NPTEL

NPTEL ONLINE CERTIFICATION COURSE

Discrete Mathematics
Graph Theory – 3 &
Generating Functions

NetworkX - Isomorphic graphs: A game to play
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Here is an interesting game for all of us to play, it is basically to check if two graphs are isomorphic, so open your web browser and go to the place where the URL is displayed,
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so this is Safari, you can also go to Chrome or Firefox, and then type their github.erikmickelson.com,
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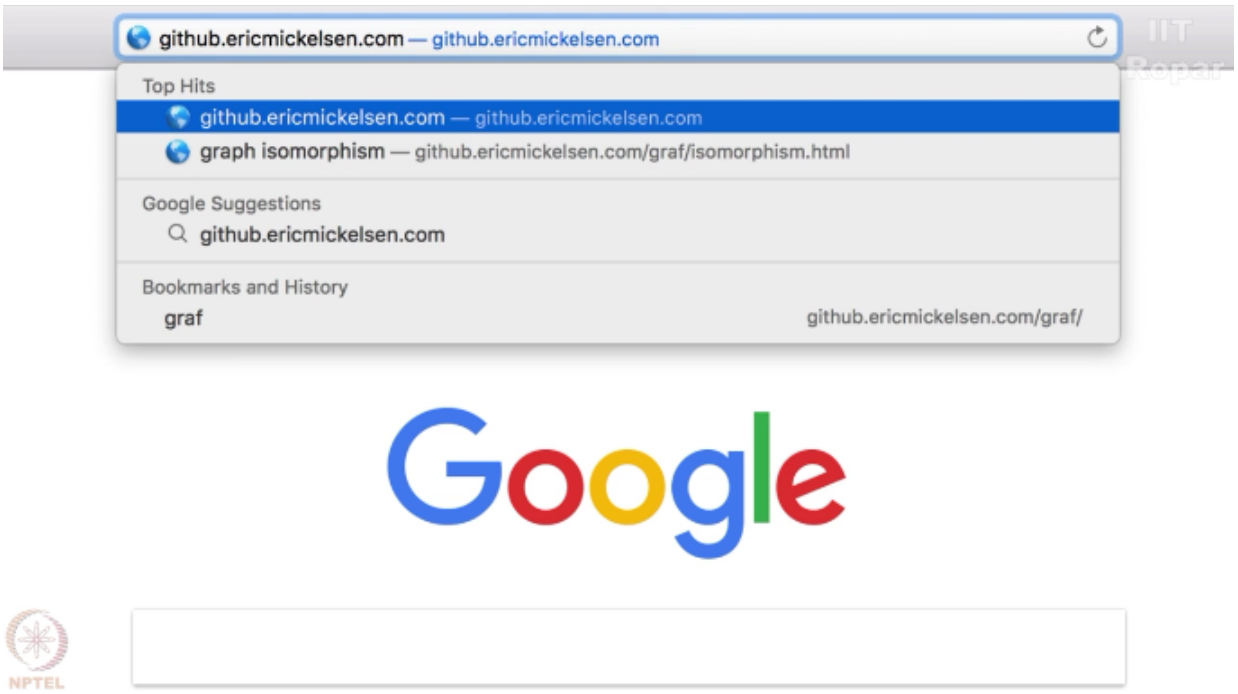

