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"name": "python"

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"source": [

"# Basic Python"

],

"metadata": {

"id": "McSxJAwcOdZ1"

}

},

{

"cell\_type": "markdown",

"source": [

"## 1. Split this string"

],

"metadata": {

"id": "CU48hgo4Owz5"

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"cell\_type": "code",

"source": [

"s = \"Hi there Sam!\""

],

"metadata": {

"id": "s07c7JK7Oqt-"

},

"execution\_count": 1,

"outputs": []

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{

"cell\_type": "code",

"source": [

"x = s.split()\n",

"\n",

"print(x)"

],

"metadata": {

"id": "6mGVa3SQYLkb",

"colab": {

"base\_uri": "https://localhost:8080/"

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"outputId": "d6a038ab-6b07-4fce-dd64-c332d3fb3b5d"

},

"execution\_count": 2,

"outputs": [

{

"output\_type": "stream",

"name": "stdout",

"text": [

"['Hi', 'there', 'Sam!']\n"

]

}

]

},

{

"cell\_type": "markdown",

"source": [

"## 2. Use .format() to print the following string. \n",

"\n",

"### Output should be: The diameter of Earth is 12742 kilometers."

],

"metadata": {

"id": "GH1QBn8HP375"

}

},

{

"cell\_type": "code",

"source": [

"planet = \"Earth\"\n",

"diameter = 12742"

],

"metadata": {

"id": "\_ZHoml3kPqic"

},

"execution\_count": null,

"outputs": []

},

{

"cell\_type": "code",

"source": [

"print(\"The diameter of {planet} is {diameter} kilometers.\".format(planet=\"Earth\",diameter=12742))"

],

"metadata": {

"id": "HyRyJv6CYPb4",

"colab": {

"base\_uri": "https://localhost:8080/"

},

"outputId": "f712157f-fe9b-46d8-94b5-1be0d18b00ba"

},

"execution\_count": 6,

"outputs": [

{

"output\_type": "stream",

"name": "stdout",

"text": [

"The diameter of Earth is 12742 kilometers.\n"

]

}

]

},

{

"cell\_type": "markdown",

"source": [

"## 3. In this nest dictionary grab the word \"hello\""

],

"metadata": {

"id": "KE74ZEwkRExZ"

}

},

{

"cell\_type": "code",

"source": [

"d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}\n",

"d['k1'][3]['tricky'][3]['target'][3]"

],

"metadata": {

"id": "fcVwbCc1QrQI",

"colab": {

"base\_uri": "https://localhost:8080/",

"height": 35

},

"outputId": "2f177b00-46c4-4348-891a-c61e603bfec4"

},

"execution\_count": 8,

"outputs": [

{

"output\_type": "execute\_result",

"data": {

"text/plain": [

"'hello'"

],

"application/vnd.google.colaboratory.intrinsic+json": {

"type": "string"

}

},

"metadata": {},

"execution\_count": 8

}

]

},

{

"cell\_type": "markdown",

"source": [

"# Numpy"

],

"metadata": {

"id": "bw0vVp-9ddjv"

}

},

{

"cell\_type": "code",

"source": [

"import numpy as np"

],

"metadata": {

"id": "LLiE\_TYrhA1O"

},

"execution\_count": null,

"outputs": []

},

{

"cell\_type": "markdown",

"source": [

"## 4.1 Create an array of 10 zeros? \n",

"## 4.2 Create an array of 10 fives?"

],

"metadata": {

"id": "wOg8hinbgx30"

}

},

{

"cell\_type": "code",

"source": [

"import numpy as np\n",

"np.zeros(10)"

],

"metadata": {

"id": "NHrirmgCYXvU",

"colab": {

"base\_uri": "https://localhost:8080/"

},

"outputId": "45b49383-d7c4-4ca5-eb21-50a2c553e64c"

},

"execution\_count": 10,

"outputs": [

{

"output\_type": "execute\_result",

"data": {

"text/plain": [

"array([0., 0., 0., 0., 0., 0., 0., 0., 0., 0.])"

