كلية الهندسة المعلوماتية

السنة الثالثة

نظرية المخططات

عملي

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تمارين جلسة 5

2020-2021

مكتبة شهبا
الشهباء الجديدة - مفرق مشفى سامي العاصي

/BlueBitsTeam

نظرية المخططات

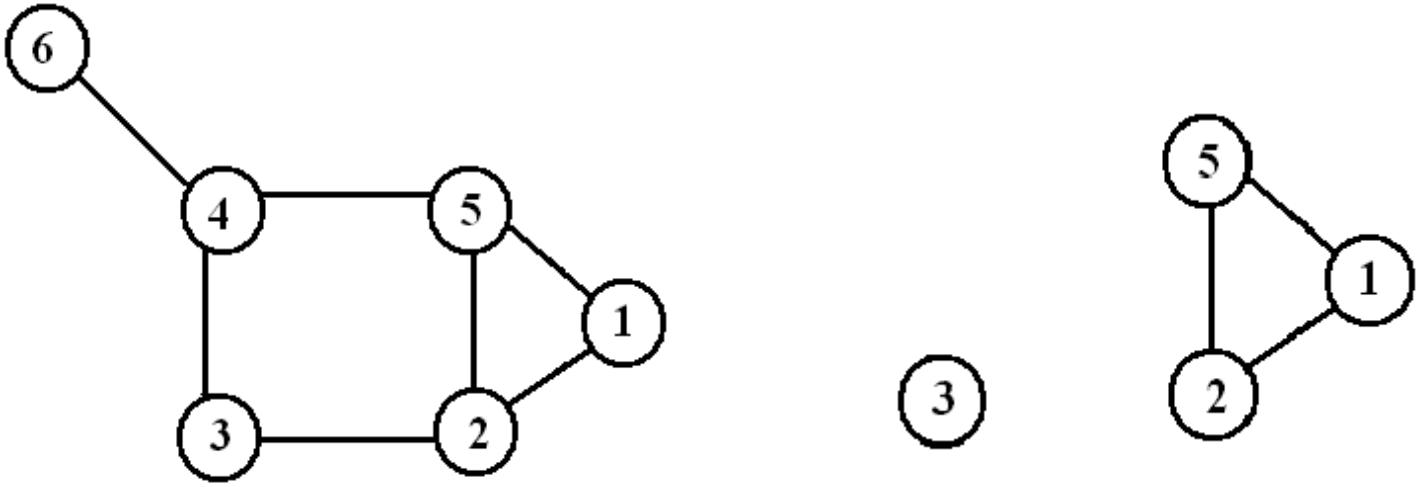
م. فيروز كنعان م. بيان شيخ عمر

2020 - 2021

Graph terminologies

- Subgraph

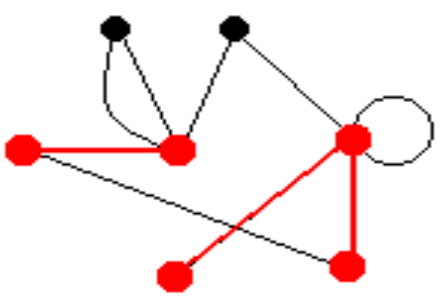
  Vertex and edge sets are subsets of those of G



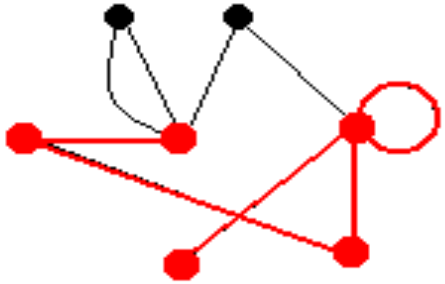
Graph terminologies

- Induced Subgraph

  Vertex and edge sets are subsets of those of G



Subgraph (in red)

