EXPERIMENT-1

<u>**AIM**</u>: **Write a program to perform the following operations on Google Colab:**

    (i) Upload a file to colab.

    (ii) Download a file from colab.

    (iii) Change the colab runtime.

    (iv) Install packages in colab.

    (v) Unzip a file in colab.

    (vi)Using matplotlib library for visualisation.

    (vii)Exploring the numpy library in python to perform fundamental operations on arrays.

<u>**CODE and OUTPUT:**</u>

(i) Upload a file to colab

```
from google.colab import files
uploaded =files.upload()
```

Choose Files   Iris.csv
- **Iris.csv**(n/a) - 5107 bytes, last modified: 09/09/2020 - 100% done
Saving Iris.csv to Iris.csv

(ii) Download a file from colab.

```
files.download('Iris.csv')
```

(iii) Change the colab runtime.

```
import torch
torch.cuda.is_available()
```

False

Now, Go to Runtime -> Change Runtime Type -> Select GPU as Hardware accelerator and again run the following code cell to see if the GPU is enabled or not.

```
[1]  import torch
     torch.cuda.is_available()

     True
```

(iv) Install packages in colab.

```
▶  pip install polygot

☐→  Requirement already satisfied: polygot in /usr/local/lib/python3.6/dist-packages (0.
    Requirement already satisfied: readability-api in /usr/local/lib/python3.6/dist-pack
    Requirement already satisfied: requests in /usr/local/lib/python3.6/dist-packages (f
    Requirement already satisfied: fundamentals in /usr/local/lib/python3.6/dist-package
    Requirement already satisfied: pyyaml in /usr/local/lib/python3.6/dist-packages (fro
    Requirement already satisfied: python-dateutil in /usr/local/lib/python3.6/dist-pack
    Requirement already satisfied: pytest in /usr/local/lib/python3.6/dist-packages (fro
    Requirement already satisfied: requests-oauthlib in /usr/local/lib/python3.6/dist-pa
    Requirement already satisfied: httplib2==0.9.1 in /usr/local/lib/python3.6/dist-pack
    Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.6/dist-p
    Requirement already satisfied: urllib3!=1.25.0,!=1.25.1,<1.26,>=1.21.1 in /usr/local
    Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.6/dist-package
    Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.6/dist-pa
    Requirement already satisfied: docopt in /usr/local/lib/python3.6/dist-packages (fro
    Requirement already satisfied: future in /usr/local/lib/python3.6/dist-packages (fro
    Requirement already satisfied: psutil in /usr/local/lib/python3.6/dist-packages (fro
```
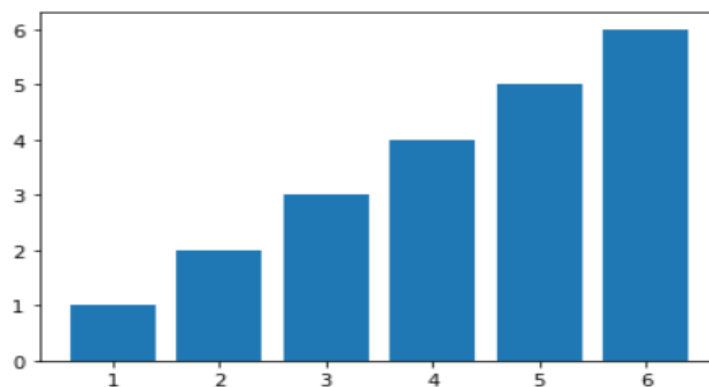
(vi) Using matplotlib library for visualisation.

```
[7]  from matplotlib import pyplot as plt

     x=[1,2,3,4,5,6]
     y=[1,2,3,4,5,6]

     plt.bar(x,y)

     plt.show()
```

(vii) Exploring the numpy library in python to perform fundamental operations on arrays.

(a) Print array shape:

```
[17] import numpy as np

     arr = np.array( [[7,8,9], [1,2,3]] )

     print (arr.shape)

     (2, 3)
```

(b) Iterate array using nditer:

```
for x in np.nditer(arr):
    print(x)
```

```
7
8
9
1
2
3
```

(c) Calculate sum of two matrix

```
[20] ar=np.array([[1,2,3],[7,8,9]])
     ar = arr+ar
     print(ar)

     [[ 8 10 12]
      [ 8 10 12]]
```

(d) Calculate product of two array

```
[23] t=np.array([[1,2],[3,4],[5,6]])
     ar= ar.dot(t)

     print(ar)

     [[ 98 128]
      [ 98 128]]
```

(e) Create sequence of integers from 10 to 5 with step size 2

```
[28] f=np.arange(10,5,-2)
     print(f)

     [10  8  6]
```

(f) Flatten an array

```
[30] z=ar.flatten()
     print(z)

     [ 98 128  98 128]
```

(g) Slice array with 2 rows and 2 columns

```
[35] temp=t[:2,::1]
     print(temp)

     [[1 2]
      [3 4]]
```