

MAHA BARATHI ENGINEERING COLLEGE  
ASSIGNMENT-1 SOLUTION  
NAME OF THE STUDENT:S.SOBANBABU  
REGISTER NUMBER:621419104033  
YEAR/DEPARTMENT:IV-CSE

```
{
  "nbformat": 4,
  "nbformat_minor": 0,
  "metadata": {
    "colab": {
      "provenance": [],
      "collapsed_sections": []
    },
    "kernelspec": {
      "name": "python3",
      "display_name": "Python 3"
    },
    "language_info": {
      "name": "python"
    }
  },
  "cells": [
    {
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      "source": [
        "# Basic Python"
      ],
      "metadata": {
        "id": "McSxJAwcOdZ1"
      }
    },
    {
      "cell_type": "markdown",
      "source": [
        "## 1. Split this string"
      ],
      "metadata": {
        "id": "CU48hgo4Owz5"
      }
    },
    {
      "cell_type": "code",
      "source": [
        "s = \"Hi there Sam!\""
      ],
      "metadata": {
        "id": "s07c7JK7Oqt-"
      },
      "execution_count": 1,
      "outputs": []
    },
    {
      "cell_type": "code",
```

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"source": [
  "txt = \"Hi there Sam!\"\n",
  "\n",
  "x = txt.split()\\n",
  "\n",
  "print(x)"
],
"metadata": {
  "id": "6mGVa3SQYLkb",
  "colab": {
    "base_uri": "https://localhost:8080/"
  },
  "outputId": "826edc4f-3e69-41e8-bffc-c94dbbf01d67"
},
"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": 3,
  "outputs": []
},
{
  "cell_type": "code",
  "source": [
    "txt = \"The diameter of Earth {diameter:} is kilometers\"\n",
    "print(txt.format(diameter = 12742))\\n"
  ]
}

