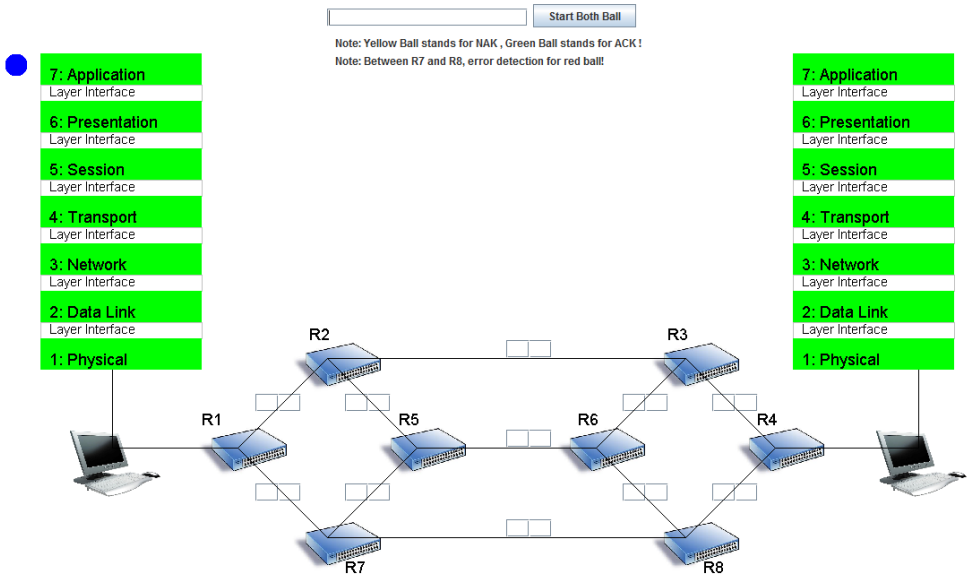
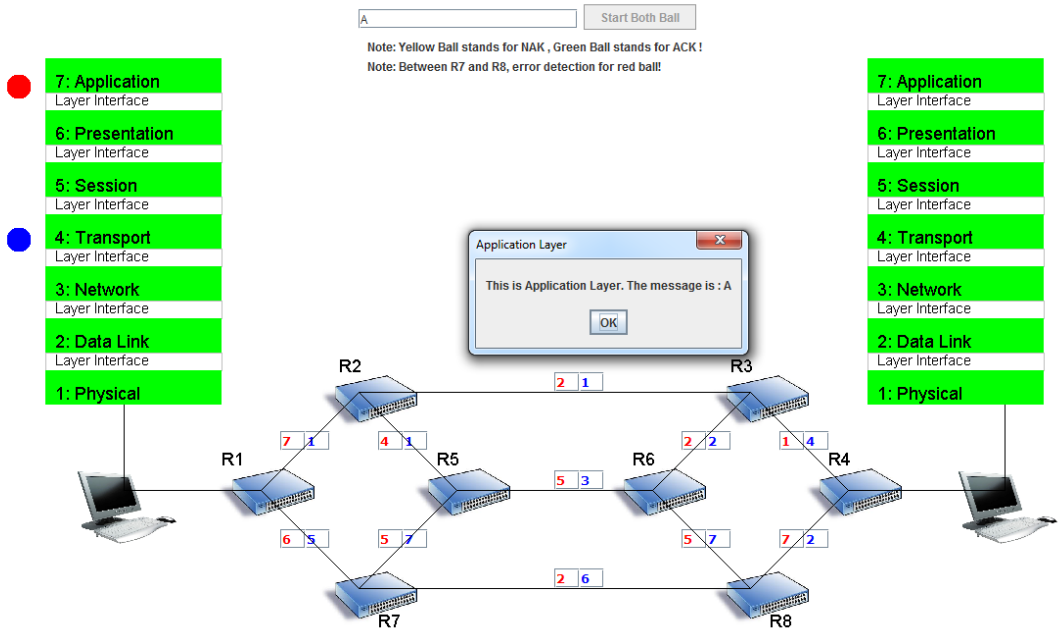
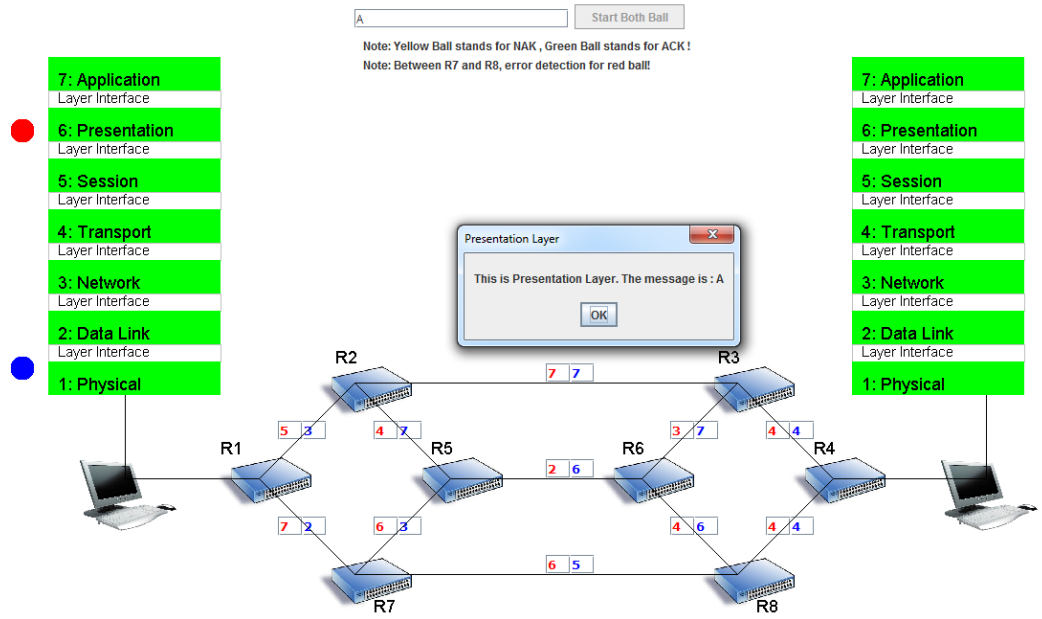
1. After running the programming, we got the initial screen shot. Make the red ball as an example in the following screen shot.



