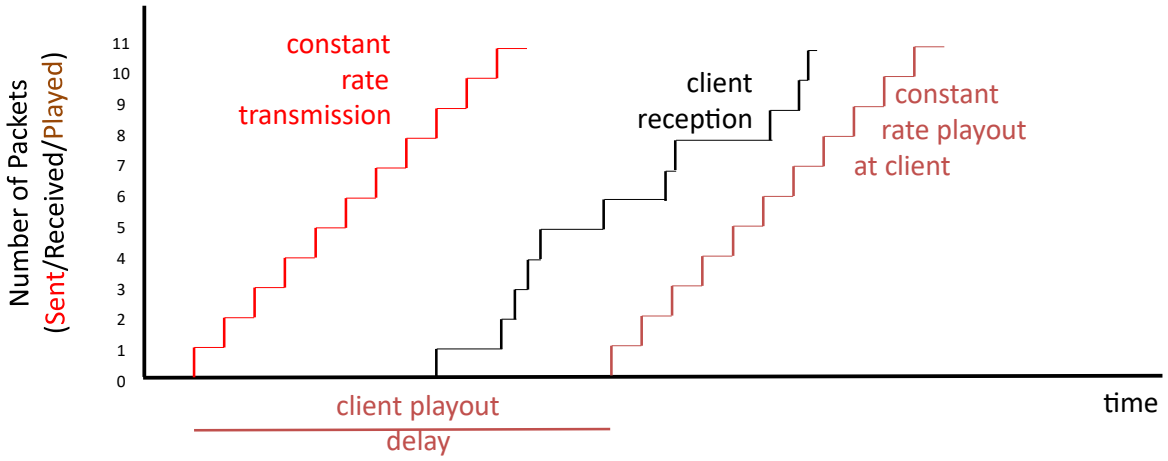
**German University in Cairo**
**Faculty of Media Engineering and Technology**
**Department of Media Engineering and Technology**

**DMET704 Multimedia and Networking**
Winter Term 2024
**Term Project and Report**
15.10.2024

## Preamble:

During this project you will develop a simulation demo of packet transmission, reception, buffer and playback. You will also create a graphical user interface which will allow users to edit the values of the model and observe different results.




## Required

You need a decent knowledge of the topic of streaming live media discussed in the course as well as a good understanding of any programming language. You can use any language/ technology to develop the project as long as it satisfies all of the following conditions.

1. The simulation is expected to model the process of audio packets being transmitted. The model should be able to generate three curves:

   i- a curve for packet generation given a start time and the number of packets to be transmitted.

   ii-a packet receiving curve by adding reasonable values of randomly generated set of network delays to each packet from the generation curve.

   iii- a playback curve by adding a playback delay to the received packets.

It should show and lost/late packets with a dotted line and only playback packets that haven't been lost/late.

2. The model should be able to generate a buffer curve by showing the number of packets currently available for playback at the receivers buffer. Packets are added to the buffer when they arrive and are removed when they are played back. The buffer should have a fixed size and if more packets arrive than the size of the buffer then they should be considered as lost packets. Late packets are not added into the buffer.

The model should be able to calculate the minimum size of the buffer (maximum number of packets that are stored at any one point) and the average buffer size and display them to the user.

3. The model should be able to calculate the estimated play-out delay for the next talk spurt as mentioned in the course and display it to the user.

4. All the following values which were previously mentioned should be available for the user to view and edit: Start time, Number of packets, network delays, playback delay, buffer size, etc.

Make sure that the curve can display any number of data values and allow zooming out to encompass all the input data on one screen.

You should create a report in pdf format with all the team members names explaining the project code using any illustrative method such as a flow chart, an explanation on how to use the model and illustrations of sample output curves. The report should also include the role of each team member.

Write and submit a technical report, Powerpoint presentation, documented source code and description of the operation of the final version of your code. The report and presentation should include comprehensive flowcharts or block-diagrams that describe how your code operates. Please include some testing screen-shots in different scenarios.

**Tentative Dates:**

Please pack the following into a .zip file for submission:

1- source-code (with proper comments),
2- softcopy of the technical report,
3- softcopy of a PPT presentation with slide-numbers,
4- read-me text file.

Make sure the size does not exceed 100MB.
Name it: DMET704_W24_TermProject_StudentIDs.zip.

**Submit it to:**
https://forms.gle/2RigFX4ruk8Z52ER9
By: 19.11.2024 at 12:00 noon.

Best of Luck : -)