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 "source": [
  "## 1. Split this string"
]
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 "metadata": {
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   "base_uri": "https://localhost:8080/"
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  "outputId": "ba1fc876-62eb-420b-bb98-343aef0c49c9"
 },
 "outputs": [
  {
```

{

```
"name": "stdout",
                          "output_type": "stream",
                          "text": [
                           "['Hi', 'there', 'Sam!']\n"
                          ]
                       ],
                       "source": [
                        "s = \''Hi there Sam!\"\n",
                        "print(s.split())"
                       ]
                      },
                       "cell_type": "markdown",
                       "metadata": {
                        "id": "GH1QBn8HP375"
                       },
                       "source": [
                        "## 2. Use .format() to print the following string. \n",
                         "\n",
                         "### Output should be: The diameter of Earth is 12742
kilometers."
                       ]
```

```
},
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 "execution_count": null,
 "metadata": {
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   "base_uri": "https://localhost:8080/"
  },
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 },
 "outputs": [
   "name": "stdout",
   "output_type": "stream",
   "text": [
    "The diameter of the Earth is 12742 kilometers\n"
   ]
],
 "source": [
  "planet = \TEarth\T",
  "diameter = 12742 \n",
```

```
"print(\"The diameter of the \{\} is \{\} kilometers\".
format(planet,diameter))"
                       ]
                      },
                       "cell_type": "code",
                       "execution_count": null,
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                       },
                       "outputs": [],
                       "source": []
                      },
                       "cell_type": "markdown",
                       "metadata": {
                        "id": "KE74ZEwkRExZ"
                       },
                       "source": [
                        "## 3. In this nest dictionary grab the word \"hello\""
                       ]
                      },
```

```
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                        },
                       "outputs": [
                         {
                          "name": "stdout",
                          "output_type": "stream",
                          "text": [
                           "hello\n"
                          ]
                         }
                       ],
                       "source": [
                         d = 
{'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}\n",
                         "print(d['k1'][3]['tricky'][3]['target'][3])"
                       ]
```

```
},
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 "execution_count": null,
 "metadata": {
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 },
 "outputs": [],
 "source": []
},
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 "metadata": {
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 },
 "source": [
  "# Numpy"
]
},
 "cell_type": "code",
 "execution_count": null,
 "metadata": {
```