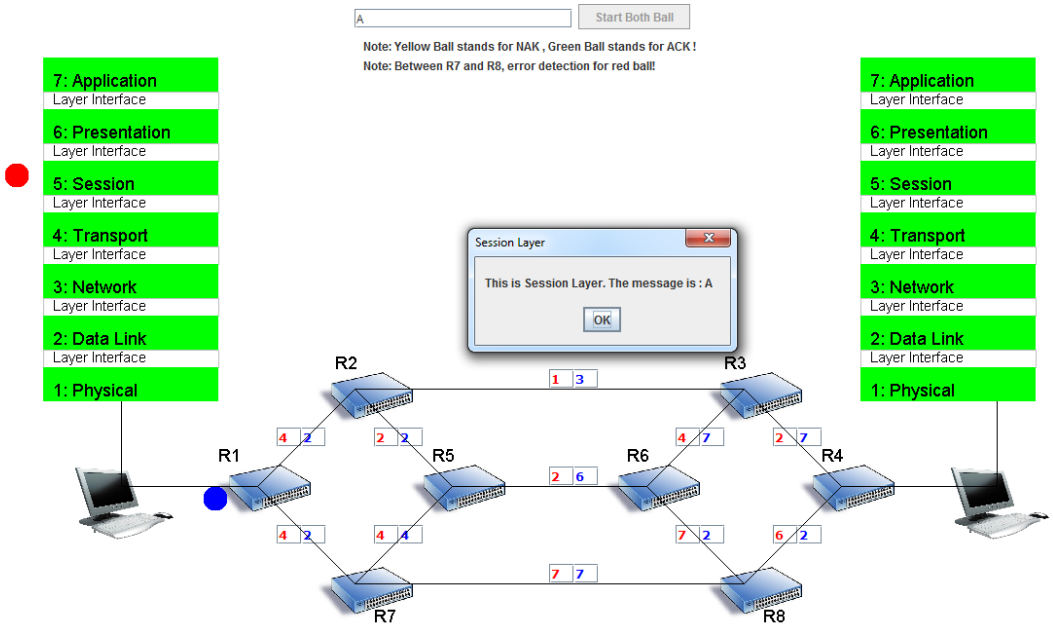
2. Input an 'A' in the input field, click "start both ball" button. Generate some random number which stands for weight of each edge between routers. And both ball starts running, and will choose the shortest path according to Dijkstra's Algorithm .
