GraphTea

Getting Started with GraphTea

You may use this link http://www.graphtheorysoftware.com/ OR google GraphTea and it will appear.

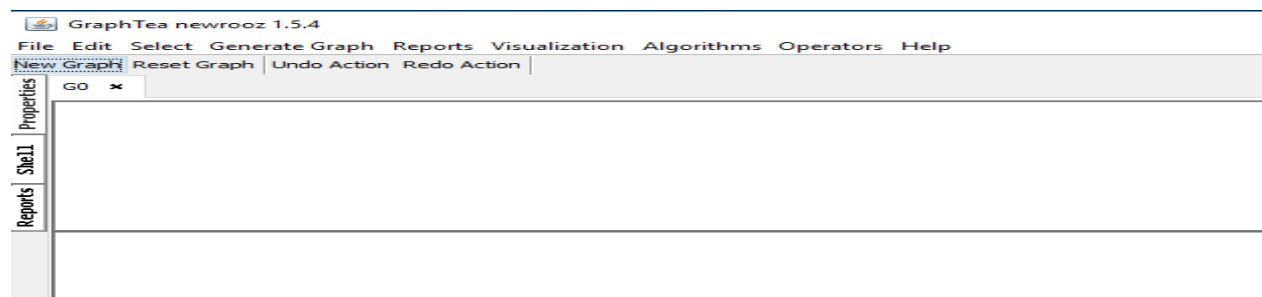You should see a window similar to the following:
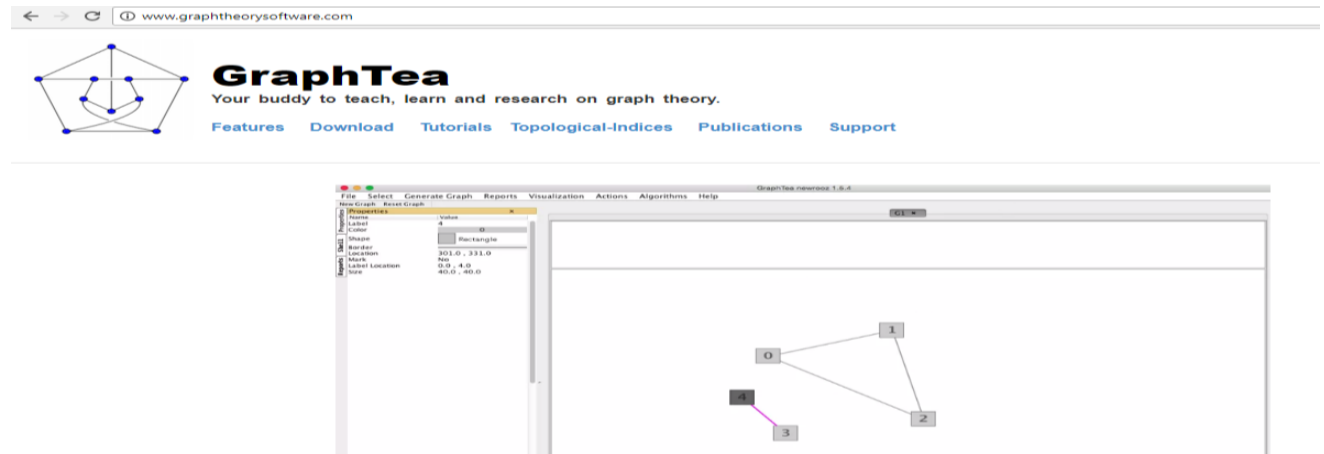
To use this system, you will need to click **Download** and load it onto your computer. It is available for free.