```
"id": "LLiE_TYrhA1O"
 },
 "outputs": [],
 "source": [
  "import numpy as np"
 ]
},
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 "metadata": {
  "id": "wOg8hinbgx30"
 },
 "source": [
  "## 4.1 Create an array of 10 zeros? \n",
  "## 4.2 Create an array of 10 fives?"
 ]
},
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 "execution_count": null,
 "metadata": {
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```

```
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  "outputId": "14f972dd-4892-4383-a403-ebc334209103"
 },
 "outputs": [
   "name": "stdout",
   "output_type": "stream",
   "text": [
    "An array of 10 zeros:\n",
    "[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]\n"
 ],
 "source": [
  "import numpy as np\n",
  "array=np.zeros(10)\n",
  "print(\"An array of 10 zeros:\")\n",
  "print(array)"
 ]
},
 "cell_type": "code",
```

```
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 },
 "id": "e4005lsTYXxx",
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},
"outputs": [
  "name": "stdout",
  "output_type": "stream",
  "text": [
   "An array of 10 fives:\n",
   "[5. 5. 5. 5. 5. 5. 5. 5. 5. 5.]\n"
  ]
 }
],
"source": [
 "import numpy as np\n",
 "array=np.ones(10)*5\n",
 "print(\"An array of 10 fives:\")\n",
 "print(array)"
```

```
1
                     },
                      "cell_type": "markdown",
                      "metadata": {
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                      },
                      "source": [
                       "## 5. Create an array of all the even integers from 20 to
35"
                      ]
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                      "execution_count": null,
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                      },
                      "outputs": [
```

```
"name": "stdout",
   "output_type": "stream",
   "text": [
    "Array of all the even integers from 20 to 35\n",
    "[20 22 24 26 28 30 32 34]\n"
   ]
],
 "source": [
  "import numpy as np\n",
  "array=np.arange(20,35,2)\n",
  "print(\"Array of all the even integers from 20 to 35\")\n",
  "print(array) "
},
 "cell_type": "markdown",
 "metadata": {
  "id": "NaOM308NsRpZ"
 },
 "source": [
```

```
]
},
 "cell_type": "code",
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  "outputId": "640f8269-32e9-48d1-a169-f2e2f6e46d0e"
 },
 "outputs": [
   "data": {
    "text/plain": [
      "array([[0, 1, 2],\n",
           [3, 4, 5], n'',
           [6, 7, 8]])"
    ]
   },
```

```
"execution_count": 5,
   "metadata": {},
   "output_type": "execute_result"
],
 "source": [
  "import numpy as np\n",
  "np.arange(0,9).reshape((3,3))"
 ]
},
 "cell_type": "markdown",
 "metadata": {
  "id": "hQ0dnhAQuU_p"
 },
 "source": [
  "## 7. Concatenate a and b \n",
  "## a = np.array([1, 2, 3]), b = np.array([4, 5, 6])"
 ]
},
 "cell_type": "code",
 "execution_count": null,
```

```
"metadata": {
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},
"outputs": [
  "name": "stdout",
  "output_type": "stream",
  "text": [
   "[1 2 3 4 5 6]\n"
  ]
],
"source": [
 "import numpy as np\n",
 "a = np.array([1,2,3]) \ n",
 "b= np.array([4,5,6])\n",
 "c = np.concatenate((a,b),axis = None)\n",
 "print(c)"
]
```

```
},
 "cell_type": "markdown",
 "metadata": {
  "id": "dlPEY9DRwZga"
 },
 "source": [
  "# Pandas"
 1
},
 "cell_type": "markdown",
 "metadata": {
  "id": "ijoYW51zwr87"
 },
 "source": [
  "## 8. Create a dataframe with 3 rows and 2 columns"
]
},
 "cell_type": "code",
 "execution_count": null,
 "metadata": {
```

```
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                        {
                         "data": {
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                            "\n",
                            " <div id=\"df-8943a84f-fedf-4c9e-a747-
6e00d4b26e02\">\n",
                               <div 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 thody tr th \{n'',
                                  vertical-align: top;\n",
```

```
" }\n",
"\n",
   .dataframe thead th \{\n'',
     text-align: right;\n",
  }\n",
"</style>\n",
"\n",
" <thead>\n",
   \n",
    <th></th>\n",
    <th>>Name</th>>\n",
    <th>Age</th>\setminusn",
  \n",
" </thead>\n",
" <tbody>\n",
  \langle tr \rangle n'',
    <th>0</th>n",
    <td><ri</td>\setminusn",
    <\!\!td\!\!>\!\!10\!<\!\!/td\!\!>\!\!\backslash n",
   \n",
   \langle tr \rangle \langle n'',
    <th>1\n",
    <td>maha\n",
```

```
 15  n''
                             \n",
                             \langle tr \rangle n''
                               2  n''
                               priya  n"
                               14  n'',
                          " \n",
                          " \n",
                          "\n",
                          "</div>\n",
                              <button class=\"colab-df-convert\"</pre>
onclick = \"convertToInteractive('df-8943a84f-fedf-4c9e-a747-6e00d4b26e02') \"\",
                                   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 0 24 24\"\n",
                               width=\"24px\">\n",
                             <path d=\"M0 0h24v24H0V0z\" fill=\"none\"/>\n",
                             <path d=\"M18.56 5.441.94 2.06.94-2.06 2.06-.94-</pre>
2.06-.94-.94-2.06-.94 2.06-2.06.94zm-11 1L8.5 8.51.94-2.06 2.06-.94-2.06-.94L8.5
2.51-.94 2.06-2.06.94zm10 101.94 2.06.94-2.06 2.06-.94-2.06-.94-2.06-.94
2.06-2.06.94z\"/><path d=\"M17.41 7.96l-1.37-1.37c-.4-.4-.92-.59-1.43-.59-.52 0-
1.04.2-1.43.59L10.3 9.451-7.72 7.72c-.78.78-.78 2.05 0 2.83L4 21.41c.39.39.9.59
```

