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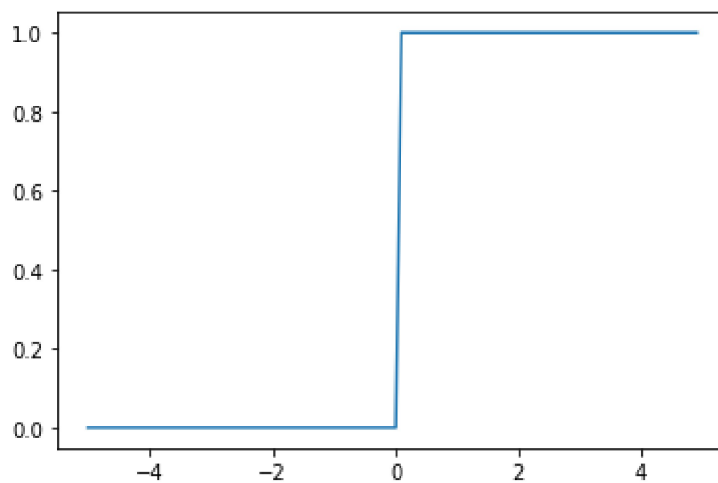
ROLL No: 20CS8018

## CSC-453 SIGNALS PROCESSING LABORATORY ASSIGNMENT

### Lab Assignment - 2:

# Q. 2a. Unit step signal

```
import matplotlib.pyplot as plt
import numpy as np
x = np.arange(-5., 5., 0.1)
y = []
for i in x:
    if (i >= 0):
        tmp = 1
    else:
        tmp = 0
    y.append(tmp)
plt.plot(x, y)
plt.show()
```



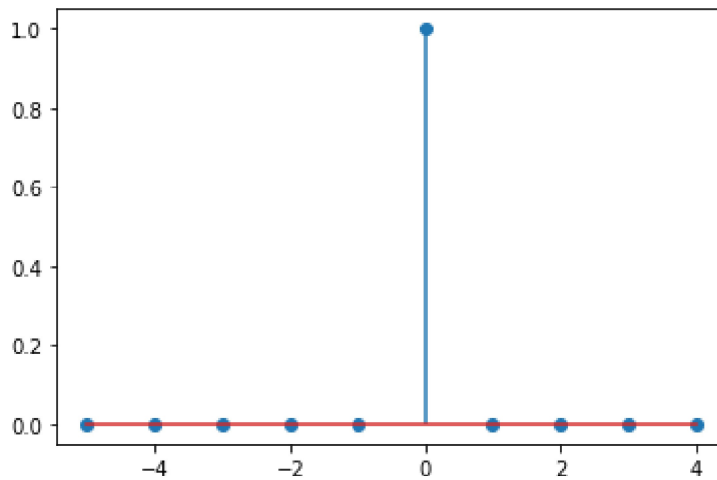
# Q 2b. Unit impulse signal

```
import matplotlib.pyplot as plt
import numpy as np
x = np.arange(-5., 5.)
y = []
for i in x:
    if (i == 0):
        tmp = 1
    else:
        tmp = 0
    y.append(tmp)
```

```

y.append(tmp)
plt.stem(x,y)
plt.show()

```



```

# Q 2c. Ramp Signal
import matplotlib.pyplot as plt
import numpy as np

```

```

x = np.arange(-4., 10., 0.1)
y = []

```

```

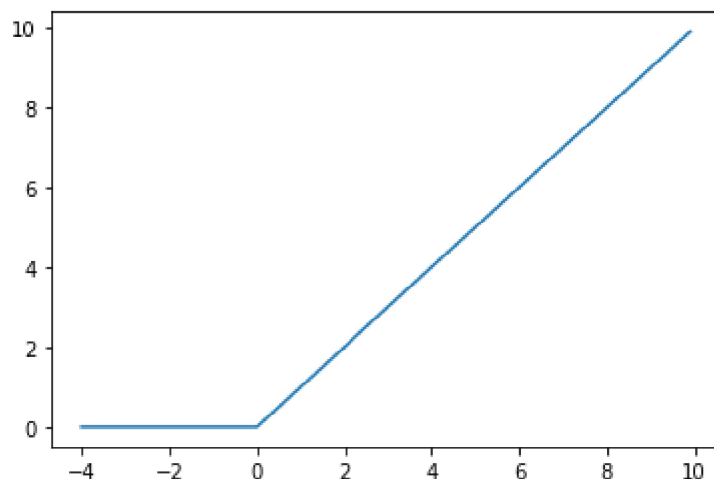
for i in x:
    if (i >= 0):
        y.append(i)
    else:
        y.append(0)

```

```

plt.plot(x,y)
plt.show()

