

Vellore Institute of Technology

School of Computer Science and Engineering

M.tech Data Science

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Campus : Vellore

Date: 22-05-2023

Smart Bridge internship training

ADS Assignment -1

1. Assign your Name to variable name and Age to variable age. Make a Python program that prints your name and age.

```
In [3]: name="Suriya Narayanan S"
age="20"

print("Name:{0} ".format(name))
print("Age: {0}".format(age))
```

Name:Suriya Narayanan S
Age: 20

2. X="Datascience is used to extract meaningful insights." Split the string

```
In [5]: X="Datascience is used to extract meaningful insights."
q2=X.split()
print(q2)
```

['Datascience', 'is', 'used', 'to', 'extract', 'meaningful', 'insights.']

3. Make a function that gives multiplication of two numbers

```
In [6]: def prod(para1,para2):  
        ans=para1*para2  
        return ans  
  
        var1=int(input("Number 1:"))  
        var2=int(input("Number 2:"))  
  
        ans=prod(var1,var2)  
  
        print("The product of the the numbers {0} and {1} is {2}".format(var1,var2,ans))
```

Number 1:5

Number 2:5

The product of the the numbers 5 and 5 is 25

4. Create a Dictionary of 5 States with their capitals. also print the keys and values.

```
In [8]: indstates={"Tamil Nadu":"Chennai","Kerala":"Thiruvananthapuram","Karnataka":"Bangalore",  
                  "Maharashtra":"Mumbai","Uttar Pradesh":"Lucknow"}  
  
        q4a=indstates.keys()  
        q4b=indstates.values()  
        print("Dictionary keys: {0}".format(q4a))  
        print("Dictionary values: {0}".format(q4b))
```

Dictionary keys: dict_keys(['Tamil Nadu', 'Kerala', 'Karnataka', 'Maharashtra', 'Uttar Pradesh'])

Dictionary values: dict_values(['Chennai', 'Thiruvananthapuram', 'Bangalore', 'Mumbai', 'Lucknow'])

5. Create a list of 1000 numbers using range function.

```
In [9]: q5=[x for x in range(0,1001)]  
print(q5)
```

[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 3
1, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 6
0, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 8
9, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 11
4, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 13
7, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 16
0, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 18
3, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 20
6, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 22
9, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 25
2, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 27
5, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 29
8, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 32
1, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 34
4, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 36
7, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 39
0, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 41
3, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 43
6, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 45
9, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 48
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5, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 52
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1, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 57
4, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 59
7, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 62
0, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 64
3, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 66
6, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 68
9, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 71
2, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 73
5, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 75
8, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 78
1, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 80
4, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 82
7, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 85
0, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 87
3, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 89
6, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 91
9, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 94
2, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 96

5, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000]

6. Create an identity matrix of dimension 4 by 4

```
In [15]: import numpy as np

q6=np.identity(4)

print("identity matrix {0}:\n".format(q6))

identity matrix [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]:
```

7. Create a 3x3 matrix with values ranging from 1 to 9

```
In [16]: q7a=np.arange(1,10)

q7b=q7a.reshape(3,3)

print(q7b)

[[1 2 3]
 [4 5 6]
 [7 8 9]]
```

8. Create 2 similar dimensional array and perform sum on them.

```
In [20]: q8a=np.arange(5,14).reshape(3,3)
q8b=np.arange(6,15).reshape(3,3)
print("array 1")
print(q8a)
print("array 2")
print(q8b)
q8c=q8a+q8b
print("summed array")
print(q8c)
```

```
array 1
[[ 5  6  7]
 [ 8  9 10]
 [11 12 13]]
array 2
[[ 6  7  8]
 [ 9 10 11]
 [12 13 14]]
summed array
[[11 13 15]
 [17 19 21]
 [23 25 27]]
```

9. Generate the series of dates from 1st Feb, 2023 to 1st March, 2023 (both inclusive)

```
In [21]: import pandas as pd
from datetime import datetime, timedelta

q9a=datetime(2023,2,1)
q9b=datetime(2023,3,1)

q9list=[]

while q9a<=q9b:
    q9list.append(q9a.strftime('%d-%m-%Y'))
    q9a+=timedelta(days=1)

q9=pd.Series(q9list)

print(q9)
```


0	01-02-2023
1	02-02-2023
2	03-02-2023
3	04-02-2023
4	05-02-2023
5	06-02-2023
6	07-02-2023
7	08-02-2023
8	09-02-2023
9	10-02-2023
10	11-02-2023
11	12-02-2023
12	13-02-2023
13	14-02-2023
14	15-02-2023
15	16-02-2023
16	17-02-2023
17	18-02-2023
18	19-02-2023
19	20-02-2023
20	21-02-2023
21	22-02-2023
22	23-02-2023
23	24-02-2023
24	25-02-2023
25	26-02-2023
26	27-02-2023
27	28-02-2023
28	01-03-2023

dtype: object

10. Given a dictionary, convert it into corresponding dataframe and display it

dictionary = {'Brand': ['Maruti', 'Renault', 'Hyndai'], 'Sales' : [250, 200, 240]}

```
In [25]: dictionary = {'Brand': ['Maruti', 'Renault', 'Hyndai'], 'Sales' : [250, 200, 240]}  
  
q10=pd.DataFrame(dictionary,index=["Car 1","Car 2","Car 3"])  
  
print(q10)
```

	Brand	Sales
Car 1	Maruti	250
Car 2	Renault	200
Car 3	Hyndai	240

In []: