

```
File Edit Selection View Go Run Terminal Help
cn5.cpp - My programs - Visual Studio Code

cn5.cpp
C++ > cn5.cpp ~
143
144
145     if ((neew[i][j] == -1) || ((neew[i][j] != -1) && (neew[i][j] > neew[i][k] + neew[k][j])))
146     {
147         if (neew[i][k] + neew[k][j] > -1)
148         {
149             neew[i][j] = neew[i][k] + neew[k][j];
150             path[i][j] = k;
151         }
152     }
153 }
154 }
155 }
156
157 cout << "\n UPDATED :";
158 //displaying updated matrix
159 for (i = 0; i < nod; i++)
160 {
161     cout << "\n-----";
162     cout << "\n";
163     cout << chr[i] << " Table";
164     cout << "\nNODE\|DISTANCE\|THROUGH";
165     for (j = 0; j < nod; j++)
166     {
167         cout << "\n";
168         cout << chr[j] << "\t" << neew[i][j] << "\t\t";
169         if (i == path[i][j])
170             cout << "-";
171         else
172             cout << chr[path[i][j]];
173         cout << "\n-----";
174     }
175 }
176 return 0;
177 }
```

```
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c05.cpp - My programs - Visual Studio Code
c05.cpp
C++> c05.cpp > ...
109 //update
110 int neww[50][50];
111 for (i = 0; i < nod; i++)
112 {
113     for (j = 0; j < nod; j++)
114     {
115         //copying the values for user inputted distance matrix
116         neww[i][j] = dmate[i][j];
117         path[i][j] = 1;
118
119         //after update
120         //comparing -a - b - c
121         for (k = 0; k < nod; k++)
122         {
123             if ((neww[i][j] > sh[i][k][j]) || (neww[i][j] == -1))
124             {
125                 if (sh[i][k][j] > -1)
126                 {
127                     neww[i][j] = sh[i][k][j];
128                     path[i][j] = k;
129                 }
130             }
131         }
132     }
133
134     // comparing the three vertex if no new vertex is found then, we take the 4th one as a - b - c - d
135
136     if (neww[i][j] == -1)
137     {
138         for (k = 0; k < nod; k++)
139         {
140             if ((neww[i][k] != -1) && (neww[k][j] != -1))
141             {
142                 if ((neww[i][j] == -1) || ((neww[i][j] != -1) && (neww[i][j] > neww[i][k] + neww[k][j])))
143                 {
144                     if (neww[i][k] + neww[k][j] > -1)
145                     {
146                         neww[i][j] = neww[i][k] + neww[k][j];
147                         path[i][j] = k;
148                     }
149                 }
150             }
151         }
152     }
153 }
```

```
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cns.cpp - My programs - Visual Studio Code

cns.cpp
C++> cns.cpp > _
73     for (j = 0; j < nod; j++)
74     {
75         for (k = 0; k < nod; k++)
76         { //checking the edge exist or not
77
78             if ((dmate[i][j] > -1) && (dmate[j][k] > -1))
79             {
