MAHENDRA ENGINEERING COLLEGE FOR WOMEN
ASSIGNMENT-1 SOLUTION
NAME OF THE STUDENT: M.Gowsalya
REGISTER NUMBER:611419106027
YEAR/DEPARTMENT:IV-ECE


```
{
 "nbformat": 4,
 "nbformat_minor": 0,
 "metadata": {
  "colab": {
   "provenance": [],
   "collapsed_sections": []
  },
  "kernelspec": {
   "name": "python3",
   "display_name": "Python 3"
  },
  "language_info": {
   "name": "python"
  }
 },
 "cells": [
  {
   "cell_type": "markdown",
   "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",
 "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"
      ],
 "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": [
   {
    "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,
        "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": {
   "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": "tOlEVH7BYceE",
  "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",
        "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": {
    "base_uri": "https://localhost:8080/"
   },
   "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": "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": 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": "xNpI_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\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",
                "\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-17614ba3-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-.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-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-b335c8666e11be17');\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",
      "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": "_XMC8aEt0llB"
   },
```

```
    "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"
      ]
     }
    ]
   }
  ]
}
```