]

},

"metadata": {},

"execution\_count": 10

}

]

},

{

"cell\_type": "code",

"source": [

"import numpy as np\n",

"np.ones(10) \* 5"

],

"metadata": {

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"colab": {

"base\_uri": "https://localhost:8080/"

},

"outputId": "a4d484af-11f7-453a-a07d-0632eb4f8088"

},

"execution\_count": 11,

"outputs": [

{

"output\_type": "execute\_result",

"data": {

"text/plain": [

"array([5., 5., 5., 5., 5., 5., 5., 5., 5., 5.])"

]

},

"metadata": {},

"execution\_count": 11

}

]

},

{

"cell\_type": "markdown",

"source": [

"## 5. Create an array of all the even integers from 20 to 35"

],

"metadata": {

"id": "gZHHDUBvrMX4"

}

},

{

"cell\_type": "code",

"source": [

"import numpy as np\n",

"print(np.arange(20,35,2))"

],

"metadata": {

"id": "oAI2tbU2Yag-",

"colab": {

"base\_uri": "https://localhost:8080/"

},

"outputId": "9cad3feb-1012-4568-cbaf-2b7bfe5f4f67"

},

"execution\_count": 13,

"outputs": [

{

"output\_type": "stream",

"name": "stdout",

"text": [

"[20 22 24 26 28 30 32 34]\n"

]

}

]

},

{

"cell\_type": "markdown",

"source": [

"## 6. Create a 3x3 matrix with values ranging from 0 to 8"

],

"metadata": {

"id": "NaOM308NsRpZ"

}

},

{

"cell\_type": "code",

"source": [

"import numpy as np\n",

"np.arange(0,9).reshape((3,3))"

],

"metadata": {

"id": "tOlEVH7BYceE",

"colab": {

"base\_uri": "https://localhost:8080/"

},

"outputId": "a4a8dca9-6925-46c4-9411-7c0fed043e8e"

},

"execution\_count": 14,

"outputs": [

{

"output\_type": "execute\_result",

"data": {

"text/plain": [

"array([[0, 1, 2],\n",

" [3, 4, 5],\n",

" [6, 7, 8]])"

]

},

"metadata": {},

"execution\_count": 14

}

]

},

{

"cell\_type": "markdown",

"source": [

"## 7. Concatenate a and b \n",

"## a = np.array([1, 2, 3]), b = np.array([4, 5, 6])"

],

"metadata": {

"id": "hQ0dnhAQuU\_p"

}

},

{

"cell\_type": "code",

"source": [

"import numpy as np\n",

"a = np.array([1, 2, 3])\n",

"b = np.array([4, 5, 6])\n",

"np.concatenate((a, b), axis=None)"

],

"metadata": {

"id": "rAPSw97aYfE0",

"colab": {

"base\_uri": "https://localhost:8080/"

},

"outputId": "ff62527b-ae69-49b6-fd30-b9b7c8e35403"

},

"execution\_count": 16,

"outputs": [

{

"output\_type": "execute\_result",

"data": {

"text/plain": [

"array([1, 2, 3, 4, 5, 6])"

]

},

"metadata": {},

"execution\_count": 16

}

]

},

{

"cell\_type": "markdown",

"source": [

"# Pandas"

],

"metadata": {

"id": "dlPEY9DRwZga"

}

},

{

"cell\_type": "markdown",

"source": [

"## 8. Create a dataframe with 3 rows and 2 columns"

],

"metadata": {

"id": "ijoYW51zwr87"

}

},

{

"cell\_type": "code",

"source": [

"import pandas as pd\n"

],

"metadata": {

"id": "T5OxJRZ8uvR7"

},

"execution\_count": null,

"outputs": []

},

{

"cell\_type": "code",

"source": [

"import pandas as pd\n",

"pd.DataFrame(index=np.arange(3), columns=np.arange(2))\n",

"\n"

],

"metadata": {

"id": "xNpI\_XXoYhs0",

"colab": {

"base\_uri": "https://localhost:8080/",

"height": 143

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"outputId": "b35ad381-1b37-4d7c-a9b4-149a226c446c"

