

# Computer Networks – Fall 2021

(BS-SE-F21 Morning)

## Assignment # 1

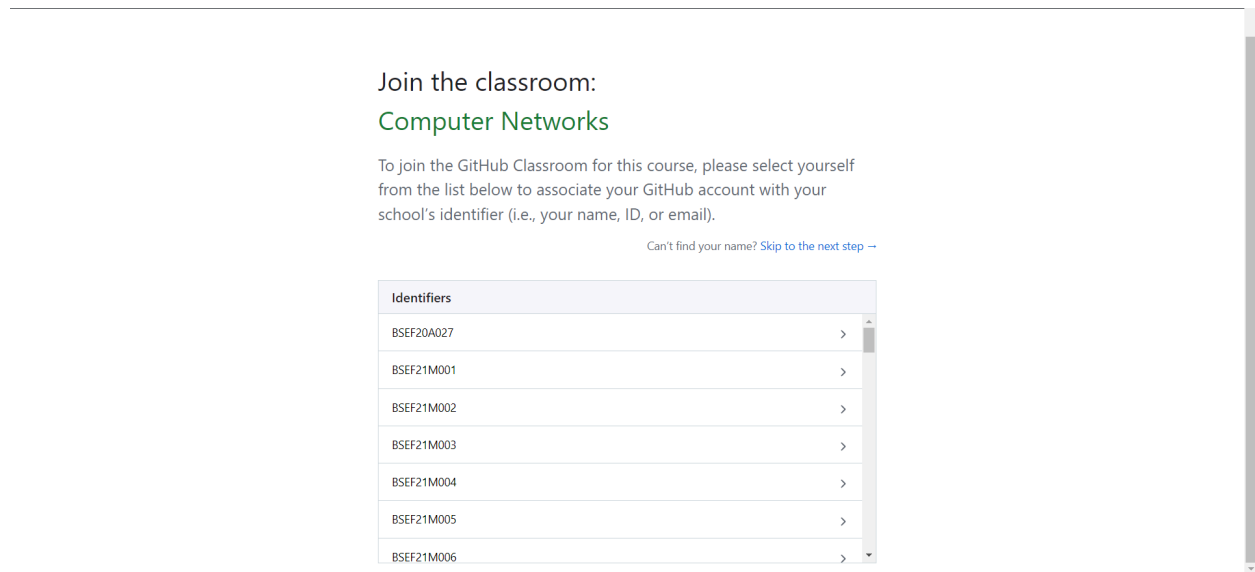
### Instructions:

- Attempt the following task.
- You can use any programming language and any technology (console, web, mobile, desktop app) for this assignment.
- You must complete all tasks individually. Absolutely NO collaboration is allowed.
- Indent your code properly.
- Use meaningful variable and function names. Use the camelCase notation.
- Use meaningful prompt lines/labels for all input/output.
- Late submissions will NOT be accepted, whatever your excuse may be.
- NO Use of Any AI tool can be allowed, any traces can result in 0 marks in the assignment.

**Deadline for submission: March 08, 2024, Friday, 08:00 AM PKT**

### Submission Procedure:

- The platform of Github Classroom will be used for the submission of this assignment.
- Accept the assignment at: <https://classroom.github.com/a/53bdtyJ2>
- You will be redirected to this screen:



Join the classroom:

Computer Networks

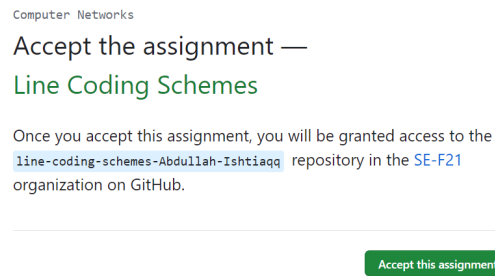
To join the GitHub Classroom for this course, please select yourself from the list below to associate your GitHub account with your school's identifier (i.e., your name, ID, or email).