so you just type github.erikmickelson.com, and then you will see a window appear like this,
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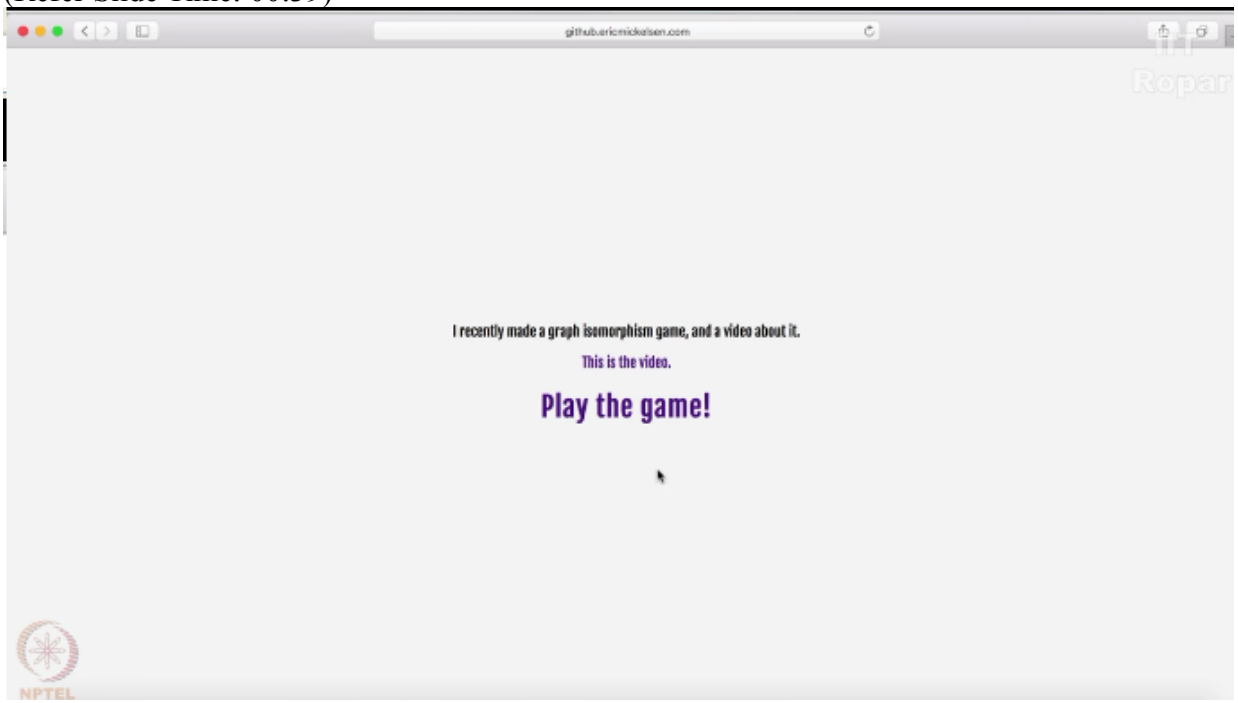

I recently made a graph isomorphism game and a video about it, this is the video, so if you click on this you can watch the video,
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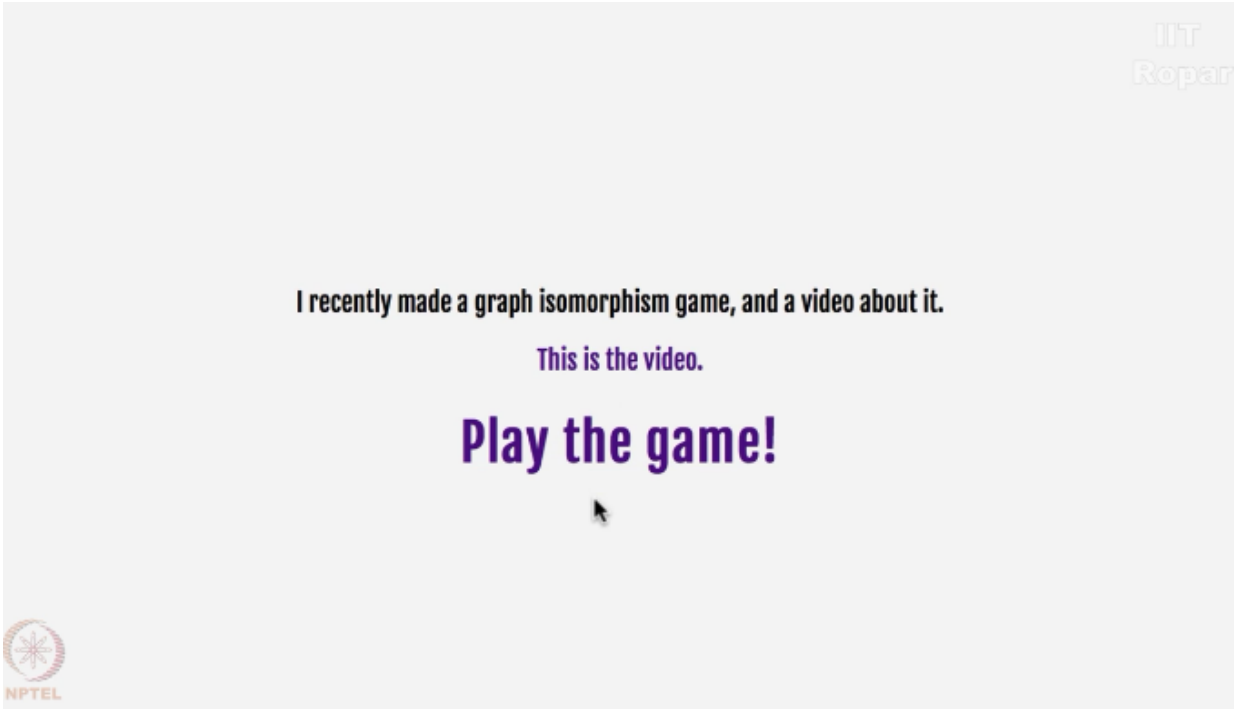

so I request all of you to watch the video, and now here is the game, so this person Eric Mickelson has created a website for playing a game on isomorphism, so we should thank this person to help us understand this concept better, so let us play the game now, so play the game,

