```
MUTHAYMMAL ENGINEERING COLLEGE Computer and Science Engineering IBM
NALAIYA THIRAN Domain name: Artificial Intelligence Title: REAL-TIME
COMMUNICATION SYSTEM POWERED BY AI FOR SPECIALLY ABLED { "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": "CU48hgo40wz5" } }, { "cell_type": "code", "source": [ "s = \"Hi there
Sam!\""], "metadata": { "id": "s07c7JK70qt-" }, "execution_count": 1, "outputs": [] }, {
"cell_type": "code", "source": [ "s" ], "metadata": { "id": "6mGVa3SQYLkb", "colab": {
"base_uri": "https://localhost:8080/", "height": 35 }, "outputId": "1d6bb41c-a6ff-4821-e6f9-
4fbd4f9d5e71" }, "execution_count": 2, "outputs": [ { "output_type": "execute_result",
"data": { "text/plain": [ ""Hi there Sam!" ],
"application/vnd.google.colaboratory.intrinsic+json": { "type": "string" } }, "metadata": {},
"execution_count": 2 } ] }, { "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": [ "print(\"The diameter
of {} is {} kilometer\".format(planet,diameter\n", " ))" ], "metadata": { "id":
"HyRyJv6CYPb4", "colab": { "base_uri": "https://localhost:8080/" }, "outputId": "f1be3e4d-
a5fa-47a2-c4c1-f01702b350e7" }, "execution_count": 5, "outputs": [ { "output_type":
"stream", "name": "stdout", "text": [ "The diameter of Earth is 12742 kilometer\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": 6, "outputs": [] }, { "cell_type": "code", "source": [
"d['k1'][3]['tricky'][3]['target'][3]" ], "metadata": { "id": "MvbkMZpXYRaw", "colab": {
"base_uri": "https://localhost:8080/", "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 } ] }, { "cell_type": "markdown", "source": [ "# Numpy" ], "metadata": {
"id": "bw0vVp-9ddjv" } }, { "cell_type": "code", "source": [ "import numpy as np" ],
"metadata": { "id": "LLiE_TYrhA10" }, "execution_count": 10, "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": [
```

```
"a=np.zeros(10)\n", "a" ], "metadata": { "id": "NHrirmgCYXvU", "colab": { "base_uri":
"https://localhost:8080/" }, "outputId": "8376576f-0921-4780-d856-f25f33ff720a" },
"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" ], "metadata": { "id":
"e4005lsTYXxx", "colab": { "base_uri": "https://localhost:8080/" }, "outputId": "0131e0ec-
100a-42f5-9867-ad4aab2013ec" }, "execution_count": 13, "outputs": [ { "output_type":
"execute_result", "data": { "text/plain": [ "array([5., 5., 5., 5., 5., 5., 5., 5., 5., 5.])" ] },
"metadata": {}, "execution_count": 13 } ] }, { "cell_type": "markdown", "source": [ "## 5.
Create an array of all the even integers from 20 to 35"], "metadata": { "id":
"gZHHDUBvrMX4" } }, { "cell_type": "code", "source": [ "s=np.arange(20,50,2)\n", "s" ],
"metadata": { "id": "oAl2tbU2Yag-", "colab": { "base_uri": "https://localhost:8080/" },
"outputId": "09b9e929-d046-4017-95d9-15f41f514437" }, "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}]}, {
"cell_type": "markdown", "source": [ "## 6. Create a 3x3 matrix with values ranging from 0