- A picture of the horse will appear for a windows download.
- Choose **Direct Download** and you can install it to the desktop of the computer.
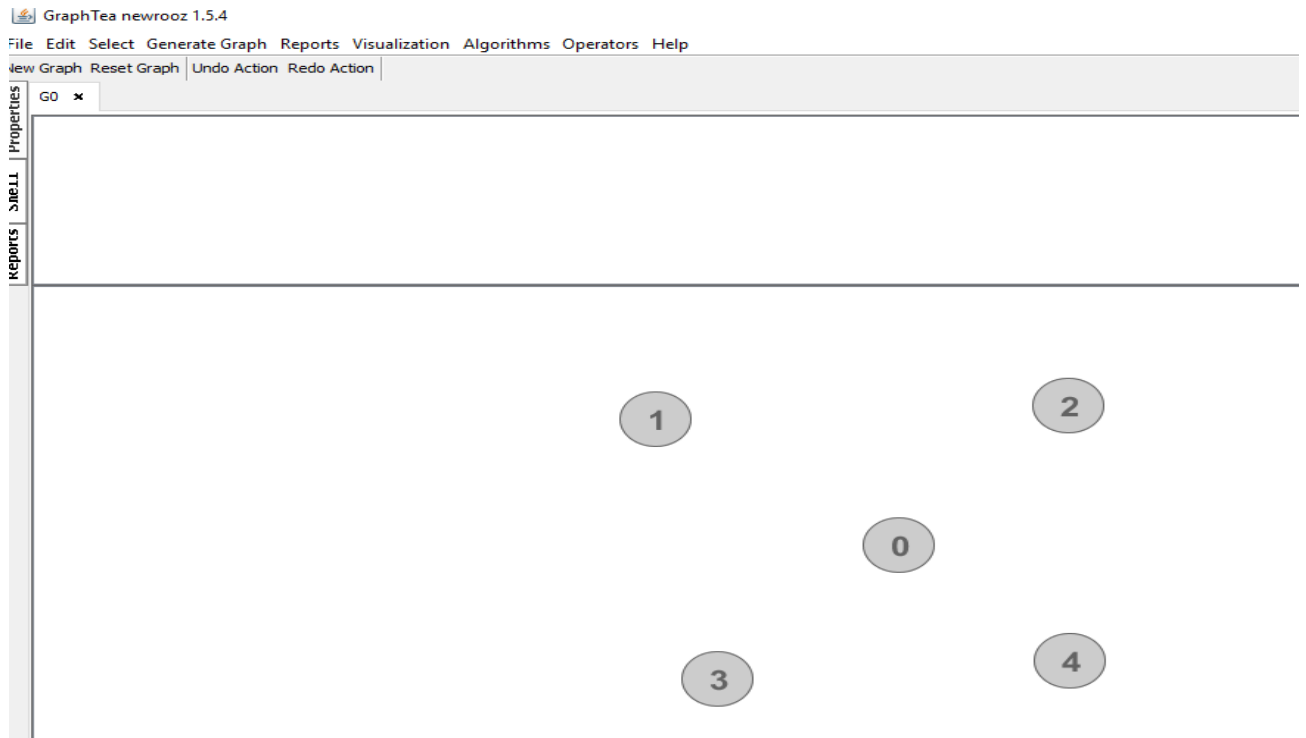- Return to the desktop to open the program.
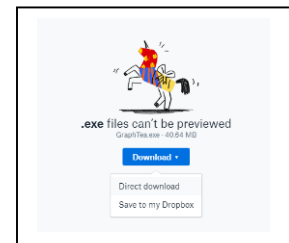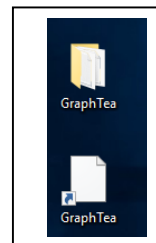

GraphTea should now be opened.

Let's begin!

- If you click on the blank space provided, ovals with the numbers 0,1,2,3…. will appear.
- Create **5 ovals** so that your screen looks like the one pictured below,

GraphTea

File   Edit   Select   Generate Graph   Reports   Visualization   Algorithms   Operators   Help

New Graph   Reset Graph   Undo Action   Redo Action

G0   ✕

        1   2

                         0

              3   4

- You can connect the ovals by dragging your mouse from one oval to the other.
- Try this by dragging **Oval 0 to Oval 1**, continue this process so that 0 connects to 2,3, and 4.

        1   2

                         0

              3   4
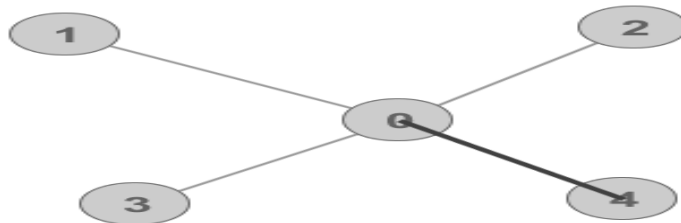
- By selecting an area outside of the ovals, you can highlight all the ovals.