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],
"metadata": {
  "id": "HyRyJv6CYPb4",
  "colab": {
    "base_uri": "https://localhost:8080/"
  },
  "outputId": "f6753ae9-465e-4c1a-b2aa-584c5b085109"
},
"execution_count": 7,
"outputs": [
  {
    "output_type": "stream",
    "name": "stdout",
    "text": [
      "The diameter of Earth 12742 is 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']}]}]}"
  ],
  "metadata": {
    "id": "fcVwbCc1QrQI"
  }
},
"execution_count": 8,
"outputs": []
},
{
  "cell_type": "code",
  "source": [
    "print(d)"
  ],
  "metadata": {
    "id": "MvbkMZpXYRaw",
    "colab": {
      "base_uri": "https://localhost:8080/"
    },
    "outputId": "e6d7ee94-2ffb-4bd8-a5a7-005f5b117e7e"
  }
},
"execution_count": 15,
"outputs": [

```

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{
  "output_type": "stream",
  "name": "stdout",
  "text": [
    "{k1: [1, 2, 3, {'tricky': ['oh', 'man', 'inception', {'target': [1, 2, 3, 'hello']}]}}}\n"
  ]
}
],
{
  "cell_type": "markdown",
  "source": [
    "# Numpy"
  ],
  "metadata": {
    "id": "bw0vVp-9ddjv"
  }
},
{
  "cell_type": "code",
  "source": [
    "import numpy as np"
  ],
  "metadata": {
    "id": "LLiE_TYrhA1O"
  },
  "execution_count": 18,
  "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": [
    "array=np.zeros(10)\n",
    "print(\"An array of 10 zeros:\")"
  ],
  "metadata": {
    "id": "NHrirmgCYXvU",
    "colab": {
      "base_uri": "https://localhost:8080/"
    },
    "outputId": "82730e66-fb70-48b6-90d8-85a831736b5a"
  },
  "execution_count": 19,

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"outputs": [
  {
    "output_type": "stream",
    "name": "stdout",
    "text": [
      "An array of 10 zeros:\n"
    ]
  }
],
{
  "cell_type": "code",
  "source": [
    "array=np.zeros(10)\n",
    "print(\"An array of 5 fives:\")"
  ],
  "metadata": {
    "id": "e4005lsTYXxx",
    "colab": {
      "base_uri": "https://localhost:8080/"
    },
    "outputId": "3bf02af0-7bd0-4299-8d16-68347a566a1e"
  },
  "execution_count": 20,
  "outputs": [
    {
      "output_type": "stream",
      "name": "stdout",
      "text": [
        "An array of 5 fives:\n"
      ]
    }
  ],
},
{
  "cell_type": "markdown",
  "source": [
    "## 5. Create an array of all the even integers from 20 to 35"
  ],
  "metadata": {
    "id": "gZHHdUBvrMX4"
  }
},
{
  "cell_type": "code",
  "source": [
    "array=np.arange(20,35,2)\n",
    "print(\"Array of all the even integers from 20 to 35\")\n",
    "print(array)"
  ],
  "metadata": {
    "id": "oAI2tbU2Yag-",
    "colab": {

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    "base_uri": "https://localhost:8080/"
  },
  "outputId": "28ef5cb3-93cb-4ff8-a886-fbffc66193c3"
},
"execution_count": 21,
"outputs": [
  {
    "output_type": "stream",
    "name": "stdout",
    "text": [
      "Array of all the even integers from 20 to 35\n",
      "[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": [
    "x = np.arange(0, 9).reshape(3,3)\n",
    "print(x)"
  ],
  "metadata": {
    "id": "tOIEVH7BYceE",
    "colab": {
      "base_uri": "https://localhost:8080/"
    }
  },
  "outputId": "80cd8b42-95ea-4b83-ad7a-9453f0613c69"
},
"execution_count": 22,
"outputs": [
  {
    "output_type": "stream",
    "name": "stdout",
    "text": [
      "[[0 1 2]\n",
      " [3 4 5]\n",
      " [6 7 8]]\n"
    ]
  }
],
{
  "cell_type": "markdown",

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"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": [
    "a = [1, 2,3]\n",
    "b = [4,5,6]\n",
    " \n",
    "\n",
    "for i in b :\n",
    "  a.append(i)\n",
    " \n",
    "\n",
    "print (\\"Concatenated list a and b is : \\" \n",
    "        + str(a))"
  ],
  "metadata": {
    "id": "rAPSw97aYfE0",
    "colab": {
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    },
    "outputId": "445a4c3e-58ac-4a80-852e-67e724926cad"
  },
  "execution_count": 24,
  "outputs": [
    {
      "output_type": "stream",
      "name": "stdout",
      "text": [
        "Concatenated list a and b is : [1, 2, 3, 4, 5, 6]\n"
      ]
    }
  ]
},
{
  "cell_type": "markdown",
  "source": [
    "# Pandas"
  ],
  "metadata": {
    "id": "dIPEY9DRwZga"
  }
},
{
  "cell_type": "markdown",
  "source": [
    "## 8. Create a dataframe with 3 rows and 2 columns"
  ]
}

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],
"metadata": {
  "id": "ijoYW51zwr87"
}
},
{
  "cell_type": "code",
  "source": [
    "import pandas as pd\n"
  ],
  "metadata": {
    "id": "T5OxJRZ8uvR7"
  },
  "execution_count": 25,
  "outputs": []
},
{
  "cell_type": "code",
  "source": [
    "\n",
    " \n",
    "\n",
    "data = [['tom', 10], ['nick', 15], ['juli', 14]]\n",
    " \n",
    "\n",
    "df = pd.DataFrame(data, columns=['Name', 'Age'])\n",
    "\n",
    "df"
  ],
  "metadata": {
    "id": "xNpl_XXoYhs0",
    "colab": {
      "base_uri": "https://localhost:8080/",
      "height": 143
    },
    "outputId": "2402a0ee-40d1-4e6a-dcd5-5cdea1985c78"
  },
  "execution_count": 26,
  "outputs": [
    {
      "output_type": "execute_result",
      "data": {
        "text/plain": [
          "  Name Age\n0  tom  10\n1  nick  15\n2  juli  14"
        ],
        "text/html": [
          "\n",
          " <div id=\"df-a344f79d-1761-4ba3-b335-c8666e11be17\">\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>Name</th>\n",
"      <th>Age</th>\n",
"    </tr>\n",
"  </thead>\n",
"  <tbody>\n",
"    <tr>\n",
"      <th>0</th>\n",
"      <td>tom</td>\n",
"      <td>10</td>\n",
"    </tr>\n",
"    <tr>\n",
"      <th>1</th>\n",
"      <td>nick</td>\n",
"      <td>15</td>\n",
"    </tr>\n",
"    <tr>\n",
"      <th>2</th>\n",
"      <td>juli</td>\n",
"      <td>14</td>\n",
"    </tr>\n",
"  </tbody>\n",
"</table>\n",
"</div>\n",
"
"                                <button    class=\"colab-df-convert\"
onclick=\"convertToInteractive('df-a344f79d-1761-4ba3-b335-c8666e11be17')\">\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 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-.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-.59|7.78-7.78 2.81-2.81c.8-.78.8-2.07 0-2.86zM5.41 20L4 18.59|7.72-7.72 1.47 1.35L5.41 20z\"/>

