```
djsully@djsully:~/Desktop/project2/djsullivan_project2_GBN$ make
gcc -g project2.c student2.c -o p2
project2.c: In function 'GetTimeNow':
project2.c:485:5: warning: implicit declaration of function 'gettimeofday' [-Wimplicit-function-declaration]
     gettimeofday (&tp, NULL);
     ^
djsully@djsully:~/Desktop/project2/djsullivan_project2_GBN$ ./p2
-----  Network Simulator Version    2.3 --------

Enter the number of messages to simulate: 5
Packet loss probability [enter number between 0.0 and 1.0]: .1
Packet corruption probability [0.0 for no corruption]: .1
Packet out-of-order probability [0.0 for no out-of-order]: .1
Average time between messages from sender's layer5 [ > 0.0]: .1
Enter Level of tracing desired: 1
Do you want actions randomized: (1 = yes, 0 = no)? 0
Do you want Bidirectional: (1 = yes, 0 = no)? 0
Input parameters:
Number of Messages = 5  Lost Packet Prob. =   0.100
Corrupt Packet Prob. =   0.100  Out Of Order Prob. =   0.100
Ave. time between messages =      0.10  Trace level = 1
Randomize = 0  Bi-directional = 0


Printing the contents of the Simulation Event Q

A:        0.1080, Layer 5 to 4  Message = !fEVhy->Pbs'2J3m~2DU

Printing the contents of the Simulation Event Q
Event Time =     8.382 B: LAYER 3  Seq/Ack/Check = 0/0/57140:  !fEVhy->Pbs'2J3m~2DU
Event Time = 5000.108 A: Timer

A:        0.1205, Layer 5 to 4  Message = ##i.Qt9]!Eh-Ps8[~Dg,

Printing the contents of the Simulation Event Q
Event Time =     8.382 B: LAYER 3  Seq/Ack/Check = 0/0/57140:  !fEVhy->Pbs'2J3m~2DU
Event Time =    14.668 B: LAYER 3  Seq/Ack/Check = 1/0/65062:  ##i.Qt9]!Eh-Ps8[~Dg,
Event Time = 5000.108 A: Timer

A:        0.2893, Layer 5 to 4  Message = $X$d:oFzQ(]3h>sJ~U,a

Printing the contents of the Simulation Event Q
Event Time =     8.382 B: LAYER 3  Seq/Ack/Check = 0/0/57140:  !fEVhy->Pbs'2J3m~2DU
Event Time =    14.668 B: LAYER 3  Seq/Ack/Check = 1/0/65062:  ##i.Qt9]!Eh-Ps8[~Dg,
Event Time =    16.526 B: LAYER 3  Seq/Ack/Check = 2/0/54738:  $X$d:oFzQ(]3h>sJ~U,a
Event Time = 5000.108 A: Timer

A:        0.3312, Layer 5 to 4  Message = %kS%$jR:#iQ9!hP8~gO7

Printing the contents of the Simulation Event Q
Event Time =     8.382 B: LAYER 3  Seq/Ack/Check = 0/0/57140:  !fEVhy->Pbs'2J3m~2DU
Event Time =    14.668 B: LAYER 3  Seq/Ack/Check = 1/0/65062:  ##i.Qt9]!Eh-Ps8[~Dg,
Event Time =    16.526 B: LAYER 3  Seq/Ack/Check = 2/0/54738:  $X$d:oFzQ(]3h>sJ~U,a
Event Time =    20.256 B: LAYER 3  Seq/Ack/Check = 3/0/50845:  %kS%$jR:#iQ9!hP8~gO7
Event Time = 5000.108 A: Timer

A:        0.3315, Layer 5 to 4  Message = &}wq&e_XRLF?93-'~xrl

Printing the contents of the Simulation Event Q
Event Time =     8.382 B: LAYER 3  Seq/Ack/Check = 0/0/57140:  !fEVhy->Pbs'2J3m~2DU
Event Time =    14.668 B: LAYER 3  Seq/Ack/Check = 1/0/65062:  ##i.Qt9]!Eh-Ps8[~Dg,
Event Time =    16.526 B: LAYER 3  Seq/Ack/Check = 2/0/54738:  $X$d:oFzQ(]3h>sJ~U,a