 $1.41.59.51\ 0\ 1.02-.2\ 1.41-.5917.78-7.78\ 2.81-2.81c.8-.78.8-2.07\ 0-2.86zM5.41\ 20L4\ 18.5917.72-7.72\ 1.47\ 1.35L5.41\ 20z\''/>\n'',$

```
" </svg>\n",
    </button>\n",
    n'',
" \langle style \rangle \backslash n",
   .colab-df-container {\n",
    display:flex;\n",
    flex-wrap:wrap;\n",
    gap: 12px;\n",
   n''
"\n",
   .colab-df-convert {\n",
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"
    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",
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                                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",
                               [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.guerySelector('#df-8943a84f-fedf-
4c9e-a747-6e00d4b26e02 button.colab-df-convert');\n",
                                 buttonEl.style.display =\n",
                                   google.colab.kernel.accessAllowed? 'block':
'none';\n",
                            "\n",
                                  async function convertToInteractive(key) {\n",
                                   const element = document.querySelector('#df-
8943a84f-fedf-4c9e-a747-6e00d4b26e02');\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'',
                          " </div>\n",
                          " "
                         ],
                         "text/plain": [
                             Name Age\n",
                          "0 sri 10\n",
                          "1 maha 15\n",
                          "2 priya 14"
                         ]
                        },
                        "execution_count": 3,
                        "metadata": {},
                        "output_type": "execute_result"
                       }
```

```
],
 "source": [
  "import pandas as pd\n",
  "data = [['sri', 10], ['maha', 15], ['priya', 14]]\n",
  "df = pd.DataFrame(data, columns = ['Name', 'Age']) \n",
  df n''
]
},
 "cell_type": "code",
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 "metadata": {
  "id": "xNpI_XXoYhs0"
 },
 "outputs": [],
 "source": []
},
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 "metadata": {
  "id": "UXSmdNclyJQD"
 },
 "source": [
```

10th Feb, 2023"

```
]
},
 "cell_type": "code",
 "execution_count": null,
 "metadata": {
  "colab": {
   "base_uri": "https://localhost:8080/"
  },
  "id": "dgyC0JhVYl4F",
  "outputId": "ca0a6d0d-403e-4153-f1de-e3cc615bfca9"
 },
 "outputs": [
   "name": "stdout",
   "output_type": "stream",
   "text": [
    "2023-01-01 00:00:00\n",
    "2023-01-02 00:00:00\n",
    "2023-01-03 00:00:00\n",
    "2023-01-04 00:00:00\n",
```

```
"2023-01-05 00:00:00\n",
```

"2023-01-11 00:00:00
$$\n"$$
,

```
"2023-01-28 00:00:00\n",
                          "2023-01-29 00:00:00\n",
                          "2023-01-30 00:00:00\n",
                          "2023-01-31 00:00:00\n",
                          "2023-02-01 00:00:00\n",
                          "2023-02-02 00:00:00\n",
                          "2023-02-03 00:00:00\n",
                          "2023-02-04 00:00:00\n",
                          "2023-02-05 00:00:00\n",
                          "2023-02-06 00:00:00\n",
                          "2023-02-07 00:00:00\n",
                          "2023-02-08 00:00:00\n",
                          "2023-02-09 00:00:00\n",
                          "2023-02-10 00:00:00\n"
                      ],
                      "source": [
                       "import pandas as pd\n",
                       "abc = pd.date_range(start = '01-01-2023',end='02-10-
2023', freq ='24H')\n",
                       "for val in abc:\n",
                          print(val)"
```

```
]
},
 "cell_type": "markdown",
 "metadata": {
  "id": "ZizSetD-y5az"
 },
 "source": [
  "## 10. Create 2D list to DataFrame\n",
  "\n",
  "lists = [[1, 'aaa', 22],\n",
         [2, 'bbb', 25],\n",
        [3, 'ccc', 24]]"
]
},
 "cell_type": "code",
 "execution_count": null,
 "metadata": {
  "id": "_XMC8aEt0llB"
 },
 "outputs": [],
 "source": [
```

```
"lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]"
                       ]
                      },
                       "cell_type": "code",
                       "execution_count": null,
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                          "height": 143
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                        "outputId": "138d513e-7027-4aea-dac6-15048166ea3b"
                       },
                       "outputs": [
                        {
                          "data": {
                           "text/html": [
                            "\n",
                            " <div id=\"df-3d43efd4-b6f5-46f3-b2f9-
258855078c05\">\n",
                               <div class=\"colab-df-container\">\n",
                                 < div > \n'',
```

```
"<style scoped>\n",
  .dataframe thody tr th:only-of-type \{\n'',
    vertical-align: middle;\n",
" }\n",
"\n",
  .dataframe thody tr th \{n'',
    vertical-align: top;\n",
" \} \setminus n",
"\n",
  .dataframe thead th \{\n'',
    text-align: right;\n",
" }\n",
"</style>\n",
"\n",
" <thead>\n",
  \n",
"
   <th></th>\n'',
   <th><th><\n",
   <th>name\n",
   <th>age\n",
" \n",
" </thead>\n",
" <tbody>\n",
```

```
" \n",
```