to 8"], "metadata": { "id": "NaOM308NsRpZ" } }, { "cell_type": "code", "source": [
"b=np.arange(0,9).reshape(3,3)\n", "b"], "metadata": { "id": "tOIEVH7BYceE", "colab": {
"base_uri": "https://localhost:8080/" }, "outputId": "60c7326a-9633-4425-bb39-
c062e828d15d" }, "execution_count": 17, "outputs": [ { "output_type": "execute_result",
"data": { "text/plain": [ "array([[0, 1, 2],\n", " [3, 4, 5],\n", " [6, 7, 8]])" ] }, "metadata": {},
"execution_count": 17 }], { "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=np.array([1,2,3])\n",
"b=np.array([4,5,6])\n", "np.concatenate((a,b))"], "metadata": { "id": "rAPSw97aYfE0",
"colab": { "base_uri": "https://localhost:8080/" }, "outputId": "7a0cce13-2d3f-4a8c-b9a4-
1c9aa60b1575"}, "execution_count": 18, "outputs": [{ "output_type": "execute_result",
"data": { "text/plain": [ "array([1, 2, 3, 4, 5, 6])" ] }, "metadata": {}, "execution_count": 18 } ] },
{ "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": "T50xJRZ8uvR7" }, "execution_count": 22, "outputs":
[] }, { "cell_type": "code", "source": [ "d =
\ "\"names\":[\"aaa\",\"bbb\",\"ccc\",],\"age\":[21,22,20]\\n", "df = pd.DataFrame(d)\\n", "df"],
"metadata": { "id": "xNpI_XXoYhs0", "colab": { "base_uri": "https://localhost:8080/",
"height": 143 }, "outputId": "92862b6c-029d-4dff-9879-8732bed4335b" },
"execution_count": 24, "outputs": [ { "output_type": "execute_result", "data": { "text/plain": [
```

```
" names age\n", "0 aaa 21\n", "1 bbb 22\n", "2 ccc 20" ], "text/html": [ "\n", " \n", " \n",
```

	nam	а
	es	ge
0	aaa	21
1	bbb	22
2	ccc	20

\n", "

\n", " "] }, "metadata": {}, "execution_count": 24 }] }, { "cell_type": "markdown", "source": ["## 9. Generate the series of dates from 1st Jan, 2023 to 10th Feb, 2023"], "metadata": { "id": "UXSmdNclyJQD" } }, { "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": { "base_uri": "https://localhost:8080/" }, "outputId": "148bfe6d-e4ea-4796-fa1e-79ad4b21f7d9"}, "execution_count": 25, "outputs": [{ "output_type": "stream", "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", \n", \n", \n", \n", \n", \n", 00:00:00\n", "2023-01-08 00:00:00\n", "2023-01-09 00:00:00\n", "2023-01-10 00:00:00 "2023-01-11 00:00:00 "2023-01-12 00:00:00 "2023-01-13 00:00:00 "2023-01-14 00:00:00 "2023-01-15 00:00:00 "2023-01-16 00:00:00 "2023-01-17 00:00:00 "2023-01-18 00:00:00 "2023-01-19 00:00:00 "2023-01-20 00:00:00 "2023-01-21 00:00:00 "2023-01-22 00:00:00 "2023-01-23 00:00:00 "2023-01-24 00:00:00 "2023-01-25 00:00:00 "2023-01-26 00:00:00 "2023-01-27 00:00:00\n", "2023-01-28 00:00:00\n", "2023-01-29 00:00:00\n", "2023-01-30 00:00:00\n", "2023-01-31 00:00:00\n", "2023-02-01 00:00:00\n", "2023-02-02 00:00:00\n", "2023-02-03 00:00:00\n", "2023-02-04 00:00:00\n", "2023-02-05 00:00:00\n", "2023-02-06 00:00:00\n", "2023-02-07 00:00:00\n", "2023-02-08 00:00:00\n", "2023-02-09 00:00:00\n", "2023-02-10 00:00:00\n", "2023-02-11 00:00:00\n", "2023-02-12 00:00:00\n", "2023-02-13 \n", \n", \n", \n", "2023-02-15 00:00:00\n", "2023-02-16 00:00:00\n", "2023-02-17 00:00:00\n", "2023-02-18 00:00:00\n", "2023-02-19 00:00:00\n", "2023-02-20 00:00:00\n", "2023-02-21 00:00:00\n", "2023-02-22 00:00:00\n", "2023-02-23 00:00:00\n", "2023-02-24 00:00:00\n", "2023-02-25 00:00:00\n", "2023-02-26 00:00:00\n", "2023-02-27 00:00:00\n",

