

Experiment No.4: Discrete Fourier Transform

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In [ ]: ...  
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Year Of Study: TE  
Branch: EXTC  
Date: 05/08/2023  
Time: 14:00  
...
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Problem Statement: Write a code to implement DFT & IDFT using Formula Method.

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In [2]: #Importing Python Libraries  
import numpy as np  
import matplotlib.pyplot as plt
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In [53]: #Getting user-defined inputs  
x = eval(input("Enter input sequence x[n]= "))  
L = len(x)  
print("Length of x[n] = ",L)  
N = 4  
N = int(N)
```

Enter input sequence x[n]= [1,2,3,4,5]
Length of x[n] = 5

```
In [54]: #Callable Function for DFT  
X = np.zeros(N,complex)  
def DFT_TEA (x,N):  
    for k in range(N):  
        for n in range(N):  
            X[k]+= x[n] * np.exp((-2j * np.pi * n * k)/N)  
    return(X)
```

```
In [55]: #Calling DFT Function  
X = np.zeros(N,complex)  
if N < L:  
    print("DFT cannot be computed")  
else:  
    X = np.round(DFT_TEA(x,N),decimals = 2)  
  
    print(X)
```

DFT cannot be computed

```
In [ ]:
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