80                 sh[i][j][k] = dmate[j][k] + dmate[i][j];
81             }
82             else
83             {
84                 sh[i][j][k] = -1;
85             }
86         }
87     }
88 }
89
90 //showing the shared table
91 for (i = 0; i < nod; i++)
92 {
93     cout << "\n=====";
94     cout << "\n\n FOR " << chr[i];
95     cout << "\n\n-----";
96     for (j = 0; j < nod; j++)
97     {
98         cout << "\n FROM " << chr[j];
99         for (k = 0; k < nod; k++)
100         {
101             cout << "\n " << chr[k] << " " << sh[i][j][k];
102         }
103         cout << endl;
104     }
105     cout << "\n-----";
106     cout << endl;
107     cout << endl;
108 }
109
110 //update
111 int neww[50];
112 for (i = 0; i < nod; i++)
113 {
114     cout << "\n ENTER THE DISTANCE BETWEEN THESE 2 NODES " << chr[i] << " - " << chr[j] << " : ";
115     cin >> x;
116     dmate[i][j] = dmate[j][i] = x;
117 }
118
119 //setting up the path
120 int path[50][50];
121 for (i = 0; i < nod; i++)
122 {
123     for (j = 0; j < nod; j++)
124     {
125         path[i][j] = -1;
126     }
127 }
128
129 cout << "\n 1ST INITIALIZATION";
130 //showing up the initialize table of vector
131 for (i = 0; i < nod; i++)
132 {
133     cout << "\n"
134         << chr[i] << " TABLE";
135     cout << "\n\n NODE \ DISTANCE \ THROUGH ";
136     for (j = 0; j < nod; j++)
137     {
138         cout << "\n"
139             << chr[j] << "\t" << dmate[i][j] << "\t\t" << path[i][j];
140     }
141 }
142
143 //showing the shared table
144 int sh[50][50][50];
145 for (i = 0; i < nod; i++)
146 {
147     for (j = 0; j < nod; j++)
148     {
149         for (k = 0; k < nod; k++)
150         { //checking the edge exist or not
```

```
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cn5.cpp - My programs - Visual Studio Code

cn5.cpp
C++> cn5.cpp > _
1 //Kartik Joshi class roll 3932
2 #include <iostream>
3
4 using namespace std;
5
6 int main()
7 {
8     int dmate[50][50];
9     int i, j, k, x;
10    int nod;
11
12    cout << "\n ENTER NO. OF NODES IN THE SYSTEM:";
13    cin >> nod;
14
15    //setting up in the first matrix
16    for (i = 0; i < nod; i++)
17    {
18        for (j = 0; j < nod; j++)
19        {
20            dmate[i][j] = -1;
21        }
22    }
23
24    //setting the name for the vertex
25    char chr[7] = {'A', 'B', 'C', 'D', 'E', 'F', 'G'};
26
27    //taking the inputs
28    for (i = 0; i < nod; i++)
29    {
30        for (j = 0; j < nod; j++)
31        {
32            if (i == j)
33            {
34                dmate[i][j] = 0;
35            }
36            if (dmate[i][j] == -1)
37            {
38                cout << "\n ENTER THE DISTANCE BETWEEN THESE 2 NODES " << chr[i] << " - " << chr[j] << " : ";
39                cin >> x;
40                dmate[i][j] = dmate[j][i] = x;
41            }
42        }
43    }
44 }
```

