

Project 2 – Selective Repeat

Unity ID's: apothug & ipatel

Steps to compile & execute Client:

- javac ARQClient.java
- java ARQClient <Parameters>
 - **Server-host-name:** Server's IP address
 - **Server-port:** Port on which the server is running
 - **Filename/path:** Provide filename (if it is the same directory as the code file or provide full path of the file)
 - **N:** Window size
 - **MSS:** Segment size

```
C:\Windows\system32\cmd.exe

C:\Users\Abinav\Google Drive\2nd Semester\IP\Project\Selective Repeat>javac ARQClient.java

C:\Users\Abinav\Google Drive\2nd Semester\IP\Project\Selective Repeat>java ARQClient
Format: <Server-host-name> <server-port> <filename/path> <N> <MSS>

C:\Users\Abinav\Google Drive\2nd Semester\IP\Project\Selective Repeat>
```

Steps to compile & execute Server:

- javac ARQServer.java
- java ARQServer <Parameters>
 - **Server port:** Port on which the server is running
 - **Filename:** Name of the file to be downloaded on the server
 - **Probability:** Provide the (p) value – (Loss Probability)
 - **Window:** window size used at the sender's end.

```
C:\Windows\system32\cmd.exe

C:\Users\Abinav\Google Drive\2nd Semester\IP\Project\Selective Repeat>javac ARQServer.java

C:\Users\Abinav\Google Drive\2nd Semester\IP\Project\Selective Repeat>java ARQServer
Format: <Server port> <Filename> <Probability> <window-size>

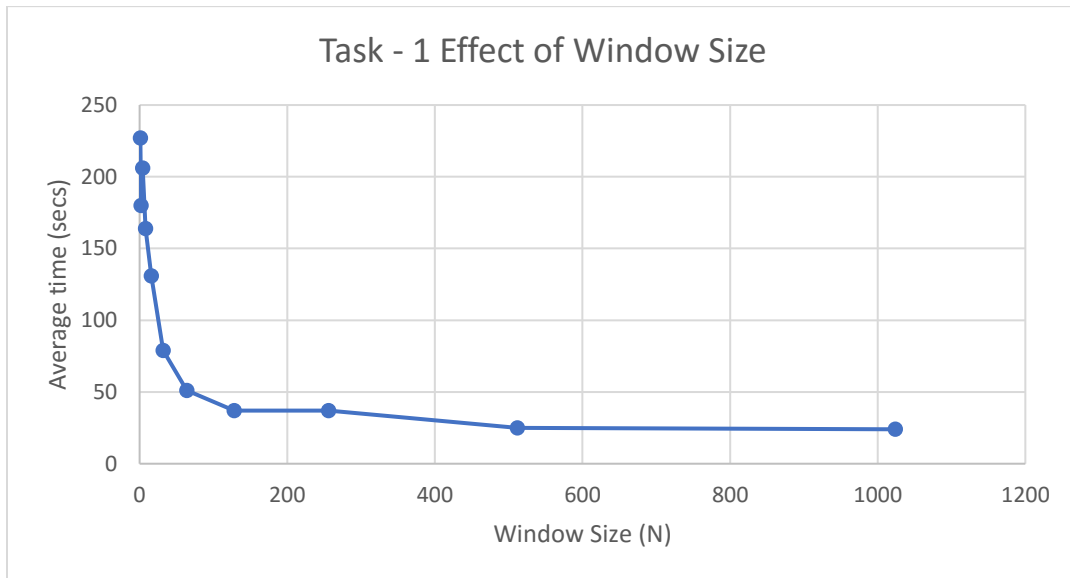
C:\Users\Abinav\Google Drive\2nd Semester\IP\Project\Selective Repeat>
```

Steps followed for completing tasks:

- File size used: **1.64 MB**
- Client IP: **192.168.0.9**
- Server IP: **152.1.13.60**
- Timeout value set: **1 sec**

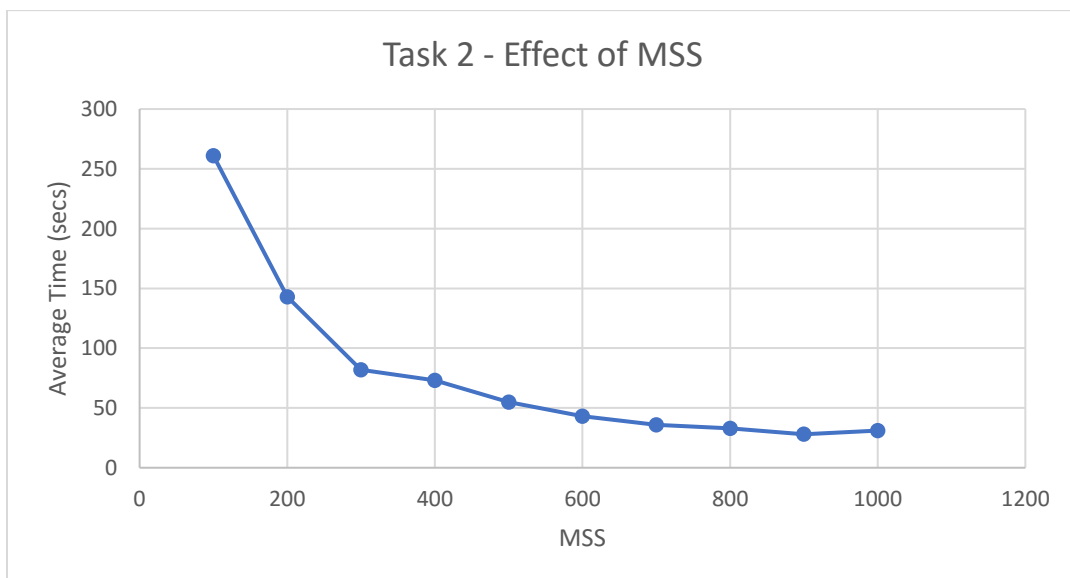
Task 1 – Effect of window size (N):

Ideally, the average time should decrease as the window size is increased. From the graph we can see that with exponential increase in window size the average time for file transfer is also decreasing exponentially. The reason is that in selective repeat only the lost packet is retransmitted unlike in GBN where the packets in window before the dropped one, all are retransmitted which leads to uneven fluctuation in delay while this is not the case in selective repeat as the time is decreasing with increase in window size suggesting better performance than the GBN.



Task 2 – Effect of MSS:

The below graph shows that with increase in MSS the average time for the file transfer decreases exponentially. This is because as MSS is increased it means that more data is put into fragments leading to decrease in number of fragments which eventually leads to lower transmission delay and thus lowering the overall delay of the file transfer.



Task 3 – Effect of Loss Probability (p):

The nature of the following graph is of nearly linearly increasing. This suggests that if the loss probability of a packet increases, it will take more time to transfer the file as the greater the probability gets there's more chance of loss causing time-out and eventually increasing the delay.

