

MAHENDRA ENGINEERING COLLEGE FOR WOMEN

ASSIGNMENT-1 SOLUTION

NAME OF THE STUDENT:S.pS.prabadevi

REGISTER NUMBER:611419106044

YEAR/DEPARTMENT:IV-ECE

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

```
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  "metadata": {
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  },
  "execution_count": 1,
  "outputs": []
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{
  "cell_type": "code",
  "source": [
    "txt = \"Hi there Sam!\"\n",
    "\n",
    "x = txt.split()\n",
    "\n",
    "print(x)"
  ],
  "metadata": {
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    "colab": {
      "base_uri": "https://localhost:8080/"
    },
    "outputId": "826edc4f-3e69-41e8-bffc-c94dbbf01d67"
  },
  "execution_count": 2,
  "outputs": [
    {
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      "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."
  ],
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    "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": {
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    "colab": {
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    },
    "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": "fcVwbCc1QrQl"
  },
  "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": "wOg8hinbgx3O"
  }
},
{
  "cell_type": "code",
  "source": [
    "array=np.zeros(10)\n",
    "print(\"An array of 10 zeros:\")"
  ],
  "metadata": {
    "id": "NHirmgCYXvU",
    "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": "oAl2tbU2Yag-",

```

```
    "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",
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    "## 6. Create a 3x3 matrix with values ranging from 0 to 8"
  ],
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  }
},
{
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  "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",
  "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": "rAPSw97aYfEO",
    "colab": {
      "base_uri": "https://localhost:8080/"
    },
    "outputId": "445a4c3e-58ac-4a80-852e-67e724926cad"
  },
  "execution_count": 24,
  "outputs": [
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      "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"
    ],
    "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\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;\">
```

```
"      <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-.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.39.39.959 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-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
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": "_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"
        ]
      }
    ]
  }
]
```