Output

```
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cns.cpp - My programs - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
=====
FOR B
-----
FROM A
A 2
B 4
C 7

FROM B
A 2
B 0
C 3

FROM C
A 8
B 6
C 3
-----

=====
FOR C
-----
FROM A
A 5
B 7
-----
B 2 -
C 5 -
-----

B Table
=====
NODE DISTANCE THROUGH
A 2 -
-----
B 0 -
-----
C 3 -
-----

C Table
=====
NODE DISTANCE THROUGH
A 5 -
-----
B 3 -
-----

Ln 1, Col 31 Spaces: 4 UTF-8 CRLF C++ windows-gcc-x86 Prettier

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cns.cpp - My programs - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
=====
ENTER NO. OF NODES IN THE SYSTEM:3
ENTER THE DISTANCE BETWEEN THESE 2 NODES A - B : 2
ENTER THE DISTANCE BETWEEN THESE 2 NODES A - C : 5
ENTER THE DISTANCE BETWEEN THESE 2 NODES B - C : 3

1ST INITIALIZATION
A TABLE
=====
NODE DISTANCE THROUGH
A 0 -1
B 2 -1
C 5 -1
-----
B TABLE
=====
NODE DISTANCE THROUGH
A 2 -1
B 0 -1
C 3 -1
-----
C TABLE
=====
NODE DISTANCE THROUGH
A 5 -1
B 3 -1
C 0 -1
-----

=====
FOR A
-----
FROM A
A 0
B 2
C 5

FROM B
A 4
B 2
C 5

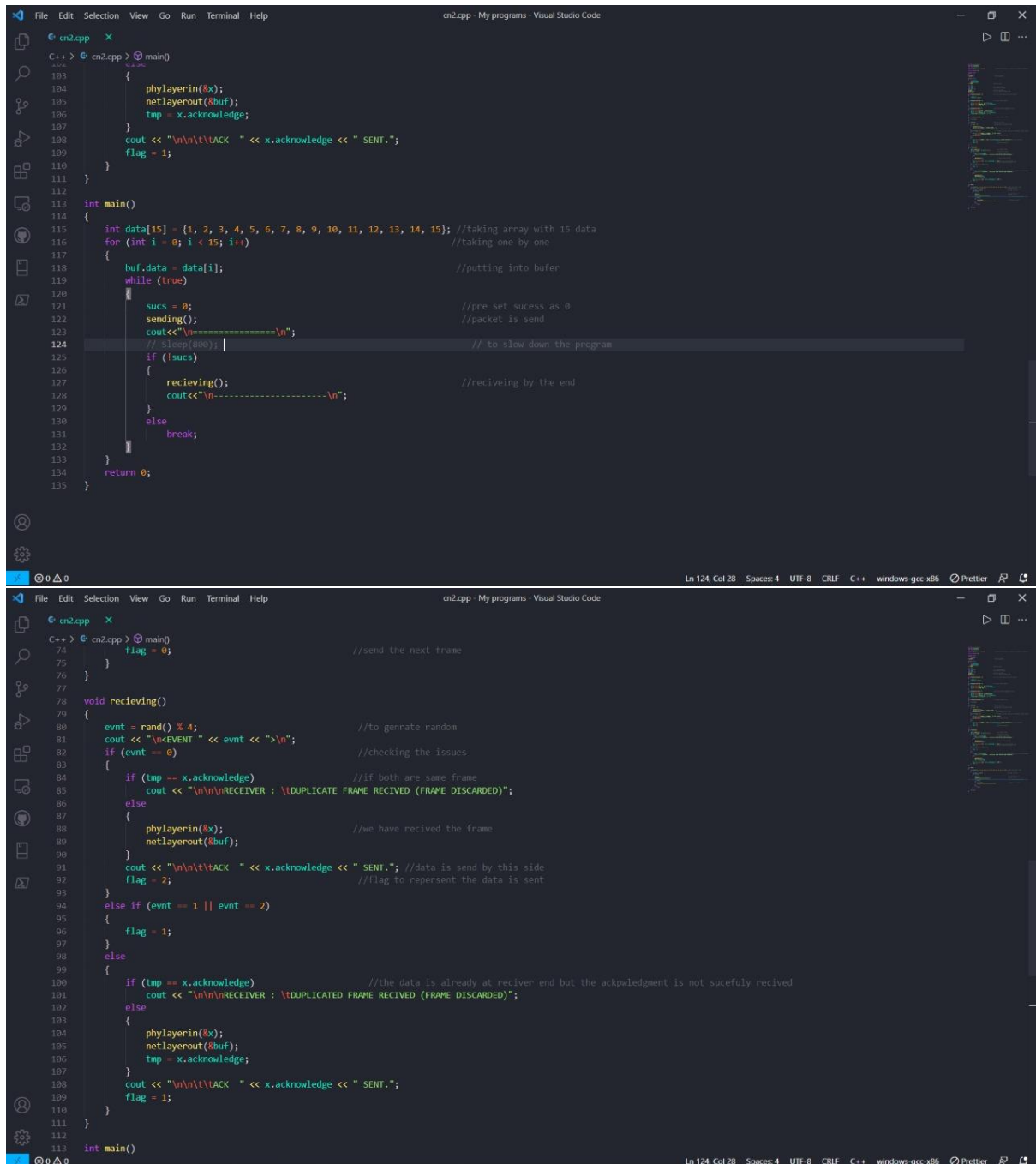
FROM C
A 10
B 8
C 5
-----

=====
FOR C
-----
FROM A
A 5
B 7
-----
B 2 -
C 5 -
-----

B Table
=====
NODE DISTANCE THROUGH
A 2 -
-----
B 0 -
-----
C 3 -
-----

C Table
=====
NODE DISTANCE THROUGH
A 5 -
-----
B 3 -
-----
C 0 -
-----
```

