Term Project
Data Link Layer Protocols Simulation

✓ In this project you will work in simulating some data link layer protocols from your choice .

✓ Number of team members per group is between 3 and 4.

✓ You need to collect a total of 20 points functionalities from your choice of the following.

✓ If your total points are greater than 20 , it will be considered bonus.

✓ You must choose one functionality of each type though.

✓ Some functionalities are mandatory for all teams and are marked with (*) in the table below.

✓ You will be requested to submit a description of your preferred network architecture.

✓ Some functionalities are open for your suggestions and will be subjective to the TA's evaluation and acceptance after the submission of milestone 1.

✓ You will be requested to submit a list of your selected choices by the milestone 1 submission date.

Type	Functionality	Description	Points
Error Detection / Correction (2-3)	Checksum	In this functionality you have to handle error detection or correction for single bit errors during transmission.	2
	Parity check string		2
	Hamming code		3
	Other		Subject to evaluation

Framing(2-3)	Character count	In this functionality you have to handle the framing functionality as data are sent in a sequence of frames between nodes.	2
	Byte stuffing		2
	Bit stuffing		2
	Other		Subject to evaluation
Sliding Window Protocol(6)	Go Back N	Choose one of these two sliding window protocols to simulate a data transmission session between peers. The data transmitted between them can be anything with meaning of your choice. The both peers have to talk to each other, not only one of them at a time.	6
	Selective Repeat		6
Transmission Channel Noise Modelling (4)	Modification (*)	The transmission channel can make modification to single bit per frame . the bit modified and the modification probability follow random distributions with adjustable parameters from the .ini file.	1
	Loss(*)	The transmission channel can make an entire frame to get lost, duplicated or delayed for a certain time. This loss, duplication or delay, and delay time follow random distributions with adjustable parameters from the .ini file.	1
	Duplicated(*)		1
	Delays(*)		1
network architecture with "number of Nodes N" (2-3)	Centralized	- The network architecture must consist of scalable dynamic number of network peers that can establish sessions for data exchange between each other.	2
	Distributed		3

		- You can handle the ending of the transmission sessions using your preferred method as long as it is not constant all the time. - This flow of data must be handled in peer to peer architecture. - According to your design you might need a central device to control the access medium " transmission channel" or make it in a distributed manner.	
Milestone 1 submission	(*)	Submit one .pdf file contains: 1. All your chosen functionalities. 2. Your network architecture 3. Any other suggested functionality if any. 4. Your names and ID's	3

Milestone 1 submission guidelines :

- The deadline is Friday 25 December 2020 at 12 PM on the google classroom.
- One team member can submit on behave of the team.
- Write your names and id's clearly at the beginning of the document.
- Give your team a unique name of your choice and write it at the beginning of the document as well.

Extra notes:

Please note also, there will be additional 5 grades (not counted from the 20 points above) on the final discussion and the details for the final project delivery will be sent later.

Also, every team member will have an individual grade (as a percentage of the total grade) , so keep trach of all the tasks that each one of you do from the beginning of the project in an excel sheet for example. So, your final grade will be something like: (20 +5) * 100% .