When the red ball runs through Application Layer, click it, it stops, and pops out a small new window.



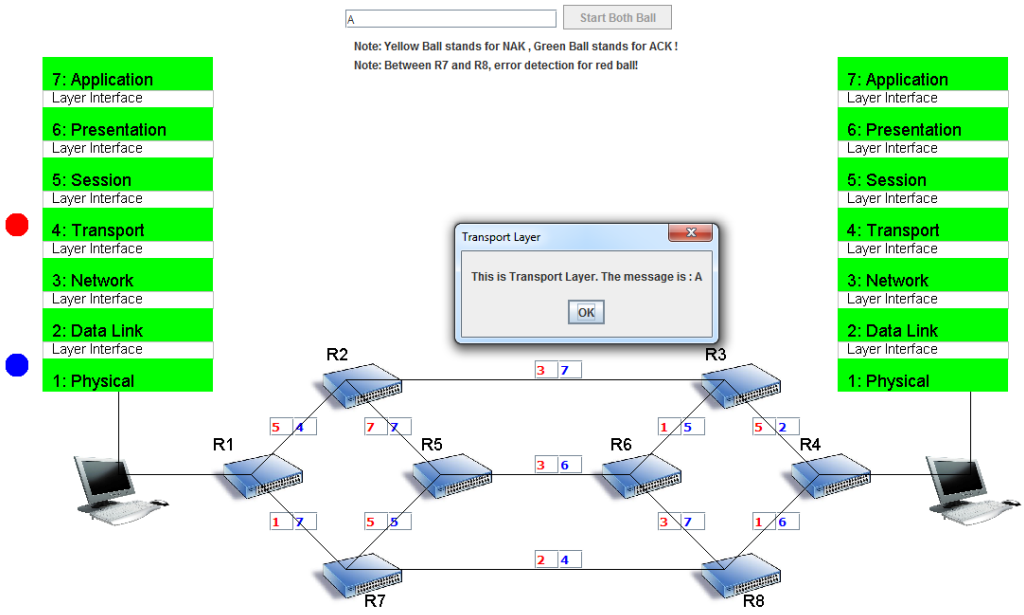
3. When the red ball runs through Presentation Layer, click it, it stops, and pops out a small new window.



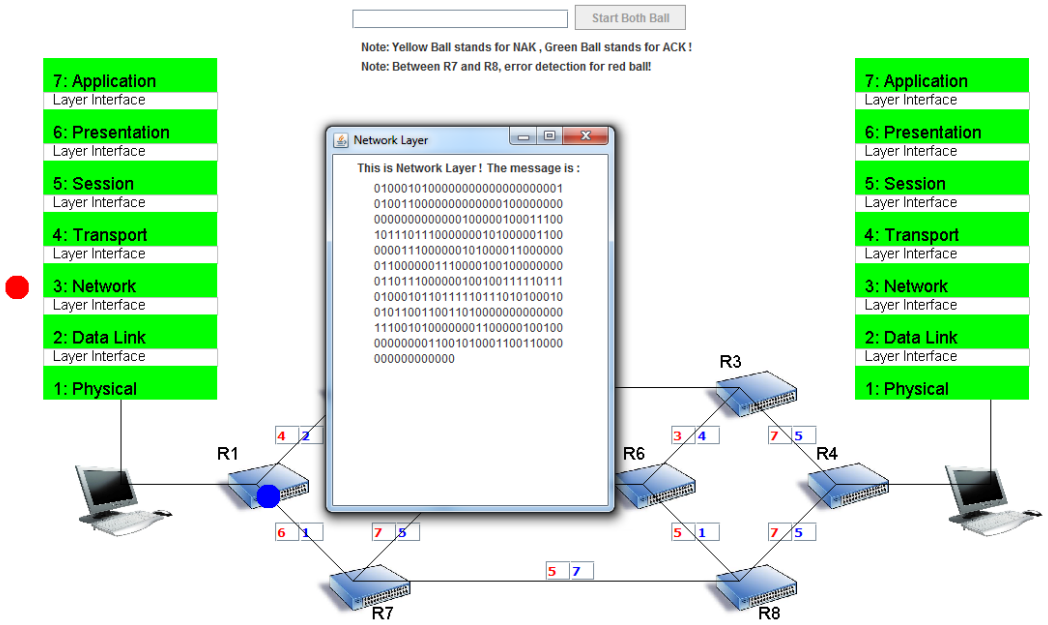
4. When the red ball runs through Session Layer, click it, it stops, and pops out a small new window.



