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```

```
      },
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          "data": {
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              "'Hi there Sam!'"
            ],
            "application/vnd.google.colaboratory.intrinsic+json": {
              "type": "string"
            }
          },
          "metadata": {},
          "execution_count": 2
        }
      ]
    },
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        "## 2. Use .format() to print the following string. \n",
        "\n",
        "### Output should be: The diameter of Earth is 12742
kilometers."
      ],
      "metadata": {
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      }
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    {
      "cell_type": "code",
      "source": [
        "planet = \"Earth\"\n",
        "diameter = 12742"
      ],
      "metadata": {
        "id": "_ZHoml3kPqic"
      },
      "execution_count": 3,
      "outputs": []
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      "cell_type": "code",
      "source": [
        "print(\"The diameter of {} is {}
kilometer\".format(planet,diameter\n",
        "                                                    ))"
      ],
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```
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            "The diameter of Earth is 12742 kilometer\n"
          ]
        }
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      "source": [
        "## 3. In this nest dictionary grab the word \"hello\""
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        "id": "KE74ZEwkRExZ"
      }
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      "source": [
        "d =
{'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}
]}]}"
      ],
      "metadata": {
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      },
      "execution_count": 6,
      "outputs": []
    },
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      "cell_type": "code",
      "source": [
        "d['k1'][3]['tricky'][3]['target'][3]"
      ],
      "metadata": {
        "id": "MvbkMZpXYRaw",
        "colab": {
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          "height": 35
        },
        "outputId": "562192a8-ea84-44f7-c7ad-6bd08e511512"
      },
      "execution_count": 9,
      "outputs": [
        {
          "output_type": "execute_result",
          "data": {
            "text/plain": [
              "'hello'"
            ],
            "application/vnd.google.colaboratory.intrinsic+json": {
              "type": "string"
            }
          },
          "metadata": {},
          "execution_count": 9
```

```
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    "import numpy as np"
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  "metadata": {
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  "execution_count": 10,
  "outputs": []
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    "## 4.2 Create an array of 10 fives?"
  ],
  "metadata": {
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  }
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{
  "cell_type": "code",
  "source": [
    "a=np.zeros(10)\n",
    "a"
  ],
  "metadata": {
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  },
  "execution_count": 12,
  "outputs": [
    {
      "output_type": "execute_result",
      "data": {
        "text/plain": [
          "array([0., 0., 0., 0., 0., 0., 0., 0., 0., 0.])"
        ]
      },
      "metadata": {},
      "execution_count": 12
    }
```

```
  ]
},
{
  "cell_type": "code",
  "source": [
    "b=np.ones(10)*5\n",
    "b"
  ],
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    },
    "outputId": "0131e0ec-100a-42f5-9867-ad4aab2013ec"
  },
  "execution_count": 13,
  "outputs": [
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      "output_type": "execute_result",
      "data": {
        "text/plain": [
          "array([5., 5., 5., 5., 5., 5., 5., 5., 5., 5.])"
        ]
      },
      "metadata": {},
      "execution_count": 13
    }
  ]
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{
  "cell_type": "markdown",
  "source": [
    "## 5. Create an array of all the even integers from 20 to 35"
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  "metadata": {
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  }
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{
  "cell_type": "code",
  "source": [
    "s=np.arange(20,50,2)\n",
    "s"
  ],
  "metadata": {
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    "colab": {
      "base_uri": "https://localhost:8080/"
    },
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  },
  "execution_count": 15,
  "outputs": [
    {
      "output_type": "execute_result",
      "data": {
        "text/plain": [
```

```
              "array([20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44,
46, 48])"
            ]
          },
          "metadata": {},
          "execution_count": 15
        }
      ]
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      }
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        "b=np.arange(0,9).reshape(3,3)\n",
        "b"
      ],
      "metadata": {
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        "colab": {
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        "outputId": "60c7326a-9633-4425-bb39-c062e828d15d"
      },
      "execution_count": 17,
      "outputs": [
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          "output_type": "execute_result",
          "data": {
            "text/plain": [