"
$$<$$
th> 0 \n ",

"
$$1 \n$$
",

"
$$aa \n$$
",

"
$$22 \n$$
",

"
$$<$$
tr $>$ \n",

"
$$<$$
th>1\n",

"
$$2 \n$$
",

"
$$bbb \n$$
",

"
$$25 \n$$
",

"
$$2 \n$$
",

"
$$3 \n$$
",

"
$$ccc \n$$
",

"
$$24 \n$$
",

"
$$\n$$
",

$$"\n"$$
,

$$"\n",$$

" title=\"Convert this dataframe to an interactive table.\"\n",

" style=\"display:none;\">\n",

" \n",

" width=\"24px\">\n",

" <path d=\"M0 0h24v24H0V0z\" fill=\"none\"/>\n",

" <path d=\"M18.56 5.441.94 2.06.94-2.06 2.06-.94-2.06-.94-2.06-.94-2.06-.94-2.06-.94-2.06-.94 2.06-2.06.94zm-11 1L8.5 8.51.94-2.06 2.06-.94-2.06-.94L8.5 2.51-.94 2.06-2.06.94zm10 101.94 2.06.94-2.06 2.06-.94-2.06-.94-.94-2.06-.94 2.06-2.06.94z\"/><path d=\"M17.41 7.96l-1.37-1.37c-.4-.4-.92-.59-1.43-.59-.52 0-1.04.2-1.43.59L10.3 9.45l-7.72 7.72c-.78.78-.78 2.05 0 2.83L4 21.41c.39.39.9.59 1.41.59.51 0 1.02-.2 1.41-.59l7.78-7.78 2.81-2.81c.8-.78.8-2.07 0-2.86zM5.41 20L4 18.59l7.72-7.72 1.47 1.35L5.41 20z\"/>\n",

- " </svg>\n",
- " </button>\n",
- "\n",
- " <style>\n",
- " .colab-df-container {\n",
- " display:flex;\n",
- " flex-wrap:wrap;\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",
                           " [theme=dark] .colab-df-convert {\n",
```

gap: 12px;\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-3d43efd4-b6f5-
46f3-b2f9-258855078c05 button.colab-df-convert');\n",
                                 buttonEl.style.display =\n'',
                                   google.colab.kernel.accessAllowed? 'block':
'none';\n",
                           "\n",
                                 async function convertToInteractive(key) {\n",
```

background-color: #3B4455;\n",

```
const element = document.querySelector('#df-
3d43efd4-b6f5-46f3-b2f9-258855078c05');\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".
```

```
" "
                           ],
                           "text/plain": [
                            " sl.no name age\n",
                                  1 aaa 22\n",
                            "0
                                  2 bbb 25\n",
                            "1
                            "2
                                  3 ccc 24"
                           ]
                          },
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                        "import pandas as pd\n",
                        "lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]\n",
                        "df = pd.DataFrame(lists, columns=['sl.no',
'name', 'age'])\n",
                        "df"
                       ]
```

" $</div>\n$ ",

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