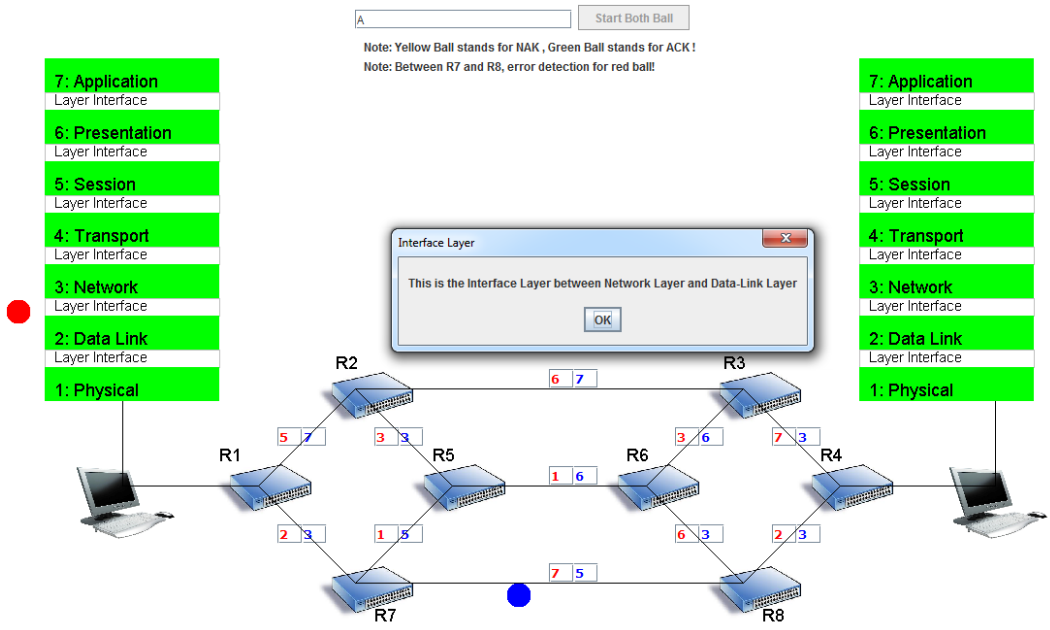
5. When the red ball runs through Transport Layer, click it, it stops, and pops out a small new window.



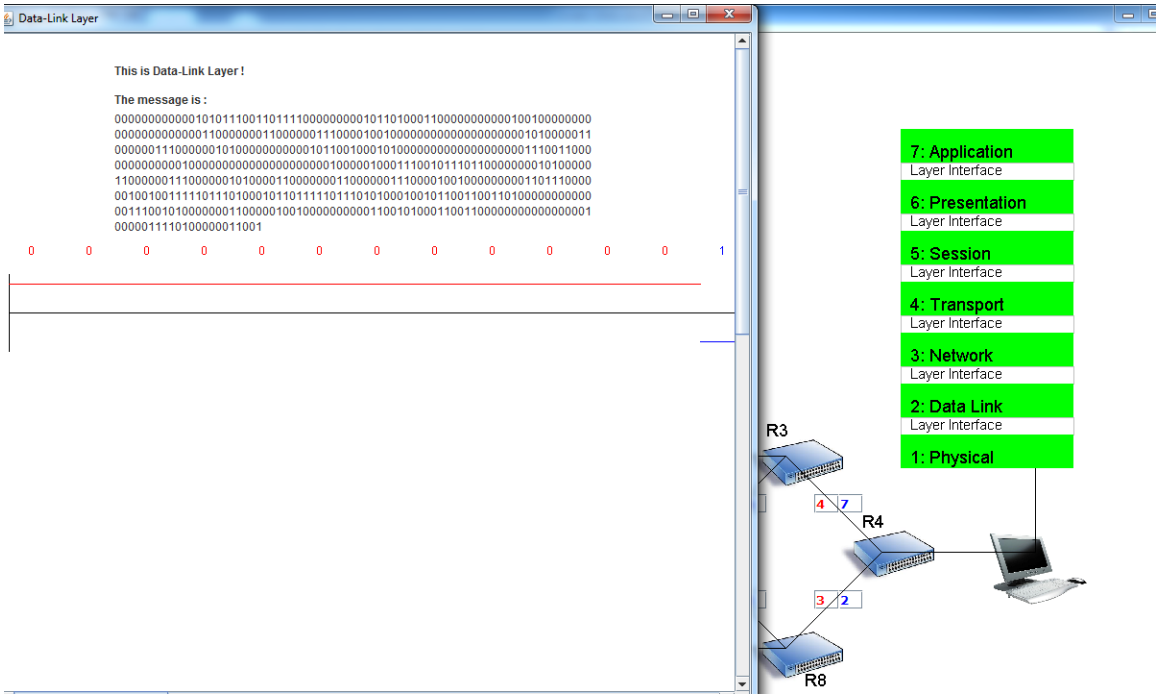
6. When the red ball runs through