        1   2

                         0

   3   4
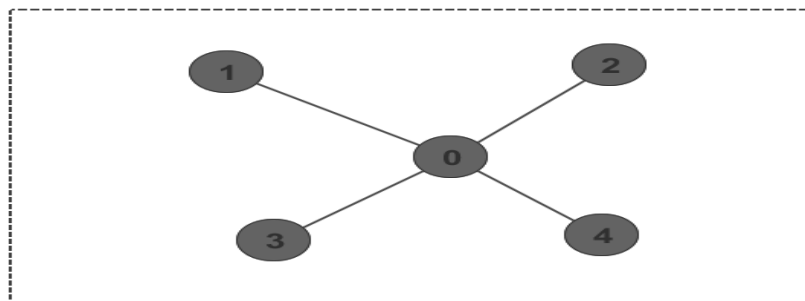
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- Now that the ovals are highlighted, click **Properties** at the top left side of the program. It will be next to **reports** and **shell**.
- You may change the shape of the oval by simply selecting oval and choosing a different figure.
- Switch the shape to **rounded rectangle**
- You can also change the color of the lines you use to connect the bubbles.
- Switch the **color** to **4 (the pink color)**
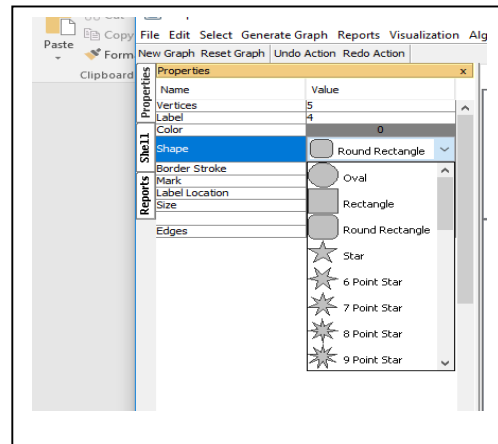
Now click outside of the **highlighted box.**

- If you **double click** with you mouse on the individual bubbles you can review their properties.
- Additionally, when the individual bubble is highlighted, you can **drag it** so that it moves its position.
- Finally, you can highlight some but not all of the bubbles.
- **Highlight bubbles 1-0-3** and **right click** on one on the **highlighted bubbles.**
- Choose the option **Complement Section** and it will connect bubbles 1-3.
- You can see the relations between the bubbles this way.
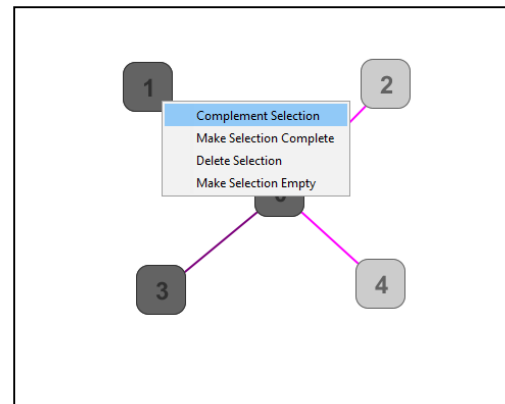
Again, click outside of the **highlighted box.**