```
" </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-a344f79d-1761-4ba3-b335-c8666e11be17\n",
button.colab-df-convert');\n",
"   buttonEl.style.display =\n",
"     google.colab.kernel.accessAllowed ? 'block' : 'none';\n",
"\n",
"   async function convertToInteractive(key) {\n",
"     const element =\n",
document.querySelector('#df-a344f79d-1761-4ba3-b335-c8666e11be17');\n",

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```

        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",
        " "

    ]
  },
  "metadata": {},
  "execution_count": 26
}
]
},
{
  "cell_type": "markdown",
  "source": [
    "*italicized text* ## 9. Generate the series of dates from 1st Jan, 2023 to 10th Feb, 2023"
  ],
  "metadata": {
    "id": "UXSmdNclyJQD"
  }
},
{
  "cell_type": "code",
  "source": [
    "import pandas as pd\n",
    "\n",
    "\n",
    "dates = pd.date_range('2023-01-01', periods=41, freq='D')\n",
    "\n",
    "s = pd.Series(dates)\n",
    "print (s)"
  ],
  "metadata": {
    "id": "dgyC0JhVYI4F",
    "colab": {
      "base_uri": "https://localhost:8080/"
    }
  },
  "outputId": "f9c818dd-bcf2-480d-ab74-9fc46403210b"
}

```

```
},
"execution_count": 29,
"outputs": [
  {
    "output_type": "stream",
    "name": "stdout",
    "text": [
      "0 2023-01-01\n",
      "1 2023-01-02\n",
      "2 2023-01-03\n",
      "3 2023-01-04\n",
      "4 2023-01-05\n",
      "5 2023-01-06\n",
      "6 2023-01-07\n",
      "7 2023-01-08\n",
      "8 2023-01-09\n",
      "9 2023-01-10\n",
      "10 2023-01-11\n",
      "11 2023-01-12\n",
      "12 2023-01-13\n",
      "13 2023-01-14\n",
      "14 2023-01-15\n",
      "15 2023-01-16\n",
      "16 2023-01-17\n",
      "17 2023-01-18\n",
      "18 2023-01-19\n",
      "19 2023-01-20\n",
      "20 2023-01-21\n",
      "21 2023-01-22\n",
      "22 2023-01-23\n",
      "23 2023-01-24\n",
      "24 2023-01-25\n",
      "25 2023-01-26\n",
      "26 2023-01-27\n",
      "27 2023-01-28\n",
      "28 2023-01-29\n",
      "29 2023-01-30\n",
      "30 2023-01-31\n",
      "31 2023-02-01\n",
      "32 2023-02-02\n",
      "33 2023-02-03\n",
      "34 2023-02-04\n",
      "35 2023-02-05\n",
      "36 2023-02-06\n",
      "37 2023-02-07\n",
      "38 2023-02-08\n",
      "39 2023-02-09\n",
      "40 2023-02-10\n",
      "dtype: datetime64[ns]\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": "_XMC8aEt0lIB"
  },
  "execution_count": 33,
  "outputs": []
},
{
  "cell_type": "code",
  "source": [
    "import pandas as pd \n",
    "\n",
    "\n",
    "lst = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]\n",
    "\n",
    "\n",
    "\n",
    "df = pd.DataFrame(lst, columns=['NO', 'name', 'age']) \n",
    "print(df)"
  ],
  "metadata": {
    "id": "knH76sDKYsVX",
    "colab": {
      "base_uri": "https://localhost:8080/"
    },
    "outputId": "19affc1b-734e-4740-cb8a-40d4f6d423a5"
  },
  "execution_count": 37,
  "outputs": [
    {
      "output_type": "stream",
      "name": "stdout",
      "text": [
        " NO name  age\n",
        "0  1  aaa  22\n",
        "1  2  bbb  25\n"
      ]
    }
  ]
}

```

```
        "2 3 ccc 24\n"  
    ]  
}  
]  
}  
]  
}
```