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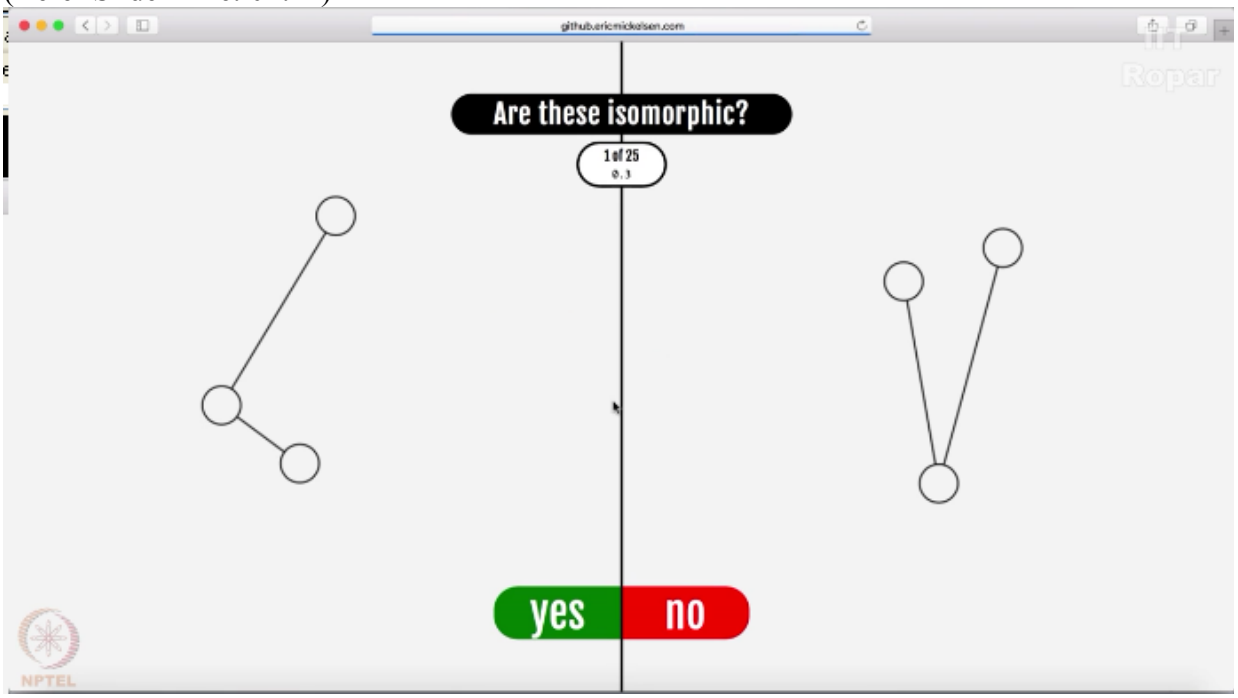

you see here two graphs are displayed and you should check if these two graphs are isomorphic, so this graph looks isomorphic you can basically pull and push the edges and vertices like this