Question 2



```
103 {
104     phylayerin(&x);
105     netlayerout(&buf);
106     tmp = x.acknowledge;
107 }
108 cout << "\n\n\t\tACK " << x.acknowledge << " SENT.";
109 flag = 1;
110 }
111
112
113 int main()
114 {
115     int data[15] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15}; //taking array with 15 data
116     for (int i = 0; i < 15; i++) //taking one by one
117     {
118         buf.data = data[i]; //putting into bufer
119         while (true)
120         {
121             sucs = 0; //pre set sucess as 0
122             sending(); //packet is send
123             cout<<"\n===== \n";
124             // sleep(800); // to slow down the program
125             if (!suc)
126             {
127                 recieving(); //recieve by the end
128                 cout<<"\n----- \n";
129             }
130             else
131                 break;
132         }
133     }
134     return 0;
135 }
```

```
74     flag = 0; //send the next frame
75 }
76
77 void recieving()
78 {
79     evnt = rand() % 4; //to genrate random
80     cout << "\nEVENT " << evnt << ">\n";
81     //checking the issues
82     if (evnt == 0)
83     {
84         if (tmp == x.acknowledge) //if both are same frame
85             cout << "\n\n\t\tRECEIVER : \tDUPLICATE FRAME RECIVED (FRAME DISCARDED)";
86         else
87         {
88             phylayerin(&x); //we have recived the frame
89             netlayerout(&buf);
90         }
91         cout << "\n\n\t\tACK " << x.acknowledge << " SENT."; //data is send by this side
92         flag = 2; //flag to represent the data is sent
93     }
94     else if (evnt == 1 || evnt == 2)
95     {
96         flag = 1;
97     }
98     else
99     {
100         if (tmp == x.acknowledge) //the data is already at reciver end but the ackpaedgment is not sucefully recived
101             cout << "\n\n\t\tRECEIVER : \tDUPLICATED FRAME RECIVED (FRAME DISCARDED)";
102         else
103         {
104             phylayerin(&x);
105             netlayerout(&buf);
106             tmp = x.acknowledge;
107         }
108         cout << "\n\n\t\tACK " << x.acknowledge << " SENT.";
109         flag = 1;
110     }
111 }
112
113 int main()
```

```
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cn2.cpp - My programs - Visual Studio Code

cn2.cpp
C++> cn2.cpp> main()
39     cout << "\n\t\TFRAME SENT...";
40 }
41
42 void phylayerin(frames *f) //to take a frame and display the info
43 {
44     cout << "\n\n\nRECEIVER : \TFRAME RECEIVED.";
45     cout << "\n\t\TDATA : " << f->info->data;
46     cout << "\n\t\TSEQUENCE NO. : " << f->sequence;
47     x.acknowledge = (x.sequence + 1) % 2;
48 }
49
50 void netlayerout(packets *p) //to take the packet info
51 {
52     p = x.info;
53 }
54
55 void sending() //sending the packet
56 {
57     if (flag == 0) //taking buffer from network layer
58     {
59         netlayerin(&buf);
60         cout << "\n\n\nSENDER : \TSENDING FRAME...";
61         phylayerout(&x); //printing the info of flag
62     }
63     else if (flag == 1) //if flag is not zero ,data is not recieved or lost in the path
64     {
65         cout << "\n\n\nSENDER : \TTIMEOUT... NO ACK RECIVED."
66             << "\n\n\t\TRESENDING FRAME...";
67         phylayerout(&x); //we resend the frame
68     }
69     else
70     {
71         cout << "\n\n\nSENDER : \TACK" << x.acknowledge << " RECEIVED SUCCESFULLY."; //send sucessfully
72         sucs = 1; //recived
73         tmp = -1;
74         flag = 0; //send the next frame
75     }
76 }
77
78 void recievine()

Ln 124, Col 28 Spaces: 4 UTF-8 CRLF C++ windows-gcc-x86 Prettier
```

```
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cn2.cpp - My programs - Visual Studio Code

cn2.cpp
C++> cn2.cpp> main()
1 //by kartik dash 3932
2 #include <iostream>
3 #include <windows.h>
4
5 #define inc(y) y = (y + 1) % 2; //predefining the value of y,that will increment the squence no.
6
7 using namespace std;
8
9 typedef struct
10 {
11     int data;
12 } packets; //defining packets
13
14 typedef struct
15 {
16     int sequence;
17     int acknowledge;
18     packets *info;
19 } frames; //defining frame
20
21 int evt;
22 int flag = 0; //for acknowledgement
23 int sucs; //to confirm if recived
24 int tmp = -1;
25 frames x; //frame to send data
26 packets buf; //to store data for tempory work
27 int y = 0;
28
29 void netlayerin(packets *p) //to set the new squence of the given packet
30 {
31     x.info = p;
32     x.sequence = inc(y);
33 }
34
35 void phylayerout(frames *f) //to take a frame and print
36 {
37     cout << "\n\t\TDATA : " << f->info->data;
38     cout << "\n\t\TSEQUENCE NO. : " << f->sequence;
39     cout << "\n\t\TFRAME SENT...";
40 }

Ln 124, Col 28 Spaces: 4 UTF-8 CRLF C++ windows-gcc-x86 Prettier
```

