DATE: / /

Experiment 3:

Name: Simple Manipulation of DT Signals.

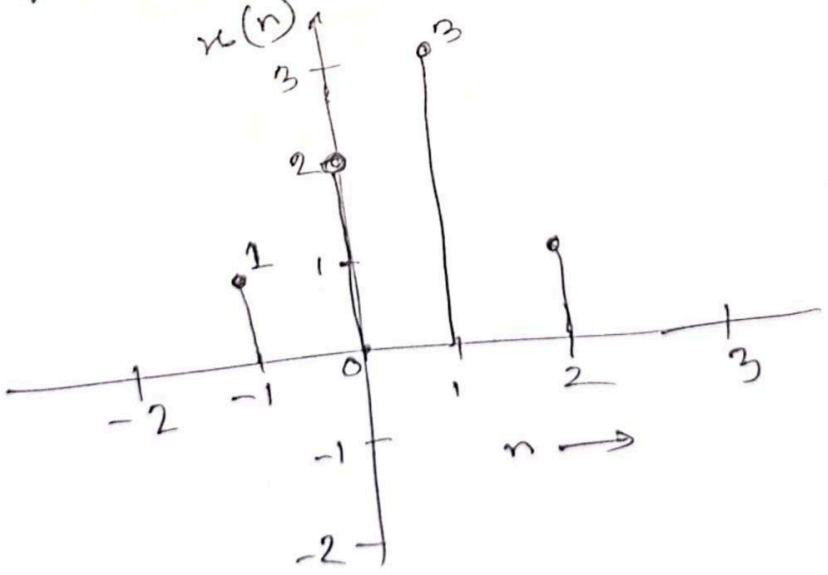
Task:

$$x_0(n) = \begin{cases} 1, & n = -1, 2 \\ 2, & n = 0 \\ 3, & n = 1 \end{cases}$$

Simulate: TD{FD($x_0(n)$)}
FD{TD($x_0(n)$)}

Here, lowerbound = -1, upperbound = 2

seq = [1, 2, 3, 1]



```
import numpy as np
import matplotlib.pyplot as plt
```

```
delay = int(input("Enter the amount to be Delay : "))
lowerbound = int(input("Enter the Lower Boundary of the first Sequence : "))
upperbound = int(input("Enter the Upper Boundary of the first Sequence : "))
```

```
Enter the amount to be Delay : 10
Enter the Lower Boundary of the first Sequence : -1
Enter the Upper Boundary of the first Sequence : 2
```

```
n = np.arange(lowerbound, upperbound + 1)
seq = np.array(input("Enter the Sequence (separated by spaces) : ").split(), dtype=float)
```

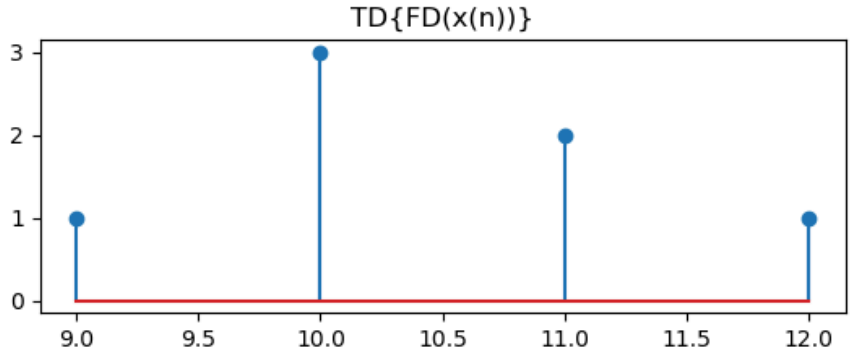
```
Enter the Sequence (separated by spaces) : 1 2 3 1
```

```
x_flip = np.flip(seq)
y_flip = -np.flip(n)
```

```
m_first = n + delay
y_first = x_flip
```

```
plt.subplot(2, 1, 1)
plt.stem(m_first, y_first)
plt.title('TD{FD(x(n))}')
```

```
Text(0.5, 1.0, 'TD{FD(x(n))}')
```



```
m_sec = n + delay
y_sec = seq
```

```
m_sec_flip = np.flip(m_sec)
y_sec_flip = -np.flip(y_sec)
```

```
plt.subplot(2, 1, 2)
plt.stem(m_sec_flip, y_sec_flip)
plt.title('FD{TD(x(n))}')
```

```
Text(0.5, 1.0, 'FD{TD(x(n))}')
```