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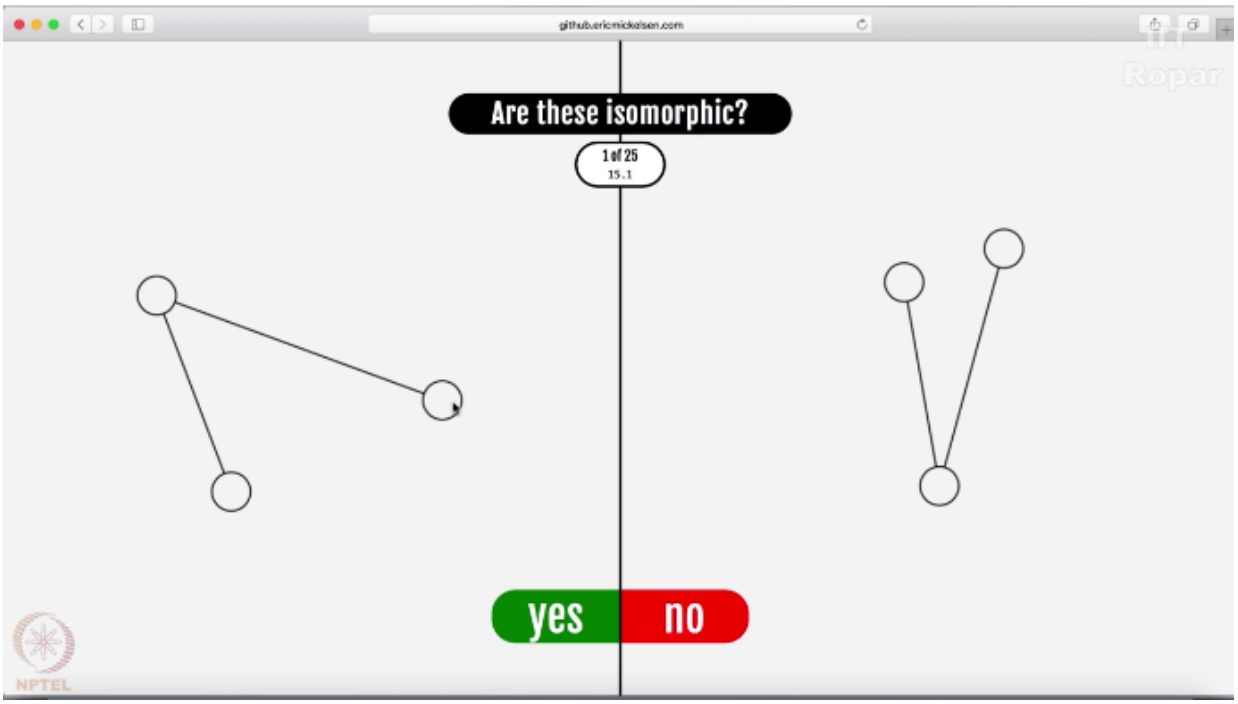

so yes, so it says correct click to continue, and now these two graphs, yes they look isomorphic now correct, so do not worry there is time which is being kept here, there is a timer but please do not worry about playing it really fast you must understand the concept, so once your game is over you can post your scores on the discussion forum, it will be really interesting to see all your scores, so this graph is isomorphic,

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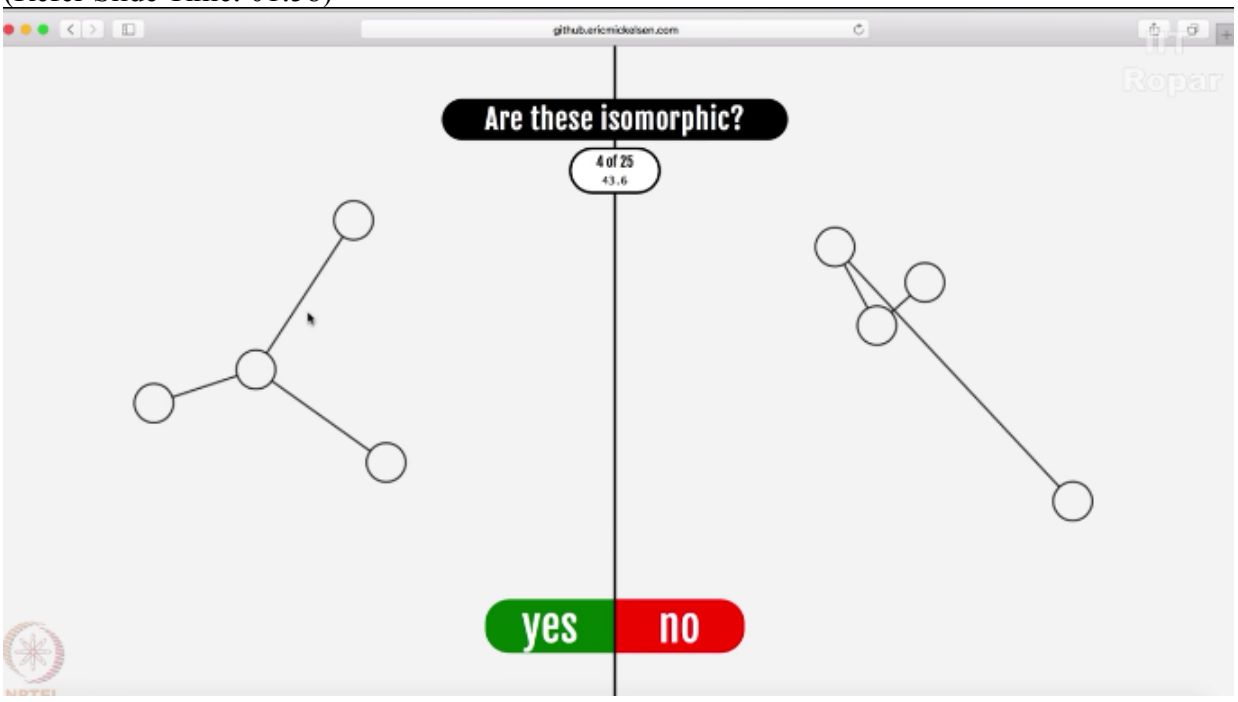

