

Code:-

```
from matplotlib import pyplot as mt
import numpy as np
def Rz(y):
    a = y.copy()
    a.pop(-1)
    emp = []
    for i in range(len(a)):
        if a[i] == -volt:
            emp.append(-volt)
            emp.append(0)
        else:
            emp.append(volt)
            emp.append(0)
    T = np.arange(0, len(y), 0.5)
    T = list(T)
    T.pop((-1))
    rem = len(T) - len(emp)
    emp.extend([0] * rem)
    return T, emp
def arrange(y):
    emp = []
    a = y.copy()
    a1 = []
    for i in range(len(y)):
        if y[i] == volt:
            b = i + 0.5
            emp.append(b)
            a1.append(volt)
            a1.append(0)
        else:
            a1.append(0)
    T = sorted(t + emp)
    return T, a1
def polar(y):
    a = y.copy()
    for i in range(len(a)):
        if 0 == a[i]:
            a[i] = -volt
    return a
def ami(y):
    a = y.copy()
    n = []
    for i in range(len(a)):
        if a[i] == volt:
            n.append(i)
    for j in range(1, len(n)):
        if j%2 == 1:
            a.pop(n[j])
            a.insert(n[j], -volt)
    return a
def Manchester(f):
    g = polar(f)
    a = g.copy()
    a.pop(-1)
    emp = []
    for i in range(len(a)):
        if volt == a[i]:
            emp.append(volt)
            emp.append(-volt)
        elif -volt == a[i]:
            emp.append(-volt)
            emp.append(volt)
    T = np.arange(0, len(y), 0.5)
    T = list(T)
    T.pop((-1))
    rem = len(T) - len(emp)
```

```
emp.extend([emp[-1]] * rem)
return T, emp
def plot(n, d, x, b):
    mt.subplot(3, 2, n)
    mt.step(d, x, where='post')
    mt.grid(True, which='both')
    mt.xlim(0, len(y)+1)
    mt.ylim(-b-0.1, volt+1)
a = int(input('Enter your roll no:-'))
volt = int(input('Enter the voltage level:-'))
D = bin(a)
y = D[2:]
print('binary of ', a, 'is', y)
y = y + '0'
y = int(y)
y1 = volt * y
y = list(map(int, str(y1)))
y1 = y.copy()
t = list(range(0, len(y1)))
t1 = t.copy()
fig, ax = mt.subplots(3, 2)
fig.tight_layout(h_pad=2)
fig = mt.gcf()
fig.canvas.set_window_title('Line Code made by varad patil')

"""NRZ Unipolar"""
mt.title('NRZ Unipolar')
plot(1, t, y1, 0)
mt.title('NRZ Unipolar')

"""RZ unipolar"""

T, y2 = arrange(y1)
plot(2, T, y2, 0)
mt.title('RZ Unipolar')

"""NRZ polar"""

y11 = polar(y1)
plot(3, t, y11, volt)
mt.title('NRZ polar')

"""RZ polar"""

y22 = polar(y1)
T, y2 = Rz(y22)
plot(4, T, y2, volt)
mt.title('RZ polar')

"""AMI"""
a = ami(y1)
plot(5, t, a, volt)
mt.title('AMI')

"""Manchester"""
T, y3 = Manchester(y1)
plot(6, T, y3, volt)
mt.title('Manchester')
mt.show()
print('made by Varad patil')
```

Result:-

```
Enter your roll no:-36
Enter the voltage level:-5
binary of 36 is 100100
D:\college related\pythonPro:
The set_window_title function
fig.canvas.set_window_title
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```