network layer. Click it. It shows message for IP header and TCP header



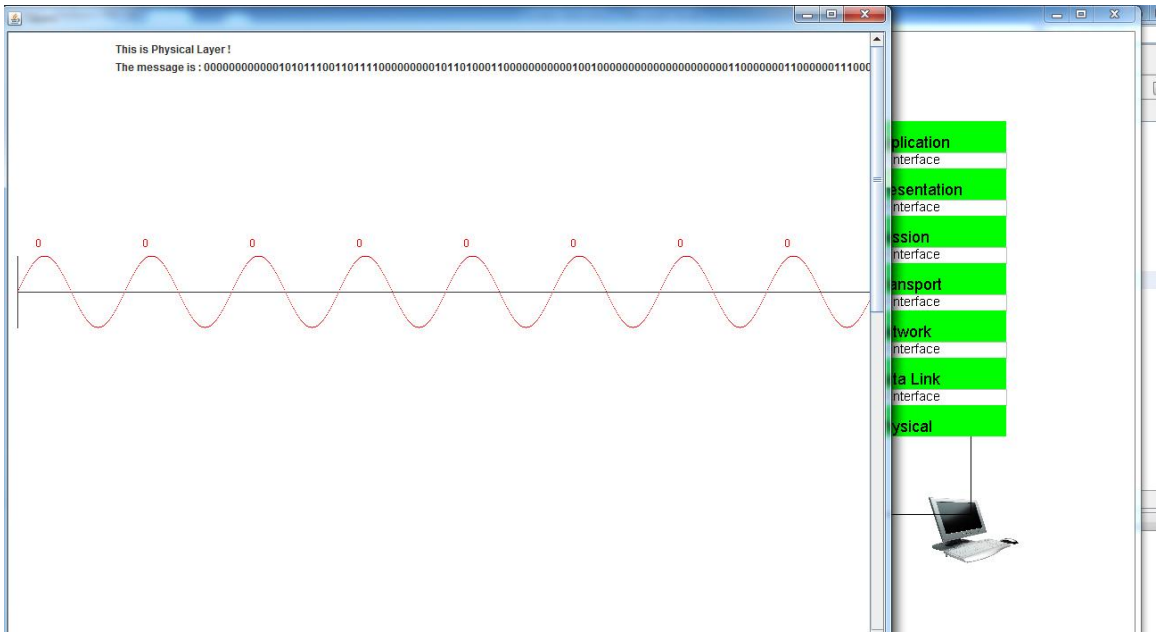
7. When the red ball runs through the interface between Network layer and data-link layer, click the ball, pop out a window.