you must all play this game on your machines, so look here,

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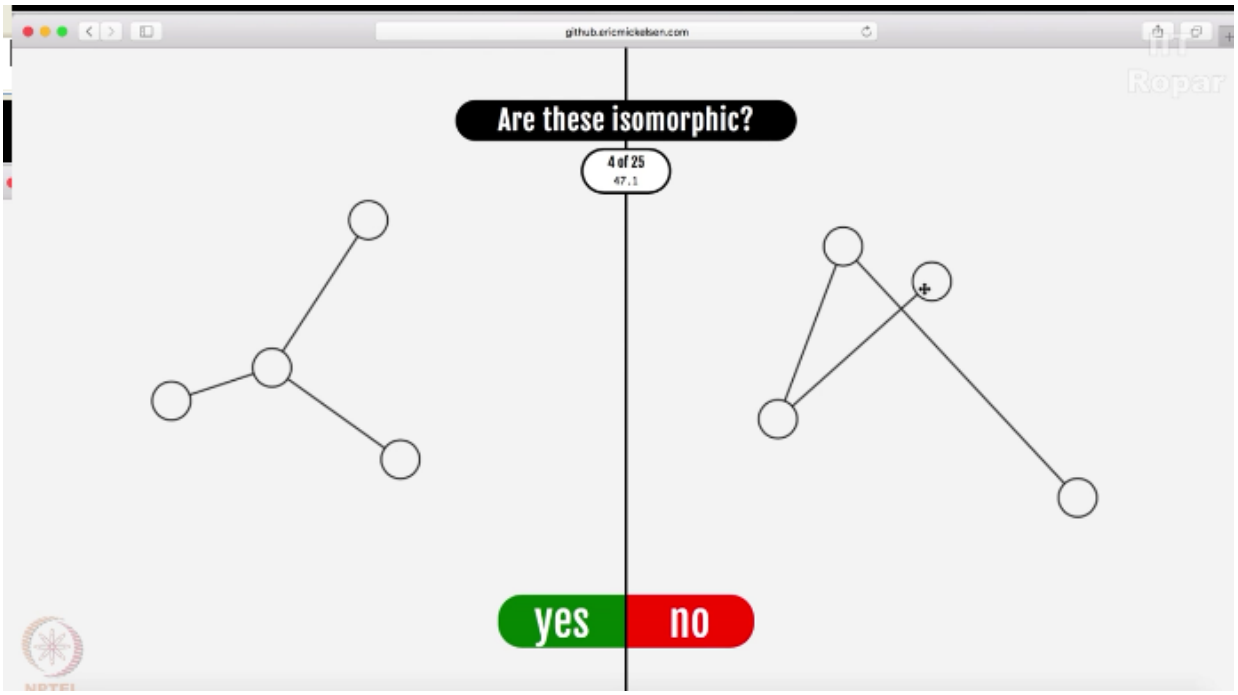

this is a star graph you see but this side is a path graph if I arrange it this way,

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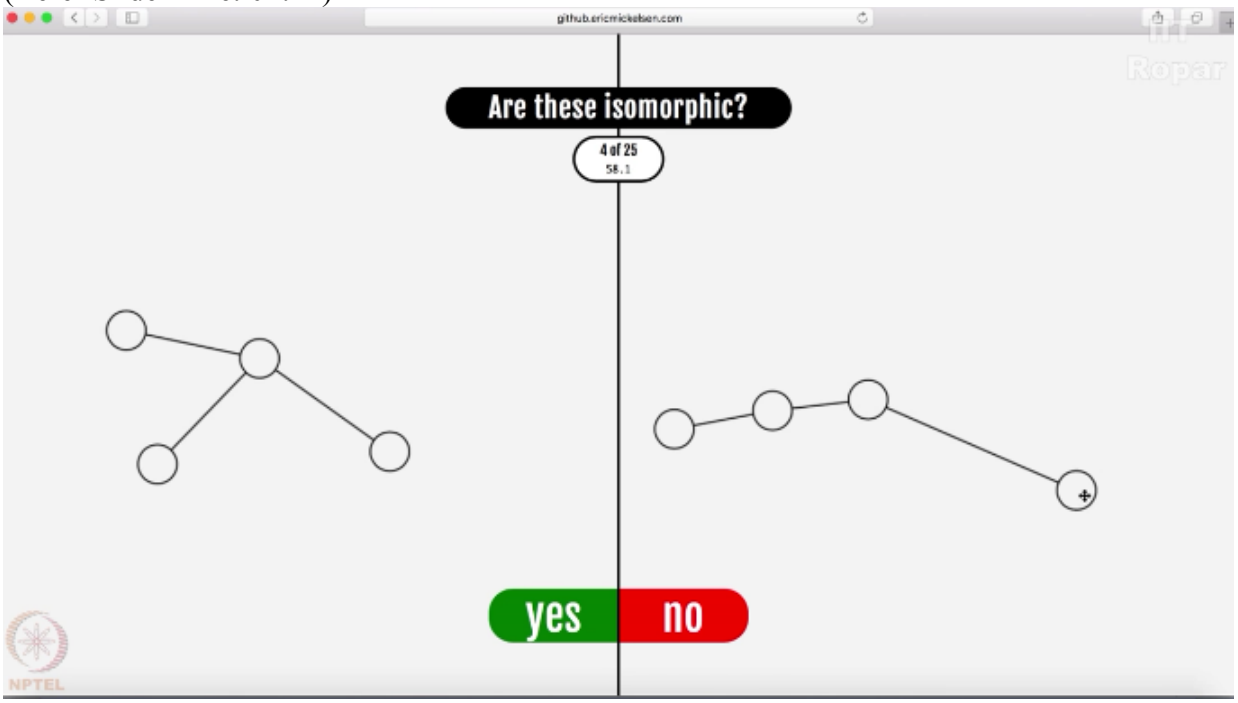