              "array([[0, 1, 2],\n",
              "       [3, 4, 5],\n",
              "       [6, 7, 8]])"
            ]
          },
          "metadata": {},
          "execution_count": 17
        }
      ]
    },
    {
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      "source": [
        "## 7. Concatenate a and b \n",
        "## a = np.array([1, 2, 3]), b = np.array([4, 5, 6])"
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      "metadata": {
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    {
```

```
  "cell_type": "code",
  "source": [
    "a=np.array([1,2,3])\n",
    "b=np.array([4,5,6])\n",
    "np.concatenate((a,b))"
  ],
  "metadata": {
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  },
  "execution_count": 18,
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      "output_type": "execute_result",
      "data": {
        "text/plain": [
          "array([1, 2, 3, 4, 5, 6])"
        ]
      },
      "metadata": {},
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  ],
  "metadata": {
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    "## 8. Create a dataframe with 3 rows and 2 columns"
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  "metadata": {
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    "import pandas as pd\n"
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  "metadata": {
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{\"names\":[\"aaa\",\"bbb\",\"ccc\",],\"age\":[21,22,20]}\n",
        "df = pd.DataFrame(d)\n",
        "df"
      ],
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          "output_type": "execute_result",
          "data": {
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              "  names  age\n",
              "0   aaa   21\n",
              "1   bbb   22\n",
              "2   ccc   20"
            ],
            "text/html": [
              "\n",
              "  <div id=\"df-b5679877-3840-42e3-9a1b-a99a23e039fd\">\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>names</th>\n",
              "      <th>age</th>\n",
              "    </tr>\n",
              "  </thead>\n",
              "  <tbody>\n",
              "    <tr>\n",
              "      <th>0</th>\n",
              "      <td>aaa</td>\n",
              "      <td>21</td>\n",
              "    </tr>\n",
              "    <tr>\n",
```

```
              "      <th>1</th>\n",
              "      <td>bbb</td>\n",
              "      <td>22</td>\n",
              "    </tr>\n",
              "    <tr>\n",
              "      <th>2</th>\n",
              "      <td>ccc</td>\n",
              "      <td>20</td>\n",
              "    </tr>\n",
              "  </tbody>\n",
              "</table>\n",
              "</div>\n",
              "      <button class=\"colab-df-convert\"
onclick=\"convertToInteractive('df-b5679877-3840-42e3-9a1b-
a99a23e039fd')\"\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",
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              "      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-b5679877-3840-42e3-
9a1b-a99a23e039fd 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-
b5679877-3840-42e3-9a1b-a99a23e039fd');\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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          "execution_count": 24
```

```
        }
      ]
    },
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        "## 9. Generate the series of dates from 1st Jan, 2023 to 10th
Feb, 2023"
      ],
      "metadata": {
        "id": "UXSmdNclyJQD"
      }
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      "cell_type": "code",
      "source": [
        "m= pd.date_range(start='1-01-2023',end='10-02-2023')\n",
        "for i in m:\n",
        "  print(i)"
      ],
      "metadata": {
        "id": "dgyC0JhVYl4F",
        "colab": {
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        "outputId": "148bfe6d-e4ea-4796-fa1e-79ad4b21f7d9"
      },
      "execution_count": 25,
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          "name": "stdout",
          "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",
            "2023-01-06 00:00:00\n",
            "2023-01-07 00:00:00\n",
            "2023-01-08 00:00:00\n",
            "2023-01-09 00:00:00\n",
            "2023-01-10 00:00:00\n",
            "2023-01-11 00:00:00\n",
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            "2023-01-22 00:00:00\n",
            "2023-01-23 00:00:00\n",
            "2023-01-24 00:00:00\n",
            "2023-01-25 00:00:00\n",
```

```
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"2023-01-27 00:00:00\n",
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  "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"
  }
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  "cell_type": "code",
  "source": [
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  ],
  "metadata": {
    "id": "_XMC8aEt0llB"
  },
  "execution_count": 23,
  "outputs": []
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{
  "cell_type": "code",
  "source": [
    "print(pd.DataFrame(lists))"
  ],
  "metadata": {
    "id": "knH76sDKYsVX",
    "colab": {
      "base_uri": "https://localhost:8080/"
    },
    "outputId": "b7cf97e6-eaa3-4390-ec48-29f2d6aa92b7"
  },
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      "execution_count": 28,
      "outputs": [
        {
          "output_type": "stream",
          "name": "stdout",
          "text": [
            "   0    1   2\n",
            "0  1  aaa  22\n",
            "1  2  bbb  25\n",
            "2  3  ccc  24\n"
          ]
        }
      ]
    }
  ]
}
```