Event Time =    20.256 B: LAYER 3  Seq/Ack/Check = 3/0/50845:  %kS%$jR:#iQ9!hP8~gO7
Event Time =    38.511 B: LAYER 3  Seq/Ack/Check = 4/0/5251:  &}wq&e_XRLF?93-'~xrl
Event Time = 5000.108 A: Timer

A:        0.4026, Layer 5 to 4  Message = '2=IT'kv$x:FQ]hs~,7C

Printing the contents of the Simulation Event Q
Event Time =     8.382 B: LAYER 3  Seq/Ack/Check = 0/0/57140:  !fEVhy->Pbs'2J3m~2DU
Event Time =    14.668 B: LAYER 3  Seq/Ack/Check = 1/0/65062:  ##i.Qt9]!Eh-Ps8[~Dg,
Event Time =    16.526 B: LAYER 3  Seq/Ack/Check = 2/0/54738:  $X$d:oFzQ(]3h>sJ~U,a
Event Time =    20.256 B: LAYER 3  Seq/Ack/Check = 3/0/50845:  %kS%$jR:#iQ9!hP8~gO7
Event Time =    38.511 B: LAYER 3  Seq/Ack/Check = 4/0/5251:  &}wq&e_XRLF?93-'~xrl
Event Time =    61.672 B: LAYER 3  Seq/Ack/Check = 5/0/65489:  '2=IT'kv$x:FQ]hs~,7C
Event Time = 5000.108 A: Timer

A:        0.4446, Layer 5 to 4  Message = (Eb~=Z(6SpxLi(Eb~=Zw

Printing the contents of the Simulation Event Q
Event Time =     8.382 B: LAYER 3  Seq/Ack/Check = 0/0/57140:  !fEVhy->Pbs'2J3m~2DU
Event Time =    14.668 B: LAYER 3  Seq/Ack/Check = 1/0/65062:  ##i.Qt9]!Eh-Ps8[~Dg,
Event Time =    16.526 B: LAYER 3  Seq/Ack/Check = 2/0/54738:  $X$d:oFzQ(]3h>sJ~U,a
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Event Time =    20.256 B: LAYER 3   Seq/Ack/Check = 3/0/50845:   %kS%$jR:#iQ9!hP8~gO7
Event Time =    38.511 B: LAYER 3   Seq/Ack/Check = 4/0/5251:   &}wq&e_XRLF?93-'~xrl
Event Time =    61.672 B: LAYER 3   Seq/Ack/Check = 5/0/65489:   '2=IT'kv$x:FQ]hs~,7C
Event Time =    83.121 B: LAYER 3   Seq/Ack/Check = 6/0/54402:   (Eb~=Z(6SpxLi(Eb~=Zw
Event Time = 5000.108 A: Timer

B:     14.6679,  Layer 4 to 5   Message = ##i.Qt9]!Eh-Ps8[~Dg,

Printing the contents of the Simulation Event Q
Event Time =    16.856 A: LAYER 3   Seq/Ack/Check = 0/0/57140:   !fEVhy->Pbs'2J3m~2DU
Event Time =    20.256 B: LAYER 3   Seq/Ack/Check = 3/0/50845:   %kS%$jR:#iQ9!hP8~gO7
Event Time =    31.134 A: LAYER 3   Seq/Ack/Check = 1/0/65062:   ##i.Qt9]!Eh-Ps8[~Dg,
Event Time =    38.511 B: LAYER 3   Seq/Ack/Check = 4/0/5251:   &}wq&e_XRLF?93-'~xrl
Event Time =    61.672 B: LAYER 3   Seq/Ack/Check = 5/0/65489:   '2=IT'kv$x:FQ]hs~,7C
Event Time =    83.121 B: LAYER 3   Seq/Ack/Check = 6/0/54402:   (Eb~=Z(6SpxLi(Eb~=Zw
Event Time = 5000.108 A: Timer

B:     16.5262,  Layer 4 to 5   Message = $X$d:oFzQ(]3h>sJ~U,a

Printing the contents of the Simulation Event Q
Event Time =    17.993 A: LAYER 3   Seq/Ack/Check = 2/0/54738:   $X$d:oFzQ(]3h>sJ~U,a
Event Time =    20.256 B: LAYER 3   Seq/Ack/Check = 3/0/50845:   %kS%$jR:#iQ9!hP8~gO7
Event Time =    31.134 A: LAYER 3   Seq/Ack/Check = 1/0/65062:   ##i.Qt9]!Eh-Ps8[~Dg,
Event Time =    38.511 B: LAYER 3   Seq/Ack/Check = 4/0/5251:   &}wq&e_XRLF?93-'~xrl
Event Time =    61.672 B: LAYER 3   Seq/Ack/Check = 5/0/65489:   '2=IT'kv$x:FQ]hs~,7C