you see this is a path graph, so these two are not isomorphic,

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it says correct.

Now let us check this one it is a C3 with a node, this is also a C3 with a node, it is, now you see
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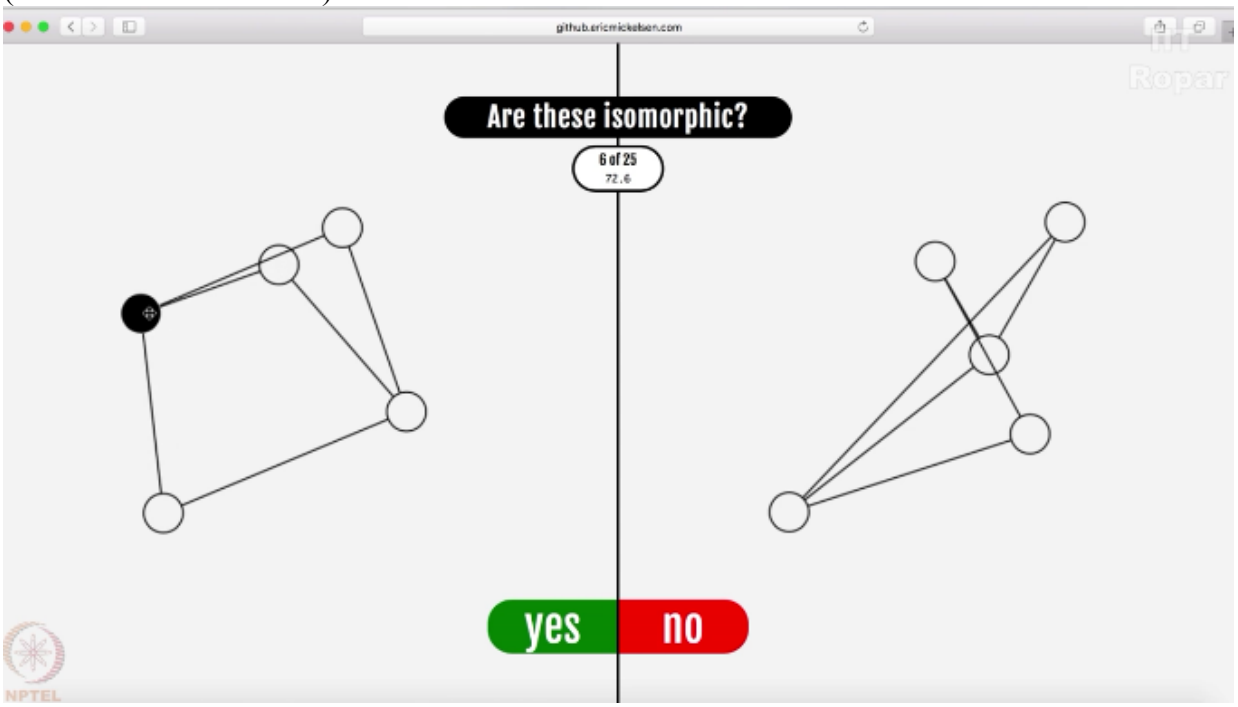

