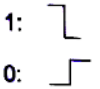


# Programming Assignment 1

## Implementation of Line coding encoder and scrambler with digital data generator

### Assumptions made :

- The format used in Manchester & Differential Manchester is G.E. Thomas format, i.e.
- Starting 1s are considered from positive side of x-axis in AMI ,HDB3 & B8ZS.



### Program Flow :

- First, the user gets 2 choices :
  - to input a custom value
  - Program generated string with consecutive 0s
    - number of consecutive 0s (4 or 8) is randomly chosen by the program
- The string hence generated will be displayed in the output.
- 7 options of encoding schemes are given to the user, from which one is to be chosen .
- the plot corresponding to the chosen encoding scheme will be displayed along with the original plot of the input string . Along with that the program will also give the output for longest palindromic string

### Sample input and output :

Input string : 111100000000 ( Program generated string with consecutive set of 0s)

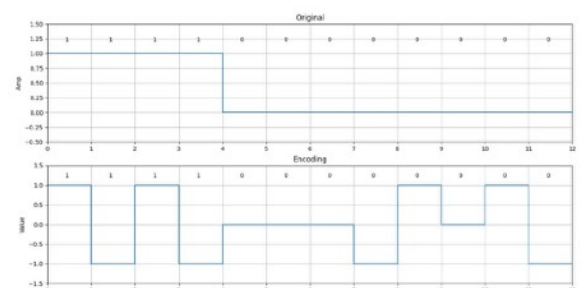
Output:

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\AMI> & C:\Users\AMI\AppData\Local\Programs\python\python39\python.exe c:/Users/AMI/Desktop/python/datacomm.py
1-random data sequence      2-random with consecutive zeros
Enter your choice:
2
DATA STREAM: 111100000000

1-NRZ-L      2-NRZ-I      3-Manchester
4-Diff Manchester      5-AMI      6-Scrambled B8ZS(for 8-consecutive zeros)      7-Scrambled HDB3(for 4-consecutive zeros)
Enter your choice of encoding:
6
The longest palindromic subsequence is 00000000
PS C:\Users\AMI>
```



### References :

- <https://github.com/mayank-k-jha/Line-Encoding>
- GeeksforGeeks