Event Time =    83.121 B: LAYER 3   Seq/Ack/Check = 6/0/54402:   (Eb~=Z(6SpxLi(Eb~=Zw
Event Time = 5000.108 A: Timer


Printing the contents of the Simulation Event Q
Event Time =    20.256 B: LAYER 3   Seq/Ack/Check = 3/0/50845:   %kS%$jR:#iQ9!hP8~gO7
Event Time =    31.134 A: LAYER 3   Seq/Ack/Check = 1/0/65062:   ##i.Qt9]!Eh-Ps8[~Dg,
Event Time =    38.511 B: LAYER 3   Seq/Ack/Check = 4/0/5251:   &}wq&e_XRLF?93-'~xrl
Event Time =    61.672 B: LAYER 3   Seq/Ack/Check = 5/0/65489:   '2=IT'kv$x:FQ]hs~,7C
Event Time =    83.121 B: LAYER 3   Seq/Ack/Check = 6/0/54402:   (Eb~=Z(6SpxLi(Eb~=Zw
Event Time = 5000.108 A: Timer


Printing the contents of the Simulation Event Q
Event Time =    31.134 A: LAYER 3   Seq/Ack/Check = 1/0/65062:   ##i.Qt9]!Eh-Ps8[~Dg,
Event Time =    38.511 B: LAYER 3   Seq/Ack/Check = 4/0/5251:   &}wq&e_XRLF?93-'~xrl
Event Time =    61.672 B: LAYER 3   Seq/Ack/Check = 5/0/65489:   '2=IT'kv$x:FQ]hs~,7C
Event Time =    83.121 B: LAYER 3   Seq/Ack/Check = 6/0/54402:   (Eb~=Z(6SpxLi(Eb~=Zw
Event Time = 5000.108 A: Timer

B:     20.2556,  Layer 4 to 5   Message = %kS%$jR:#iQ9!hP8~gO7

Printing the contents of the Simulation Event Q
Event Time =    31.134 A: LAYER 3   Seq/Ack/Check = 1/0/65062:   ##i.Qt9]!Eh-Ps8[~Dg,
Event Time =    38.511 B: LAYER 3   Seq/Ack/Check = 4/0/5251:   &}wq&e_XRLF?93-'~xrl
Event Time =    61.672 B: LAYER 3   Seq/Ack/Check = 5/0/65489:   '2=IT'kv$x:FQ]hs~,7C
Event Time =    83.121 B: LAYER 3   Seq/Ack/Check = 6/0/54402:   (Eb~=Z(6SpxLi(Eb~=Zw
Event Time = 5000.108 A: Timer


Printing the contents of the Simulation Event Q
Event Time =    38.511 B: LAYER 3   Seq/Ack/Check = 4/0/5251:   &}wq&e_XRLF?93-'~xrl
Event Time =    61.672 B: LAYER 3   Seq/Ack/Check = 5/0/65489:   '2=IT'kv$x:FQ]hs~,7C
Event Time =    83.121 B: LAYER 3   Seq/Ack/Check = 6/0/54402:   (Eb~=Z(6SpxLi(Eb~=Zw
Event Time = 5000.108 A: Timer


Printing the contents of the Simulation Event Q
Event Time =    61.672 B: LAYER 3   Seq/Ack/Check = 5/0/65489:   '2=IT'kv$x:FQ]hs~,7C
Event Time =    83.121 B: LAYER 3   Seq/Ack/Check = 6/0/54402:   (Eb~=Z(6SpxLi(Eb~=Zw
Event Time = 5000.108 A: Timer

B:     38.5106,  Layer 4 to 5   Message = &}wq&e_XRLF?93-'~xrl


Simulator terminated at time 49.179627
 after receiving 5 msgs at layer5
Simulator Analysis:
  Number of messages sent from 5 to 4: 9
  Number of messages received at Layer 5, side A: 0
  Number of messages received at Layer 5, side B: 5
  Number of messages incorrectly received at layer 5: 0
  Number of packets entering the network: 13
  Average number of packets already in network:      2.462
  Number of packets that the network lost: 1
  Number of packets that the network corrupted: 0
  Number of packets that the network put out of order: 2
djsully@djsully:~/Desktop/project2/djsullivan_project2_GBN$
```