the graph was initially like this,
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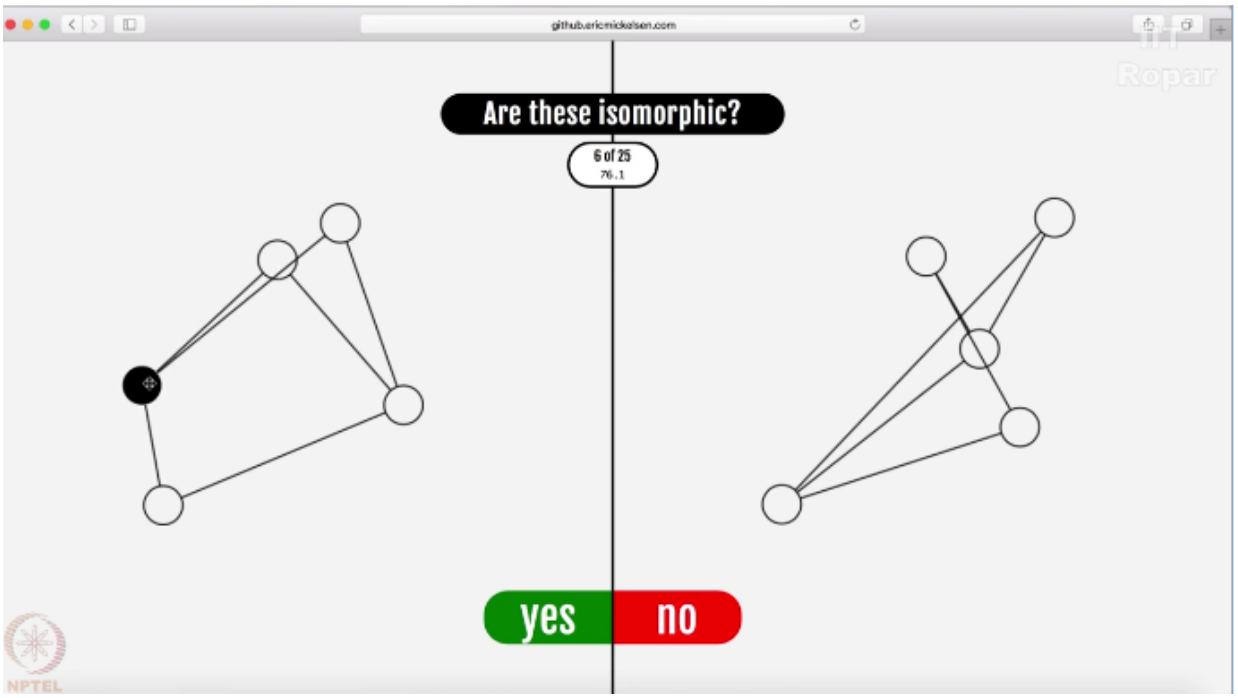

I pull this node, and I pull this node to, I am going to ask you a question at the end of this particular game, so I'm going to pull this and this like this,

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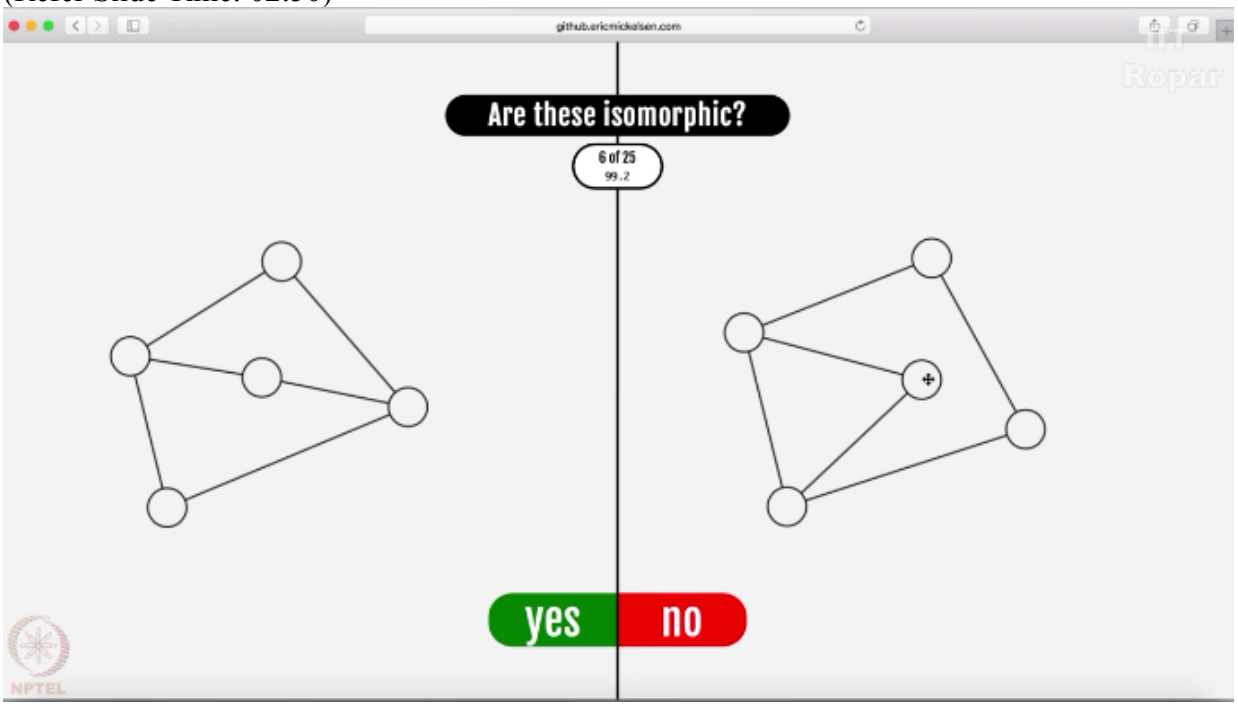