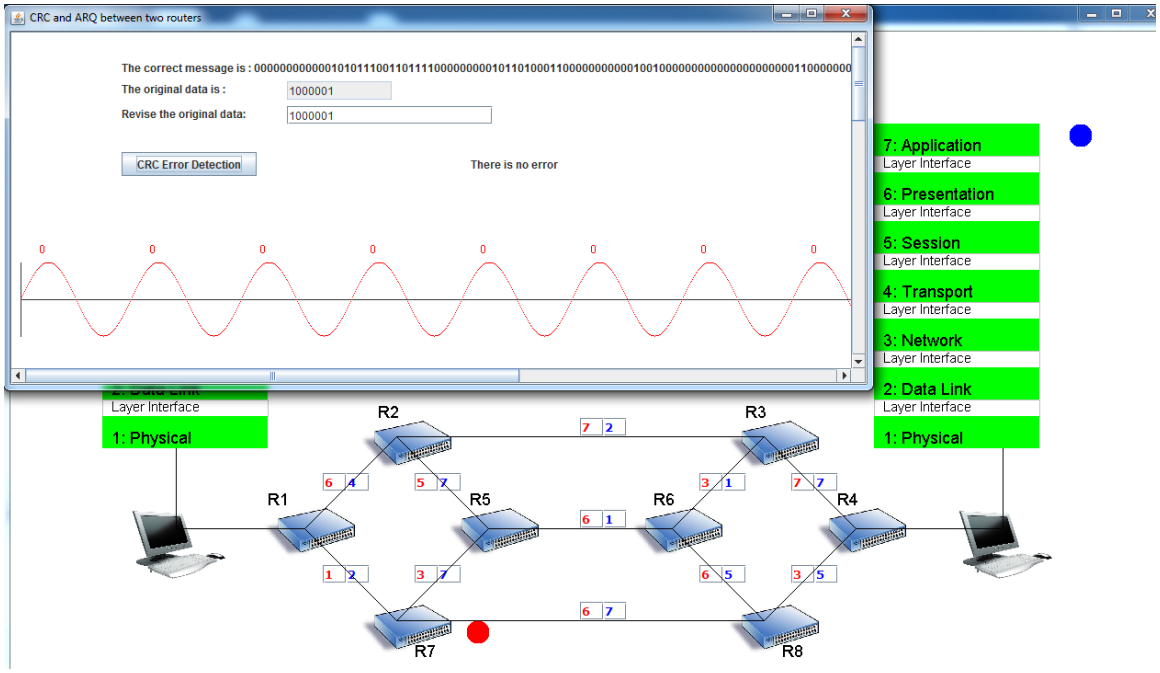
8. When the red ball runs through Data-Link Layer, click it. Pop out a new window which shows the message for Ethernet Frame, and the corresponding digital signal.