Output

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
SEQUENCE NO. : 0
ACK 1 SENT.
-----
SENDER : ACK1 RECEIVED SUCCESSFULLY.
-----
SENDER : SENDING FRAME...
DATA : 15
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 2>
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 15
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 0>
RECEIVER : FRAME RECEIVED.
DATA : 15
SEQUENCE NO. : 1
ACK 0 SENT.
-----
SENDER : ACK0 RECEIVED SUCCESSFULLY.
=====
PS E:\My programs\C++>
Ln 124, Col 28 Spaces: 4 UTF-8 CRLF C++ windows-gcc-x86 Prettier
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
RESENDING FRAME...
DATA : 14
SEQUENCE NO. : 0
FRAME SENT...
=====
<EVENT 0>
RECEIVER : FRAME RECEIVED.
DATA : 14
SEQUENCE NO. : 0
ACK 1 SENT.
-----
SENDER : ACK1 RECEIVED SUCCESSFULLY.
=====
SENDER : SENDING FRAME...
DATA : 15
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 2>
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 15
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 0>
Ln 124, Col 28 Spaces: 4 UTF-8 CRLF C++ windows-gcc-x86 Prettier
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

-----
SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 13
            SEQUENCE NO. : 1
            FRAME SENT...
=====
<EVENT 0>
-----
RECEIVER :    DUPLICATE FRAME RECEIVED (FRAME DISCARDED)
            ACK : 0 SENT.
            -----
SENDER :    ACK0 RECEIVED SUCCESFULLY.
=====
SENDER :    SENDING FRAME...
            DATA : 14
            SEQUENCE NO. : 0
            FRAME SENT...
=====
<EVENT 2>
-----
SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 14
            SEQUENCE NO. : 0
            FRAME SENT...
=====
Ln 124, Col 28  Spaces: 4  UTF-8  CRLF  C++  windows-gcc-x86  Prettier  🔍
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

=====
SENDER :    SENDING FRAME...
            DATA : 13
            SEQUENCE NO. : 1
            FRAME SENT...
=====
<EVENT 3>
-----
RECEIVER :    FRAME RECEIVED.
            DATA : 13
            SEQUENCE NO. : 1
            -----
            ACK : 0 SENT.
            -----
SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 13
            SEQUENCE NO. : 1
            FRAME SENT...
=====
<EVENT 2>
-----
SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 13
            SEQUENCE NO. : 1
            FRAME SENT...
=====
<EVENT 2>
=====
Ln 124, Col 28  Spaces: 4  UTF-8  CRLF  C++  windows-gcc-x86  Prettier  🔍
```



