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 [1]:
```
name = "Y.Vamsi Krishna"
age = 20

print("Name:", name)
print("Age:", age)
```

```
Name: Y.Vamsi Krishna
Age: 20
```

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

In [2]:
```
X = "Datascience is used to extract meaningful insights."
words = X.split()

print(words)
```

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

3. Make a function that gives multiplication of two numbers

In [3]:
```
a=int(input("Enter the 1st number: "))
b=int(input("Enter the 2nd number: "))

def multiply_numbers(a, b):
    return a * b

print("The multiplication of the two numbers is: ",multiply_numbers(a,b))
```

```
Enter the 1st number: 3
Enter the 2nd number: 5
The multiplication of the two numbers is:  15
```

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

In [4]:
```
states = {
    "Andhra Pradesh": "Amaravati",
    "Tamil Nadu": "Chennai",
    "Telangana": "Hyderabad",
    "Karnataka": "Bengaluru",
    "Punjab": "Chandigarh"
}

# Printing keys
print("Keys:")
for state in states.keys():
```

```
    print(state)

# Printing values
print("\nValues:")
for capital in states.values():
    print(capital)

# Printing keys and values
print("\nKeys and Values:")
for state, capital in states.items():
    print(f"{state}: {capital}")
```

```
Keys:
Andhra Pradesh
Tamil Nadu
Telangana
Karnataka
Punjab

Values:
Amaravati
Chennai
Hyderabad
Bengaluru
Chandigarh

Keys and Values:
Andhra Pradesh: Amaravati
Tamil Nadu: Chennai
Telangana: Hyderabad
Karnataka: Bengaluru
Punjab: Chandigarh
```

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

In [5]:
```
import numpy as np

numbers = np.arange(1000)
print(numbers)
```

```
[  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  31  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  60  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  89
  90  91  92  93  94  95  96  97  98  99 100 101 102 103 104 105 106 107
 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125
 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143
 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161
 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179
 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197
 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215
 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233
 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251
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 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305
 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323
 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341
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 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575
 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593
 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611
 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629
 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647
 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665
 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683
 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701
 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719
 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737
 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755
 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773
 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791
 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809
 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827
 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845
 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863
 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881
 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899
 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917
 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935
 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953
 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971
 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]
```

In [6]:
```
import pandas as pd
```

```
numbers = pd.Series(range(1000))
print(numbers)
```

```
0        0
1        1
2        2
3        3
4        4
      ...
995    995
996    996
997    997
998    998
999    999
Length: 1000, dtype: int64
```

6. Create an identity matrix of dimension 4 by 4

In [7]:
```
np.eye(4)
```

Out[7]:
```
array([[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 [8]:
```
matrix = np.arange(1, 10).reshape(3, 3)
print(matrix)
```

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

In [9]:
```
import pandas as pd

matrix = pd.DataFrame([[1, 2, 3], [4, 5, 6],[7, 8, 9]])
print(matrix)
```

```
   0  1  2
0  1  2  3
1  4  5  6
2  7  8  9
```

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

In [10]:
```
import numpy as np

# Create two similar dimensional arrays
array1 = np.array([[1, 2, 3], [4, 5, 6]])
array2 = np.array([[7, 8, 9], [10, 11, 12]])

# Perform sum using NumPy
result_numpy = array1 + array2

print("Sum using NumPy:")
print(result_numpy)
```

```
Sum using NumPy:
[[ 8 10 12]
 [14 16 18]]
```

In [11]:
```
import pandas as pd

# Create two similar dimensional DataFrames
df1 = pd.DataFrame([[1, 2, 3], [4, 5, 6]])
df2 = pd.DataFrame([[7, 8, 9], [10, 11, 12]])

# Perform sum using pandas
result_pandas = df1.add(df2)

print("\nSum using pandas:")
print(result_pandas)
```

```
Sum using pandas:
    0   1   2
0   8  10  12
1  14  16  18
```

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

In [12]:
```
import pandas as pd

start_date = '2023-02-01'
end_date = '2023-03-01'
dates = pd.date_range(start_date, end_date, freq='D')
print(dates)
```

```
DatetimeIndex(['2023-02-01', '2023-02-02', '2023-02-03', '2023-02-04',
               '2023-02-05', '2023-02-06', '2023-02-07', '2023-02-08',
               '2023-02-09', '2023-02-10', '2023-02-11', '2023-02-12',
               '2023-02-13', '2023-02-14', '2023-02-15', '2023-02-16',
               '2023-02-17', '2023-02-18', '2023-02-19', '2023-02-20',
               '2023-02-21', '2023-02-22', '2023-02-23', '2023-02-24',
               '2023-02-25', '2023-02-26', '2023-02-27', '2023-02-28',
               '2023-03-01'],
              dtype='datetime64[ns]', freq='D')
```

10. Given a dictionary, convert it into corresponding dataframe and display it, dictionary = {'Brand': ['Maruti', 'Renault', 'Hyundai'], 'Sales' : [250, 200, 240]}

In [13]:
```
import pandas as pd

dictionary = {'Brand': ['Maruti', 'Renault', 'Hyundai'], 'Sales': [250, 200, 240]}
df = pd.DataFrame(dictionary)
print(df)
```

```
     Brand  Sales
0   Maruti    250
1  Renault    200
2  Hyundai    240
```