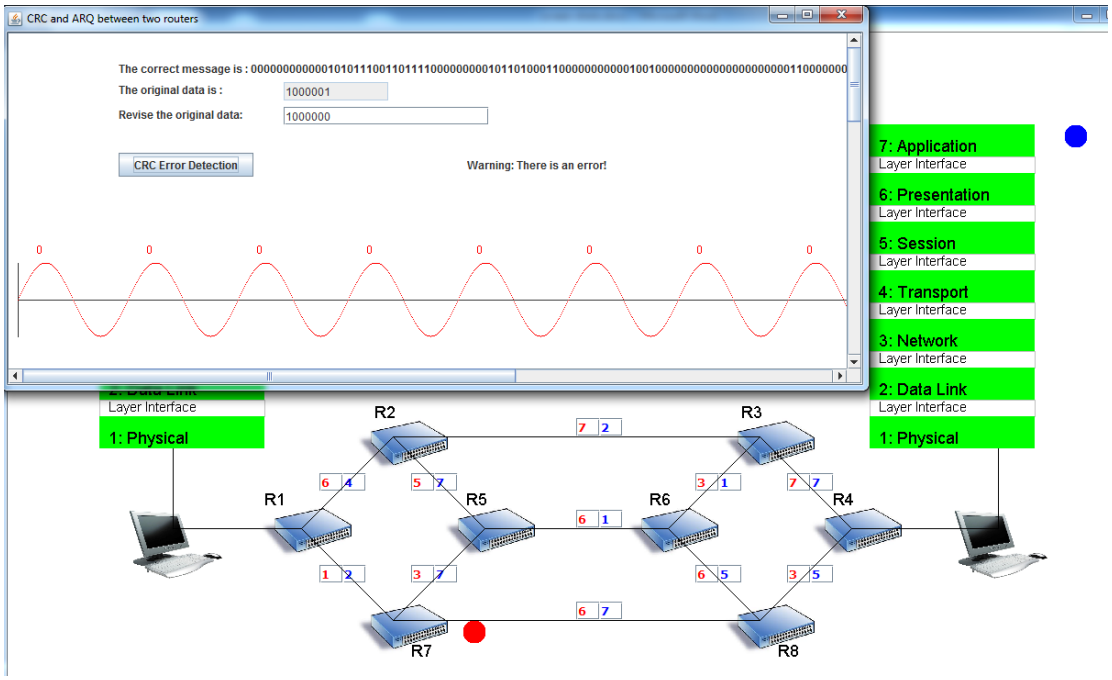
9. When the red ball runs through Physical Layer, click it, and pop out a window shows message and the analog signal.



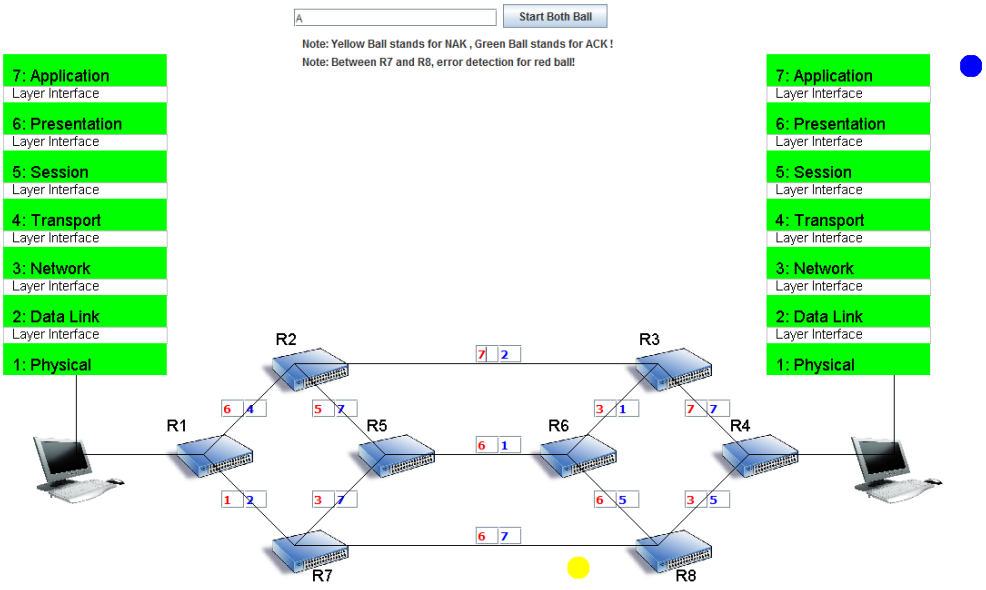
10. When the red ball runs between router R7 and R8, click “CRC Error Dection” button, it shows “no error”, which means the message is right.