"2023-02-28 00:00:00\n", "2023-03-01 00:00:00\n", "2023-03-02 00:00:00\n", "2023-03-03 00:00:00\n", "2023-03-04 00:00:00\n", "2023-03-05 00:00:00\n", "2023-03-06 00:00:00\n", "2023-03-07 00:00:00\n", "2023-03-08 00:00:00\n", "2023-03-09 00:00:00 "2023-03-10" 00:00:00 "2023-03-11 00:00:00 "2023-03-12 00:00:00 "2023-03-13 00:00:00 "2023-03-14 00:00:00 "2023-03-15 00:00:00 "2023-03-16 00:00:00 "2023-03-17 00:00:00 "2023-03-18 00:00:00 "2023-03-19 00:00:00 "2023-03-20 00:00:00 "2023-03-21 00:00:00 "2023-03-22 00:00:00 "2023-03-23 00:00:00 "2023-03-24 00:00:00 "2023-03-25 00:00:00 "2023-03-26 \n", \n", \n", \n", "2023-03-28 00:00:00\n", "2023-03-29 00:00:00\n", "2023-03-30 00:00:00\n", "2023-03-31 00:00:00\n", "2023-04-01 00:00:00\n", "2023-04-02 00:00:00\n", "2023-04-03 00:00:00\n", "2023-04-04 00:00:00\n", "2023-04-05 00:00:00\n", "2023-04-06 00:00:00\n", "2023-04-07 00:00:00\n", "2023-04-08 00:00:00\n", "2023-04-09 00:00:00\n", "2023-04-10 00:00:00\n", "2023-04-11 00:00:00\n", "2023-04-12 00:00:00\n", "2023-04-13 00:00:00\n", "2023-04-14 00:00:00\n", "2023-04-15 00:00:00\n", "2023-04-16 00:00:00\n", "2023-04-17 00:00:00\n", "2023-04-18 00:00:00\n", "2023-04-19 00:00:00\n", "2023-04-20 00:00:00\n", "2023-04-21 00:00:00\n", "2023-04-22 00:00:00\n", "2023-04-23 00:00:00\n", "2023-04-24 00:00:00\n", "2023-04-25 00:00:00\n", "2023-04-26 00:00:00\n", "2023-04-27 00:00:00\n", "2023-04-28 00:00:00\n", "2023-04-29 00:00:00\n", "2023-04-30 00:00:00\n", "2023-05-01 00:00:00\n", "2023-05-02 00:00:00\n", "2023-05-03 00:00:00\n", "2023-05-04 00:00:00\n", "2023-05-05 00:00:00\n", "2023-05-06 00:00:00 \n", \n", \n", \n", \n", \n", \n", "2023-05-09 00:00:00 "2023-05-10 00:00:00 "2023-05-11 00:00:00 "2023-05-12 00:00:00 "2023-05-13 00:00:00 "2023-05-14 00:00:00 "2023-05-15 00:00:00 "2023-05-16 00:00:00 "2023-05-17 00:00:00 "2023-05-18 00:00:00 "2023-05-19 00:00:00 "2023-05-20 00:00:00 "2023-05-21 00:00:00 "2023-05-22 00:00:00 "2023-05-23 00:00:00\n", "2023-05-24 00:00:00\n", "2023-05-25 00:00:00\n", "2023-05-26 00:00:00\n", "2023-05-27 00:00:00\n", "2023-05-28 00:00:00\n", "2023-05-29 00:00:00\n", "2023-05-30 00:00:00\n", "2023-05-31 00:00:00\n", "2023-06-01 00:00:00\n", "2023-06-02 00:00:00\n", "2023-06-03 00:00:00\n", "2023-06-04 00:00:00\n", "2023-06-05 00:00:00\n", "2023-06-06 00:00:00\n", "2023-06-07 00:00:00\n", "2023-06-08 00:00:00\n", "2023-06-09 00:00:00\n", "2023-06-10 00:00:00\n", "2023-06-11 00:00:00\n", "2023-06-12 00:00:00\n", "2023-06-13 00:00:00\n", "2023-06-14 00:00:00\n", "2023-06-15 00:00:00\n", "2023-06-16 00:00:00\n", \n", \n", \n", \n", \n", \n", 00:00:00\n", "2023-06-19 00:00:00\n", "2023-06-20 00:00:00\n", "2023-06-21 00:00:00\n", "2023-06-22 00:00:00\n", "2023-06-23 00:00:00\n", "2023-06-24 00:00:00\n", "2023-06-25 00:00:00\n", "2023-06-26 00:00:00\n", "2023-06-27 00:00:00\n", "2023-06-28 00:00:00\n", "2023-06-29 00:00:00\n", "2023-06-30 00:00:00\n", "2023-07-01 00:00:00\n", "2023-07-02

00:00:00\n", "2023-07-03 00:00:00 "2023-07-04 00:00:00 "2023-07-05 00:00:00 "2023-07-06 00:00:00 "2023-07-07 00:00:00 "2023-07-08 00:00:00 "2023-07-09 00:00:00 "2023-07-10 00:00:00 "2023-07-11 00:00:00 "2023-07-12 00:00:00 "2023-07-13 00:00:00 "2023-07-14 00:00:00 "2023-07-15 00:00:00 "2023-07-16 00:00:00 "2023-07-17 00:00:00 "2023-07-18 00:00:00 "2023-07-19 00:00:00 "2023-07-20 00:00:00\n", "2023-07-21 00:00:00\n", "2023-07-22 00:00:00\n", "2023-07-23 00:00:00\n", "2023-07-24 00:00:00\n", "2023-07-25 00:00:00\n", "2023-07-26 00:00:00\n", "2023-07-27 00:00:00\n", \n", \n", \n", \n", \n", \n", \n", 00:00:00\n", "2023-07-30 00:00:00\n", "2023-07-31 00:00:00\n", "2023-08-01 00:00:00\n", "2023-08-02 00:00:00\n", "2023-08-03 00:00:00\n", "2023-08-04 00:00:00\n", "2023-08-05 00:00:00\n", "2023-08-06 00:00:00\n", "2023-08-07 00:00:00\n", "2023-08-08 00:00:00\n", "2023-08-09 00:00:00\n", "2023-08-10 00:00:00\n", "2023-08-11 00:00:00\n", "2023-08-12 00:00:00\n", "2023-08-13 00:00:00\n", "2023-08-14 00:00:00\n", "2023-08-15 00:00:00\n", "2023-08-16 00:00:00\n", "2023-08-17 00:00:00\n", "2023-08-18 00:00:00\n", "2023-08-19 00:00:00\n", "2023-08-20 00:00:00\n", "2023-08-21 00:00:00\n", "2023-08-22 00:00:00\n", "2023-08-23 00:00:00\n", "2023-08-24 00:00:00\n", "2023-08-25 00:00:00\n", "2023-08-26 00:00:00\n", "2023-08-27 00:00:00\n", "2023-08-28 00:00:00\n", "2023-08-29 00:00:00\n", "2023-08-30 00:00:00 "2023-08-31 00:00:00 "2023-09-01 00:00:00 "2023-09-02 00:00:00 "2023-09-03 00:00:00 "2023-09-04 00:00:00 "2023-09-05 00:00:00 \n", \n", \n", \n", \n", \n", \n", "2023-09-08 00:00:00\n", "2023-09-09 00:00:00\n", "2023-09-10 00:00:00\n", "2023-09-11 00:00:00\n", "2023-09-12 00:00:00\n", "2023-09-13 00:00:00\n", "2023-09-14 00:00:00\n", "2023-09-15 00:00:00\n", "2023-09-16 00:00:00\n", "2023-09-17 00:00:00\n", "2023-09-18 00:00:00\n", "2023-09-19 00:00:00\n", "2023-09-20 00:00:00\n", "2023-09-21 00:00:00\n", "2023-09-22 00:00:00\n", "2023-09-23 00:00:00\n", "2023-09-24 00:00:00\n", "2023-09-25 00:00:00\n", "2023-09-26 00:00:00\n", "2023-09-27 00:00:00\n", "2023-09-28 00:00:00\n", "2023-09-29 00:00:00\n", "2023-09-30 00:00:00\n", "2023-10-01 00:00:00\n", "2023-10-02 00:00:00\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": 23, "outputs": [] }, { "cell_type": "code", "source": ["print(pd.DataFrame(lists))"], "metadata": { "id": "knH76sDKYsVX", "colab": { "base_uri": "https://localhost:8080/" }, "outputId": "b7cf97e6eaa3-4390-ec48-29f2d6aa92b7" }, "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"]}]}]