well you must be able to guess the answer, yes, which says incorrect, those two graphs were an isomorphic, so I told that I will be asking you a question, right, so the question goes like this do you observe that we are able to learn another concept with this game, which one is that? Yes it is planarity,

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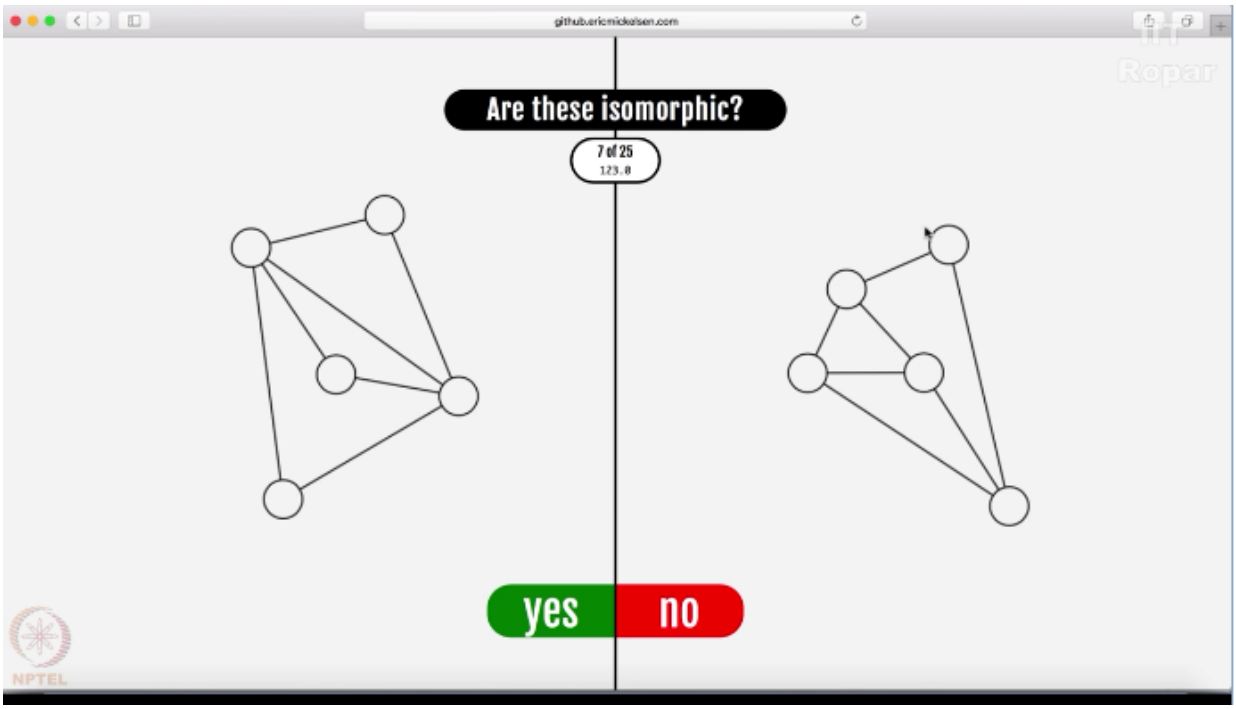

right, you can observe the number of regions here with these graphs displayed, it is very easy to learn the concept of planarity here, right, now so you can continue playing this game like this there are 25 pairs which will be displayed, you can play all the 25 is going to get tougher and tougher as you continue, please play the entire set of graphs, check if the graphs are isomorphic and post your scores on the discussion forum, please don't worry the scores are not going to be considered anywhere not in your exams or assignment, it's just for fun that we get to know about this course.

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