```



```

# Q 2d. Periodic Sinosudal Sequence
import matplotlib.pyplot as plt

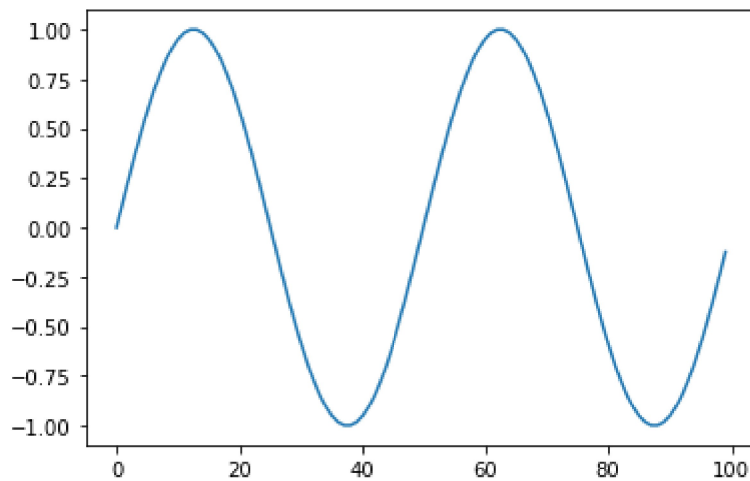
```

```
import numpy as np

Ts = 50

x = np.arange(100)
y = np.sin(2 * np.pi * x / Ts)

plt.plot(x, y)
plt.show()
```

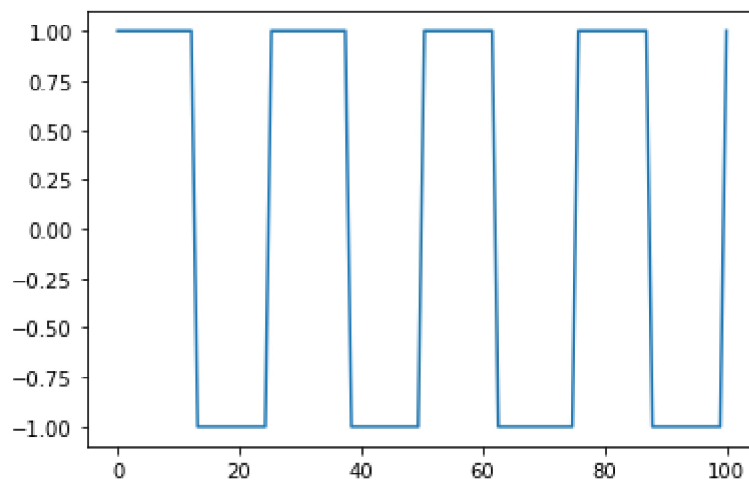


# Q 2e. Periodic Rectangular Pulse

```
import matplotlib.pyplot as plt
import numpy as np
from scipy import signal

x = np.linspace(0, 100, 100, endpoint = True)
y = signal.square(2 * np.pi * 4 * x)

plt.plot(x, y)
plt.show()
```

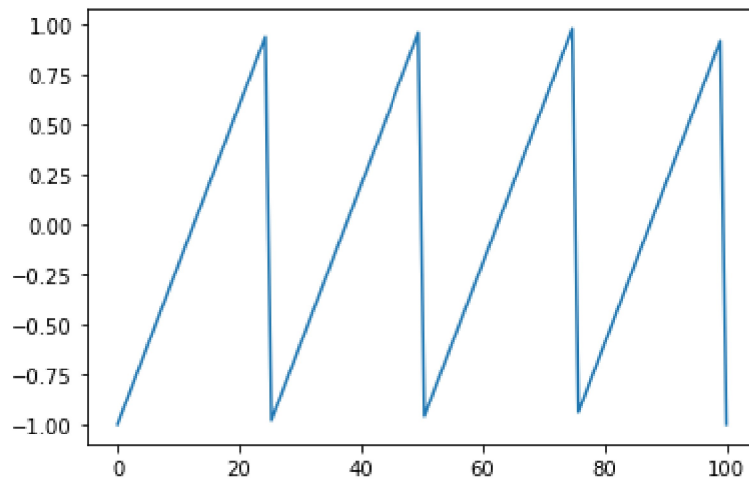


# Q 2f. Asymmetric Sawtooth Waveform

```
import matplotlib.pyplot as plt
import numpy as np
from scipy import signal

x = np.linspace(0, 100, 100, endpoint = True)
y = signal.sawtooth(2 * np.pi * 4 * x)

plt.plot(x, y)
plt.show()
```



**# Q 2g. Periodic Gaussian Pulse**

```
import matplotlib.pyplot as plt
import numpy as np
from scipy import signal

t = np.linspace(-1, 1, 200)
i, q, e = signal.gausspulse(t, fc=3, retquad=True, retenv=True)

plt.plot(q)
plt.show()
```