[Can't find your name? Skip to the next step →](#)

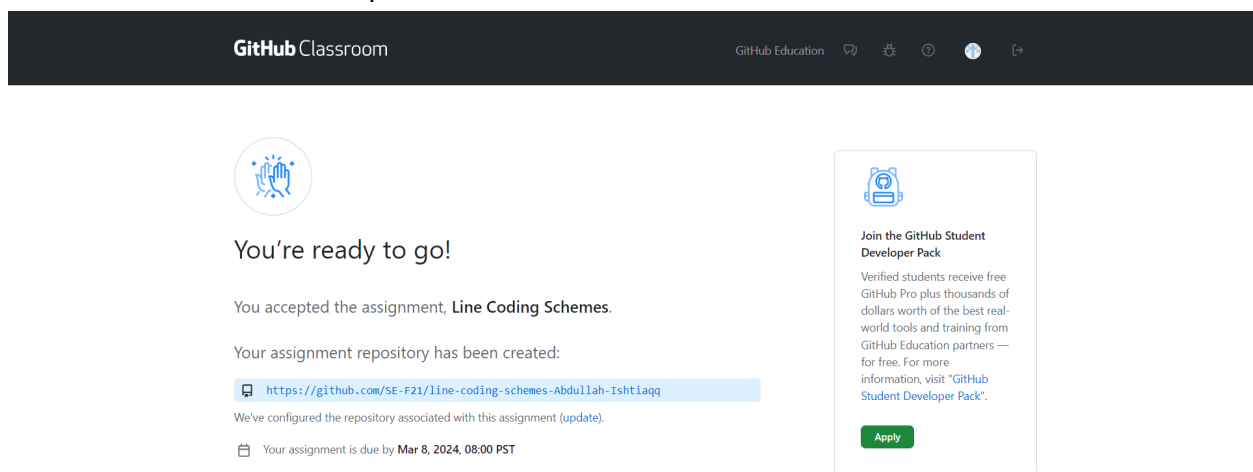
Identifiers
BSEF20A027 >
BSEF21M001 >
BSEF21M002 >
BSEF21M003 >
BSEF21M004 >
BSEF21M005 >
BSEF21M006 >

- Select your roll number, **make sure you select your own only.**

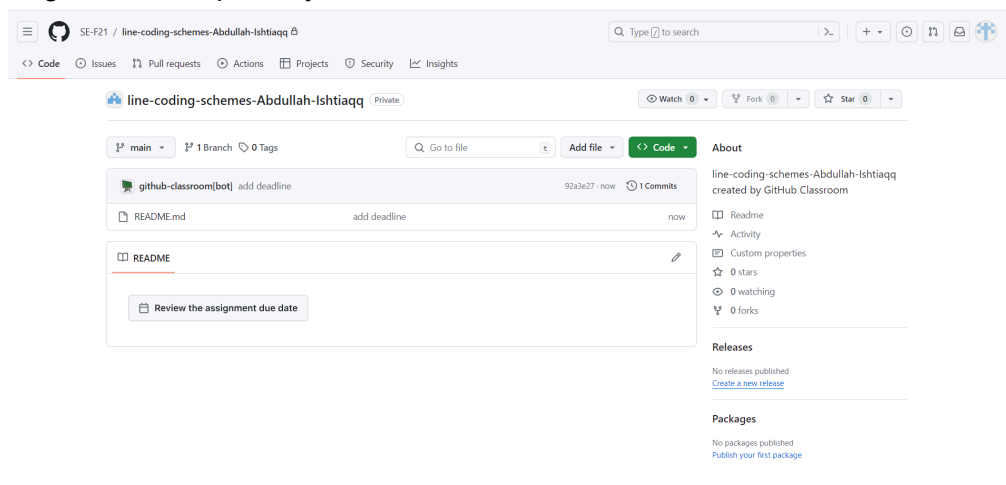
- Accept the assignment on the next screen:



- Github classroom will make a private github repository for your solution. Wait for a while for the link to show up.



- Navigate to the repository link.



- You must use only this repository to push your code. The access to push code will be denied after the deadline ends, so make sure to push in time.

## Task # 1

100 Marks

You are required to implement the following line coding schemes:

- 1- NRZ
- 2- NRZ-L
- 3- NRZ-I
- 4- RZ
- 5- Manchester
- 6- Differential Manchester
- 7- AMI
- 8- Pseudoternary
- 9- 2B1Q

The functional requirements which must be met are:

- Users should be able to input a binary.
- Users should be able to see the output for a particular line coding scheme to the input binary.
- The program must be interactive, it should not stop after displaying a single output.
- Proper input validation should be implemented.

Follow good programming practices. Your code should be readable and scalable. Adding a new line coding scheme should just be as simple as adding a function. The main agenda of this assignment is to understand how the line coding schemes works, so your main focus should be on its implementation rather than visually attractive interfaces, even a text based interface would work as long as it's understandable.

You can check a demo of the assignment at the following link: [CodingSchemesDemo.mp4](#)