- You can have the edge labels appear if you would like.
- Above **Arial Bold** click **NO** for **edge labels** and it will switch to **YES.**
- You should now have labels listed on the edges.
- If you wish to change the names, simply select the edge you wish to change. Locate the work **Label** at the top left of the page and retype the name wished.
- Select the label **01** and change the name to **BOB.**
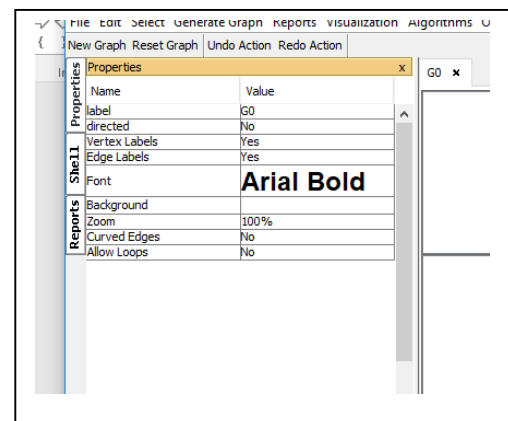
Finally, you can use GraphTea for the Cartesian Product. Which is the product of two sets: the product of set X and set Y is the set that contains all ordered pairs (x, y) for which x belongs to X and y belongs to Y.
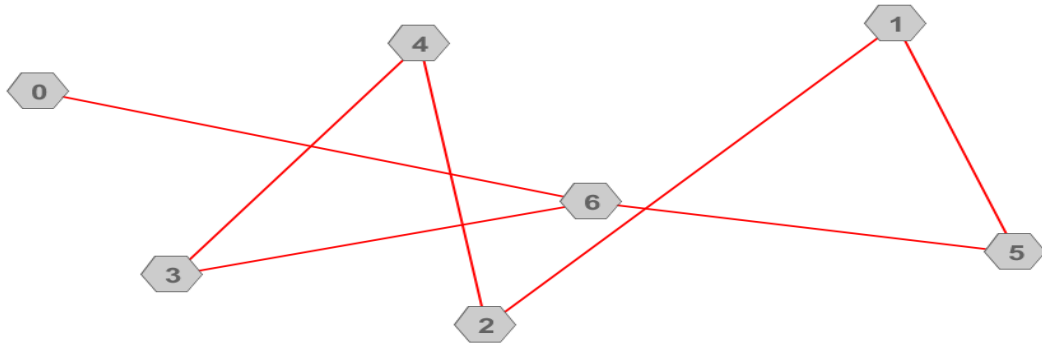
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- Select **New Graph** at the top left of the page, under **file.**
- A window will pop-up, select **undirected.**
- Your previous work will be able to be seen under the tab **G0** and your new work will be completed on **G1.**
- Create and connect **3 bubbles.**
- You should have bubbles **0-1-2**
- Again, select **New Graph** at the top left of the page, under **file.** Again select **undirected.**
- Your previous work will be able to be seen under the tab **G0, G1** and your new work will be completed on **G2.**
- Create and connect **2 bubbles.**
- You should have bubbles **0-1.**
- Now at the top of the page select **Operators -> Products -> Cartesian Product**
- A window will pop-up
- Change the value of the **first graph** to **G1,** and the value of the **second graph** to **G2.**
- You should end with the following image:
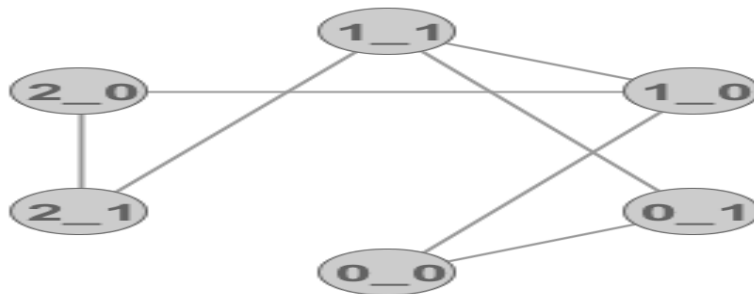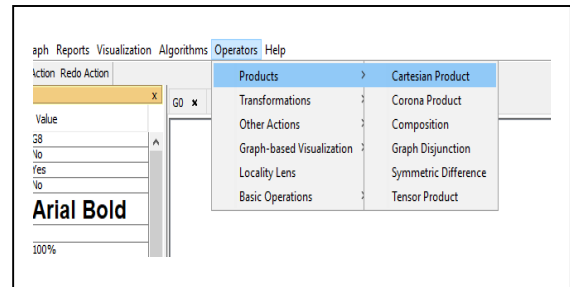
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Exercises:

1. Recreate the following image. Make sure the bubbles are the correct shape, the correct color is used and the numbers are in the same order.

2. Use GraphTea to create a triangle. Label the sides **a, b, c.**
3. Recreate these images and find the Cartesian Product.