Graph Analysis from Big Data Perspective

10/10 points (100.00%)

Quiz, 10 questions

Congratulations! You passed!

Next Item

1 / 1 points

1.
Imagine a football championship in your country and you've decided to represent the information about matches between teams in a shape of a graph. What type of graph will you choose:

- Directed
- Undirected

Correct
True. Let's call teams A and B. If team A plays with team B this means that team B plays with team A.

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1 / 1 points

2.

Having decided to store the following graph in the form of an edge list, please specify, how the graph will look like?

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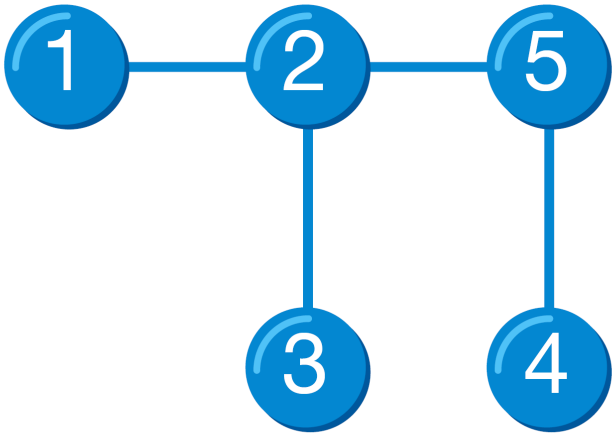

- [(1, 2), (2, 3), (2, 5), (4, 5)]

Correct
Correct, the graph in the picture has 4 undirected edges and you have mentioned all of them in the list

- [(1, 2), (2, 1), (2, 3), (3, 2), (2, 5), (5, 2), (4, 5), (5, 4)]
- [(1, 2), (2, 3), (2, 5), (3, 1), (4, 5)]

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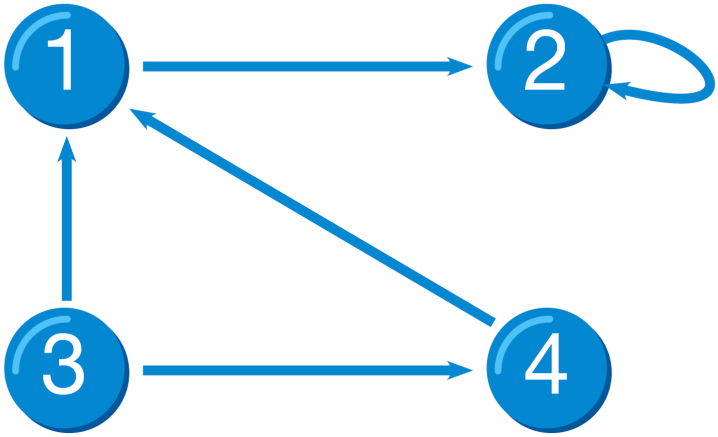
1 / 1 points

3.
Having decided to store the following graph in the form of an adjacency matrix, please specify, how the graph will look like?



0	1	1	1
1	1	0	0
1	0	0	1
1	0	1	0

0	1	0	0
0	1	0	0
1	0	0	1
1	0	0	0

Correct

Correct, this matrix has all necessary edges

1 / 1 points

4.

To build GraphFrame you need two DataFrames: one for vertices (let's call it "vertexDF") and the second for edges (let's call it "edgeDF"). What obligatory columns should both of them have?

- both DataFrames should not contain any obligatory columns and can contain arbitrary columns. Those columns can represent vertex and edge attributes.
- vertexDF should not have any obligatory columns and edgeDF should have two obligatory columns "src" and "dst"
- vertexDF should have the obligatory column "id" and edgeDF shouldn't contain any special columns
- vertexDF should have the obligatory column "id" and edgeDF should have two obligatory columns "src" and "dst"

Correct

True. A vertex DataFrame should contain a special column named "id" which specifies unique IDs for each vertex in the graph. An edge DataFrame should contain two special columns:

"src" (source vertex ID of edge) and "dst" (destination vertex ID of the edge).

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1 / 1 points

5.

Does GraphFrame represent directed or undirected graph?

- It represents a directed graph

Correct

True. Because by default each edge in the GraphFrames library has a direction from the source vertex to the destination vertex

- It represents an undirected graph

1 / 1 points

6.

You have created GraphFrame with the name g from the vertex DataFrame named vertexDF and the edges DataFrame named edgeDF. How can you get the original DataFrames vertexDF and edgeDF from g?

- by g.vertexDF and g.edgesDF
- it's impossible
- by g.vertices and g.edges

Correct

True. The original vertices and edges dataframes could be obtained by g.vertices and g.edges respectively.

1 / 1 points

7.

If a motif contains named vertex a, then the resulting DataFrame will contain a column “a” which is a StructType. What will the sub-fields of this StructType be equivalent to?

- To the schema with only one field “Id”
- To the schema (columns) of the original GraphFrame
- To the schema (columns) of the original GraphFrame.vertices

Correct

True. You are learning blazingly fast, I’m proud of you.

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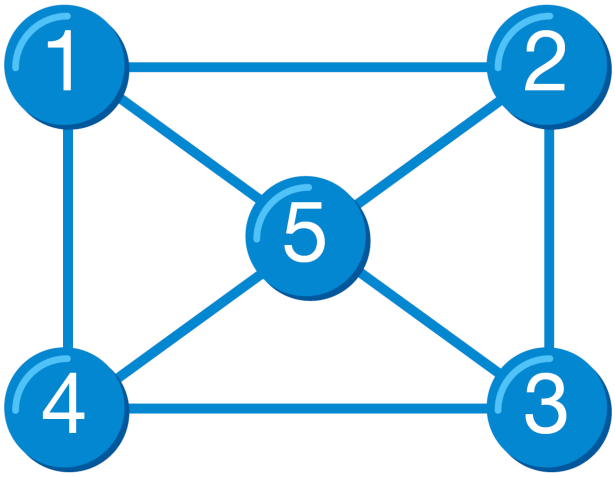
1 / 1 points

8.

How many triangles are passing through vertex 5 in the graph in the picture?



- 5
- 3
- 4

Correct

True. The triangles 1-2-5, 1-4-5, 2-3-5, 3-4-5 are passing through vertex 5.

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1 / 1 points

9.

How does the triangleCount method of graphFrames treat the directed graph?

- This algorithm keeps the edge direction that is all the edges are treated as directed.
- This algorithm ignores the edge direction that is all the edges are treated as undirected.

Correct

Yes, you are right!

1 / 1 points

10.

How to describe a triangle (A, B, C) after the flipping operation on DSL language of motif finding?

- “(A)- ->(B); (B)- ->(C); (A)- ->(C)”

Correct

Yes, you are absolutely right!

- “(A)- ->(B); (B)- ->(C); (C)- ->(A)”
- “(A)- ->(); ()- ->(); ()- ->(C)”