```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
=====
FRAME SENT...
<EVENT 1>
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 12
SEQUENCE NO. : 0
FRAME SENT...
=====
<EVENT 2>
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 12
SEQUENCE NO. : 0
FRAME SENT...
=====
<EVENT 0>
-----
RECEIVER : DUPLICATE FRAME RECEIVED (FRAME DISCARDED)
ACK 1 SENT.
-----
SENDER : ACK1 RECEIVED SUCCESSFULLY.
=====
SENDER : SENDING FRAME...
=====
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
DATA : 12
SEQUENCE NO. : 0
ACK 1 SENT.
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 12
SEQUENCE NO. : 0
FRAME SENT...
=====
<EVENT 3>
-----
RECEIVER : DUPLICATED FRAME RECEIVED (FRAME DISCARDED)
ACK 1 SENT.
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 12
SEQUENCE NO. : 0
FRAME SENT...
=====
<EVENT 1>
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 12
SEQUENCE NO. : 0
FRAME SENT...
=====
Ln 124, Col 28 Spaces: 4 UTF-8 CRLF C++ windows-gcc-x86 Prettier
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

<EVENT 2>
-----

SENDER :      TIMEOUT... NO ACK RECEIVED.

              RESENDING FRAME...
              DATA : 12
              SEQUENCE NO. : 0
              FRAME SENT...

=====

<EVENT 1>
-----

SENDER :      TIMEOUT... NO ACK RECEIVED.

              RESENDING FRAME...
              DATA : 12
              SEQUENCE NO. : 0
              FRAME SENT...

=====

<EVENT 1>
-----

SENDER :      TIMEOUT... NO ACK RECEIVED.

              RESENDING FRAME...
              DATA : 12
              SEQUENCE NO. : 0
              FRAME SENT...

=====

<EVENT 3>

RECEIVER :    FRAME RECEIVED.

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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

FRAME SENT...

=====

<EVENT 3>

RECEIVER :    FRAME RECEIVED.
              DATA : 11
              SEQUENCE NO. : 1
              ACK 0 SENT.

-----

SENDER :      TIMEOUT... NO ACK RECEIVED.

              RESENDING FRAME...
              DATA : 11
              SEQUENCE NO. : 1
              FRAME SENT...

=====

<EVENT 0>

RECEIVER :    DUPLICATE FRAME RECEIVED (FRAME DISCARDED)
              ACK 0 SENT.

-----

SENDER :      ACK0 RECEIVED SUCCESSFULLY.

=====

SENDER :      SENDING FRAME...
              DATA : 12
              SEQUENCE NO. : 0
              FRAME SENT...

=====

<EVENT 2>
```

```
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cn2.cpp - My programs - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Code + - - - X

-----
ACK 1 SENT.
-----

SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 10
SEQUENCE NO. : 0
FRAME SENT...
=====
<EVENT 1>
-----

SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 10
SEQUENCE NO. : 0
FRAME SENT...
=====
<EVENT 0>

RECEIVER : DUPLICATE FRAME RECEIVED (FRAME DISCARDED)
-----
ACK 1 SENT.

SENDER : ACK1 RECEIVED SUCCESSFULLY.
=====

SENDER : SENDING FRAME...
DATA : 11
SEQUENCE NO. : 1
FRAME SENT...

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cn2.cpp - My programs - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Code + - - - X

=====
<EVENT 0>

RECEIVER : DUPLICATE FRAME RECEIVED (FRAME DISCARDED)
-----
ACK 0 SENT.

SENDER : ACK0 RECEIVED SUCCESSFULLY.
=====

SENDER : SENDING FRAME...
DATA : 10
SEQUENCE NO. : 0
FRAME SENT...
=====
<EVENT 1>
-----

SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 10
SEQUENCE NO. : 0
FRAME SENT...
=====
<EVENT 3>
-----

RECEIVER : FRAME RECEIVED,
DATA : 10
SEQUENCE NO. : 0
-----
ACK 1 SENT.
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 2>
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 9
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 1>
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 9
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 1>
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 9
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 0>
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 9
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 3>
-----
RECEIVER : DUPLICATED FRAME RECEIVED (FRAME DISCARDED)
ACK : 0 SENT.
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 9
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 3>
-----
RECEIVER : DUPLICATED FRAME RECEIVED (FRAME DISCARDED)
ACK : 0 SENT.
-----
SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 9
SEQUENCE NO. : 1
FRAME SENT...
=====
<EVENT 2>
```

```
File Edit Selection View Go Run Terminal Help
cn2.cpp - My programs - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
<EVENT 3>
RECEIVER :    DUPLICATED FRAME RECEIVED (FRAME DISCARDED)
              ACK 0 SENT.
              -----
SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 9
              SEQUENCE NO. : 1
              FRAME SENT...
              -----
<EVENT 3>
RECEIVER :    DUPLICATED FRAME RECEIVED (FRAME DISCARDED)
              ACK 0 SENT.
              -----
SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 9
              SEQUENCE NO. : 1
              FRAME SENT...
              -----
<EVENT 2>
              -----
SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...

