**CS-5331: Mobile data management**

**Project 2: Detailed steps**

**Steps to follow to execute the program:**

1. Download a copy of the file proj2\_saisanjay\_nagarur.c. The value of the packet loss probability is hardcoded in the program for the variable plp.(please update the value whenever you like to run and verify the program for varied values of plp)

Text

Description automatically generated

1. Run the code using the following command:

**csim64.gcc proj2\_saisanjay\_nagarur.c -w -o proj2\_saisanjay\_nagarur**

Note: We make use of -w to prevent the notes and warning getting logged to the shell.

1. The above command generates an output file named proj2
2. We run the compiled code proj2 by using the below command:

**./proj2\_saisanjay\_nagarur > proj2\_saisanjay\_nagarur.out**

1. Proj2.out has the output content of the program proj2\_saisanjay\_nagarur.c

**Results and graphs:**

The data about the average successful transmissions and average failed transmissions were captured in an excel sheet and the graphs were plotted as shown below:

|  |  |  |
| --- | --- | --- |
| PLP | Avg Successful Transmissions | Avg Failed Transmissions |
| 0.1 | 0.432117 | 0.567883 |
| 0.2 | 0.36227 | 0.63773 |
| 0.3 | 0.276173 | 0.723827 |
| 0.4 | 0.225322 | 0.774678 |
| 0.5 | 0.190361 | 0.809639 |

The below graph shows the line chart between the average successful transmissions and the packet loss probability.

Chart, scatter chart

Description automatically generated

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Chart, scatter chart

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Sample output of the program looks like:

-----------------------Program started-----------------------

Stopping Hello transmission as plp not met

node.1 sends a Hello to node.2 at 4617315517961601024 time units

Stopping Hello transmission as plp not met

Stopping Hello transmission as plp not met

Stopping Hello transmission as plp not met

Stopping Hello transmission as plp not met

node.3 sends a Hello to node.4 at 4621819117588971520 time units

node.4 sends a Hello to node.3 at 4621819117588971520 time units

node.2 sends a Hello to node.1 at 4621995078200661598 time units

Stopping Hello transmission as plp not met

Stopping Hello\_Ack transmission as plp not met

node.4 sends a Hello to node.3 at 4623477683937993654 time units

node.4 sends a Hello to node.2 at 4651969737905931292 time units

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Stopping Hello\_Ack transmission as plp not met

Stopping Hello transmission as plp not met

Stopping Hello\_Ack transmission as plp not met

node.4 sends a HelloAck to node.2 at 4651975015561744617 time units

Stopping Hello transmission as plp not met

The simulation ended at 140735483011352 simtime

The number of messages and acknowledges received by each node are:

Node.0 has sent 86 messages and got 22 acknowledges

Node.1 has sent 88 messages and got 16 acknowledges

Node.2 has sent 78 messages and got 19 acknowledges

Node.3 has sent 82 messages and got 15 acknowledges

Node.4 has sent 81 messages and got 7 acknowledges

Number of succesful Transmissions are 79 and average = 0.190361

Number of failed Transmissions are 336 and average = 0.809639

Packet loss probability chosen was 0.500000