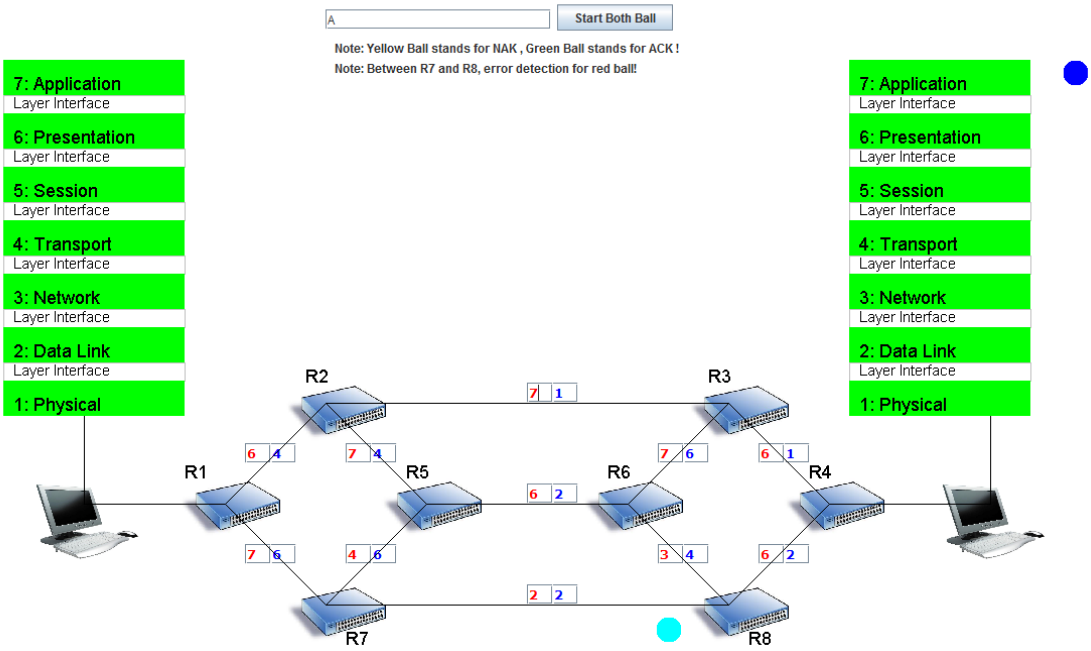
11. If the there is some error happened to the message during the transmission, the program can do CRC error detection. Here, in order to be simplified and make it easy for us to distinguish the correct message and error message, we just show the original data in two JtextFields.
    Edit the data to “1000000”, make it an error, click “CRC Error Detection” button. It shows “there is an error!”



12. Close the pop window. When the red ball reaches the right router. There comes a yellow ball(stands for NAK) running from right router to left router.



13. Automatically resend the red ball for R7 to R8, when the message transferred from sender to receiver is correct, a green ball run from right router to left router.



14. Finally, the red ball continues running.