Ln 124, Col 28  Spaces: 4  UTF-8  CRLF  C++  windows-gcc-x86  Prettier  [?] [x]

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cn2.cpp - My programs - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
<EVENT 0>
RECEIVER :    DUPLICATE FRAME RECEIVED (FRAME DISCARDED)
              ACK 1 SENT.
              -----
SENDER :    ACK1 RECEIVED SUCCESSFULLY.
              -----
SENDER :    SENDING FRAME...
              DATA : 9
              SEQUENCE NO. : 1
              FRAME SENT...
              -----
<EVENT 3>
RECEIVER :    FRAME RECEIVED.
              DATA : 9
              SEQUENCE NO. : 1
              ACK 0 SENT.
              -----
SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 9
              SEQUENCE NO. : 1
              FRAME SENT...
              -----
<EVENT 3>

Ln 124, Col 28  Spaces: 4  UTF-8  CRLF  C++  windows-gcc-x86  Prettier  [?] [x]
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

<EVENT 3>
-----
RECEIVER :    DUPLICATED FRAME RECEIVED (FRAME DISCARDED)
              ACK 1 SENT.
              -----
SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 8
              SEQUENCE NO. : 0
              FRAME SENT...
              -----
<EVENT 2>
-----
SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 8
              SEQUENCE NO. : 0
              FRAME SENT...
              -----
<EVENT 1>
-----
SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 8
              SEQUENCE NO. : 0
              FRAME SENT...
              -----
Ln 124, Col 28  Spaces: 4  UTF-8  CRLF  C++  windows-gcc-x86  Prettier
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

              ACK 1 SENT.
              -----
SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 8
              SEQUENCE NO. : 0
              FRAME SENT...
              -----
<EVENT 3>
-----
RECEIVER :    DUPLICATED FRAME RECEIVED (FRAME DISCARDED)
              ACK 1 SENT.
              -----
SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 8
              SEQUENCE NO. : 0
              FRAME SENT...
              -----
<EVENT 2>
-----
SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 8
              SEQUENCE NO. : 0
              FRAME SENT...
              -----
<EVENT 3>
-----
Ln 124, Col 28  Spaces: 4  UTF-8  CRLF  C++  windows-gcc-x86  Prettier
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

<EVENT 0>

RECEIVER :    FRAME RECEIVED.
              DATA : 7
              SEQUENCE NO. : 1
              ACK 0 SENT.
              -----

SENDER :    ACK0 RECEIVED SUCCESSFULLY.
              -----

SENDER :    SENDING FRAME...
              DATA : 8
              SEQUENCE NO. : 0
              FRAME SENT...
              -----

<EVENT 2>
              -----

SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 8
              SEQUENCE NO. : 0
              FRAME SENT...
              -----

<EVENT 3>

RECEIVER :    FRAME RECEIVED.
              DATA : 8
              SEQUENCE NO. : 0

Ln 124, Col 28  Spaces: 4  UTF-8  CRLF  C++  windows-gcc-x86  Prettier
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

RECEIVER :    FRAME RECEIVED.
              DATA : 6
              SEQUENCE NO. : 0
              ACK 1 SENT.
              -----

SENDER :    ACK1 RECEIVED SUCCESSFULLY.
              -----

SENDER :    SENDING FRAME...
              DATA : 7
              SEQUENCE NO. : 1
              FRAME SENT...
              -----

<EVENT 2>
              -----

SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 7
              SEQUENCE NO. : 1
              FRAME SENT...
              -----

<EVENT 1>
              -----

SENDER :    TIMEOUT... NO ACK RECEIVED.
              RESENDING FRAME...
              DATA : 7
              SEQUENCE NO. : 1
              FRAME SENT...
              -----

Ln 124, Col 28  Spaces: 4  UTF-8  CRLF  C++  windows-gcc-x86  Prettier
```

```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
SENDER : ACK0 RECEIVED SUCCESSFULLY.
=====

SENDER : SENDING FRAME...
DATA : 6
SEQUENCE NO. : 0
FRAME SENT...