},

"execution\_count": 17,

"outputs": [

{

"output\_type": "execute\_result",

"data": {

"text/plain": [

" 0 1\n",

"0 NaN NaN\n",

"1 NaN NaN\n",

"2 NaN NaN"

],

"text/html": [

"\n",

" <div id=\"df-ee70e431-d84b-4fef-837b-1efd170613de\">\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 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>0</th>\n",

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

" </tr>\n",

" </thead>\n",

" <tbody>\n",

" <tr>\n",

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

" <td>NaN</td>\n",

" <td>NaN</td>\n",

" </tr>\n",

" <tr>\n",

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

" <td>NaN</td>\n",

" <td>NaN</td>\n",

" </tr>\n",

" <tr>\n",

" <th>2</th>\n",

" <td>NaN</td>\n",

" <td>NaN</td>\n",

" </tr>\n",

" </tbody>\n",

"</table>\n",

"</div>\n",

" <button class=\"colab-df-convert\" onclick=\"convertToInteractive('df-ee70e431-d84b-4fef-837b-1efd170613de')\"\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 0 24 24\"\n",

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

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

" <path d=\"M18.56 5.44l.94 2.06.94-2.06 2.06-.94-2.06-.94-.94-2.06-.94 2.06-2.06.94zm-11 1L8.5 8.5l.94-2.06 2.06-.94-2.06-.94L8.5 2.5l-.94 2.06-2.06.94zm10 10l.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",

" 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",

" [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-ee70e431-d84b-4fef-837b-1efd170613de 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-ee70e431-d84b-4fef-837b-1efd170613de');\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",

" "

]

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"metadata": {},

"execution\_count": 17

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]

},

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"source": [

"## 9. Generate the series of dates from 1st Jan, 2023 to 10th Feb, 2023"

],

"metadata": {

"id": "UXSmdNclyJQD"

}

},

{

"cell\_type": "code",

"source": [

"from datetime import date, timedelta\n",

"\n",

"sdate = date(2023,1,1) \n",

"edate = date(2023,2,10) \n",

"\n",

"def dates\_bwn\_twodates(start\_date, end\_date):\n",

" for n in range(int ((end\_date - start\_date).days)):\n",

" yield start\_date + timedelta(n)\n",

"print(dates\_bwn\_twodates(sdate,edate))"

],

"metadata": {

"id": "dgyC0JhVYl4F",

"colab": {

"base\_uri": "https://localhost:8080/"

},

"outputId": "772903bd-cd5d-4080-a084-151bdc9bfafb"

},

"execution\_count": 19,

"outputs": [

{

"output\_type": "stream",

"name": "stdout",

"text": [

"<generator object dates\_bwn\_twodates at 0x7f730f9fedd0>\n"

]

}

]

},

{

"cell\_type": "markdown",

"source": [

"## 10. Create 2D list to DataFrame\n",

"\n",

"lists = [[1, 'aaa', 22],\n",

" [2, 'bbb', 25],\n",

" [3, 'ccc', 24]]"

],

"metadata": {

"id": "ZizSetD-y5az"

}

},

{

"cell\_type": "code",

"source": [

"lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]"

],

"metadata": {

"id": "\_XMC8aEt0llB"

},

"execution\_count": null,

"outputs": []

},

{

"cell\_type": "code",

"source": [

"\n",

"import pandas as pd \n",

"\n",

"lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]\n",

"\n",

"df = pd.DataFrame(lists, columns =['sno','name' ,'number']) \n",

"print(df )"

],

"metadata": {

"id": "knH76sDKYsVX",

"colab": {

"base\_uri": "https://localhost:8080/"

},

"outputId": "dd0dc288-79da-4f73-de4a-1056dda7c489"

},

"execution\_count": 21,

"outputs": [

{

"output\_type": "stream",

"name": "stdout",

"text": [

" sno name number\n",

"0 1 aaa 22\n",

"1 2 bbb 25\n",

"2 3 ccc 24\n"

]

}

]

}

]

}