","</style>\n","\n"," <script>\n"," async function quickchart(key) {\n"," const quickchartButtonEl =\n"," document.querySelector('#' + key + ' button');\n"," quickchartButtonEl.disabled = true; // To prevent multiple clicks.\n"," quickchartButtonEl.classList.add('colab-df-spinner');\n"," try {\n"," const charts = await google.colab.kernel.invokeFunction(\n"," 'suggestCharts', [key], {});\n"," } catch (error) {\n"," console.error('Error during call to suggestCharts:', error);\n"," }\n"," quickchartButtonEl.classList.remove('colab-df-spinner');\n"," quickchartButtonEl.classList.add('colab-df-quickchart-complete');\n"," }\n"," (() => {\n"," let quickchartButtonEl =\n"," document.querySelector('#df-0be0805b-3927-40c0-8b9d-219ae4d0c036 button');\n"," quickchartButtonEl.style.display =\n"," google.colab.kernel.accessAllowed ? 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