<EVENT 2>
-----

SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 6
SEQUENCE NO. : 0
FRAME SENT...

<EVENT 1>
-----

SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 6
SEQUENCE NO. : 0
FRAME SENT...

<EVENT 0>
-----

RECEIVER : FRAME RECEIVED.
DATA : 6
SEQUENCE NO. : 0
ACK 1 SENT.

Ln 124, Col 28 Spaces: 4 UTF-8 CRLF C++ windows-gcc-x86 Prettier

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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
SENDER : ACK1 RECEIVED SUCCESSFULLY.
=====

SENDER : SENDING FRAME...
DATA : 5
SEQUENCE NO. : 1
FRAME SENT...

<EVENT 3>
-----

RECEIVER : FRAME RECEIVED.
DATA : 5
SEQUENCE NO. : 1
ACK 0 SENT.

-----

SENDER : TIMEOUT... NO ACK RECEIVED.
RESENDING FRAME...
DATA : 5
SEQUENCE NO. : 1
FRAME SENT...

<EVENT 0>
-----

RECEIVER : DUPLICATE FRAME RECEIVED (FRAME DISCARDED)
ACK 0 SENT.
-----

SENDER : ACK0 RECEIVED SUCCESSFULLY.
=====

Ln 124, Col 28 Spaces: 4 UTF-8 CRLF C++ windows-gcc-x86 Prettier
```



```
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cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

<EVENT 2>
-----

SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
            FRAME SENT...
-----

<EVENT 3>

RECEIVER :   DUPLICATED FRAME RECEIVED (FRAME DISCARDED)
            ACK 1 SENT.
-----

SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
            FRAME SENT...
-----

<EVENT 0>

RECEIVER :   DUPLICATE FRAME RECEIVED (FRAME DISCARDED)
            ACK 1 SENT.
-----

SENDER :    ACK1 RECEIVED SUCCESSFULLY.
-----

Ln 124, Col 28  Spaces: 4  UTF-8  CRLF  C++  windows-gcc-x86  Prettier
```

```
File Edit Selection View Go Run Terminal Help
cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
            FRAME SENT...
-----

<EVENT 3>

RECEIVER :   DUPLICATED FRAME RECEIVED (FRAME DISCARDED)
            ACK 1 SENT.
-----

SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
            FRAME SENT...
-----

<EVENT 3>

RECEIVER :   DUPLICATED FRAME RECEIVED (FRAME DISCARDED)
            ACK 1 SENT.
-----

SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
            FRAME SENT...
-----

<EVENT 2>

Ln 124, Col 28  Spaces: 4  UTF-8  CRLF  C++  windows-gcc-x86  Prettier
```

```
File Edit Selection View Go Run Terminal Help
cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

=====
<EVENT 1>
-----

SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
            FRAME SENT...
=====

<EVENT 3>

RECEIVER :   FRAME RECEIVED.
            DATA : 4
            SEQUENCE NO. : 0
            ACK 1 SENT.
-----

SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
            FRAME SENT...
=====

<EVENT 1>
-----

SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
```

```
File Edit Selection View Go Run Terminal Help
cn2.cpp - My programs - Visual Studio Code

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

RECEIVER :   FRAME RECEIVED.
            DATA : 3
            SEQUENCE NO. : 1
            ACK 0 SENT.
-----

SENDER :    ACK0 RECEIVED SUCCESSFULLY.
=====

SENDER :    SENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
            FRAME SENT...
=====

<EVENT 1>
-----

SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
            FRAME SENT...
=====

<EVENT 1>
-----

SENDER :    TIMEOUT... NO ACK RECEIVED.
            RESENDING FRAME...
            DATA : 4
            SEQUENCE NO. : 0
            FRAME SENT...
=====
```