

MAHENDRA ENGINEERING COLLEGE FOR WOMEN
ASSIGNMENT-1 SOLUTION
NAME OF THE STUDENT:V.Vasuki
REGISTER NUMBER:611419104097
YEAR/DEPARTMENT:IV-CSE

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

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        "\n",
        "print(x)"
    ],
    "metadata": {
        "id": "6mGVa3SQYLkb",
        "colab": {
            "base_uri": "https://localhost:8080/"
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        "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"
    ],
    "metadata": {
        "id": "HyRyJv6CYPb4",
        "colab": {
            "base_uri": "https://localhost:8080/"
        },
        "outputId": "f6753ae9-465e-4c1a-b2aa-584c5b085109"
    },

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"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": [
  {
    "output_type": "stream",
    "name": "stdout",
    "text": [
      "{k1: [1, 2, 3, {tricky: ['oh', 'man', 'inception', {target: [1, 2, 3, 'hello']}]}]}\n"
    ]
  }
],
},
{
  "cell_type": "markdown",
  "source": [

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    "# 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,
"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:\")"
  ],

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"metadata": {
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  "colab": {
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  },
  "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": "gZHHdUBvMX4"
  }
},
{
  "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": {
      "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"
  ]
}

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],
"metadata": {
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}
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{
  "cell_type": "code",
  "source": [
    "x = np.arange(0, 9).reshape(3,3)\n",
    "print(x)"
  ],
  "metadata": {
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    "colab": {
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    },
    "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",
  "source": [
    "## 7. Concatenate a and b \n",
    "## a = np.array([1, 2, 3]), b = np.array([4, 5, 6])"
  ],
  "metadata": {
    "id": "hQ0dnhAQuU_p"
  }
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{
  "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 (\nConcatenated list a and b is : \n" \n",
    "      + str(a))"
  ],
  "metadata": {
    "id": "rAPSw97aYfEO",

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    },
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  },
  "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": {
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  }
},
{
  "cell_type": "markdown",
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    "## 8. Create a dataframe with 3 rows and 2 columns"
  ],
  "metadata": {
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  }
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{
  "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"
  ]
}

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],
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  "outputId": "2402a0ee-40d1-4e6a-dcd5-5cdea1985c78"
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"execution_count": 26,
"outputs": [
  {
    "output_type": "execute_result",
    "data": {
      "text/plain": [
        "   Name   Age\n",
        "0    tom   10\n",
        "1   nick   15\n",
        "2    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",
        "          .dataframe tbody tr th {\n",
        "            vertical-align: top;\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",

```



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    <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=\"M18.5 5.44l.94 2.06.94-2.06 2.06-.94-2.06-.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.39.39.95.59 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",
    "  \n",

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"      [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 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-a344f79d-1761-4ba3-b335-c8666e11be17');\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",
"  "
]
},
"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": "dgyC0JhVYl4F",
    "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",

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        "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": "_XMC8aEt0IIB"
    },
    "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"  
    ]  
  }  
]  
}
```