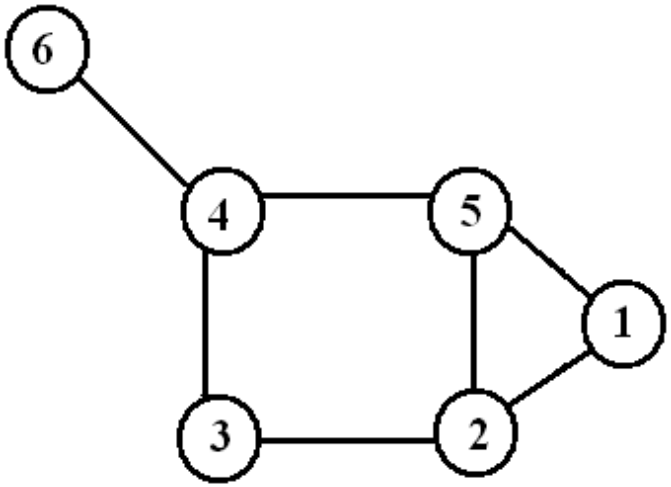


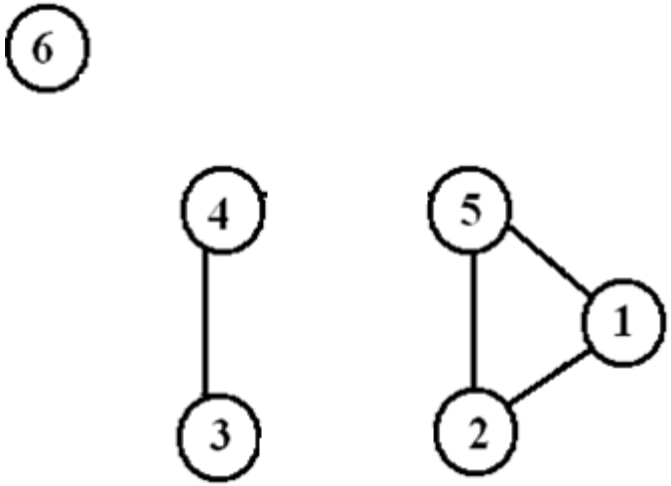
Induced Subgraph

Graph terminologies

- Spanning Subgraph

  spanning subgraph is a subgraph that contains all the vertices of the original graph.

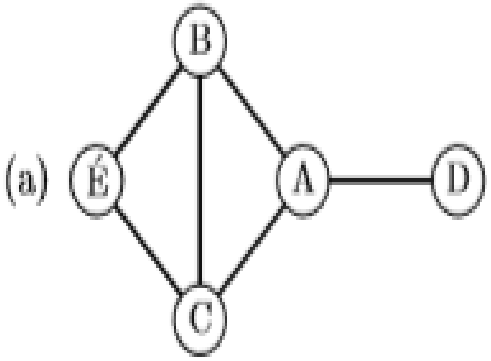




Exercises 1

- Draw a graph, and give the corresponding adjacency matrices. - A and B are friends. A is also friends with C and D. B, C and E are all friends of each other.

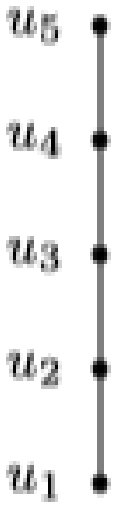
Solution

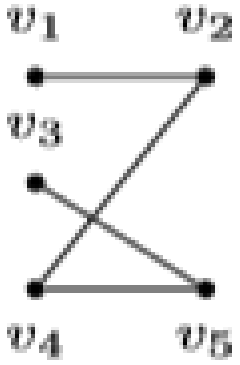


	A	B	C	D	É
A	0	1	1	1	0
B	1	0	1	0	1
C	1	1	0	0	1
D	1	0	0	0	0
É	0	1	1	0	0

Exercises 2

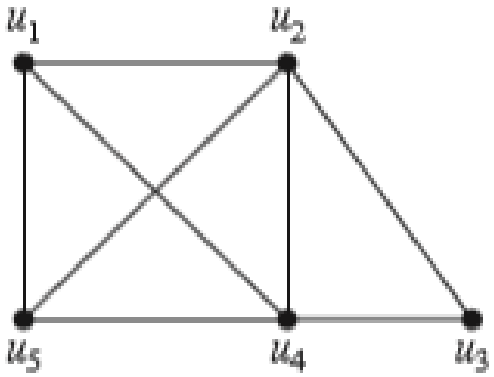
- each of the following pairs, list their degree sequences
  - 2,2,2,1,1

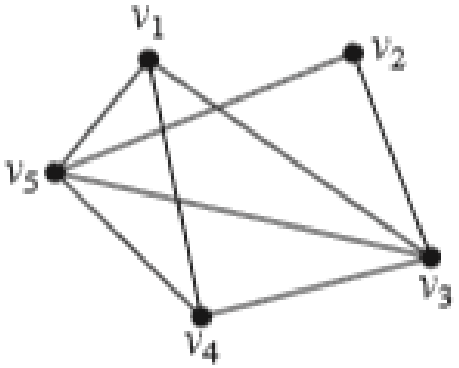




Exercises 3

- each of the following pairs, list their degree sequences
  - 4,4,3,3,2





Exercises 4

- How many vertices does a regular graph of degree four with 10 edges have?

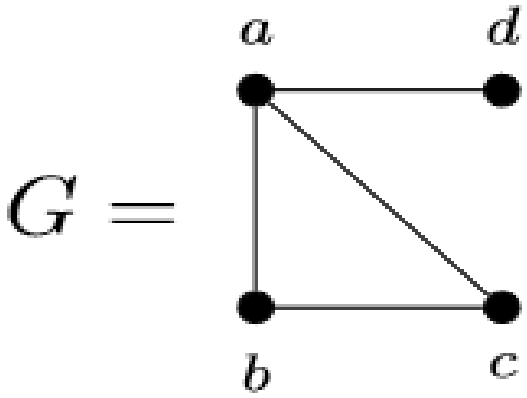
$$2 * 10 = |V| * 4$$

$$|V| = 5.$$

Exercises 5

- Consider the graph

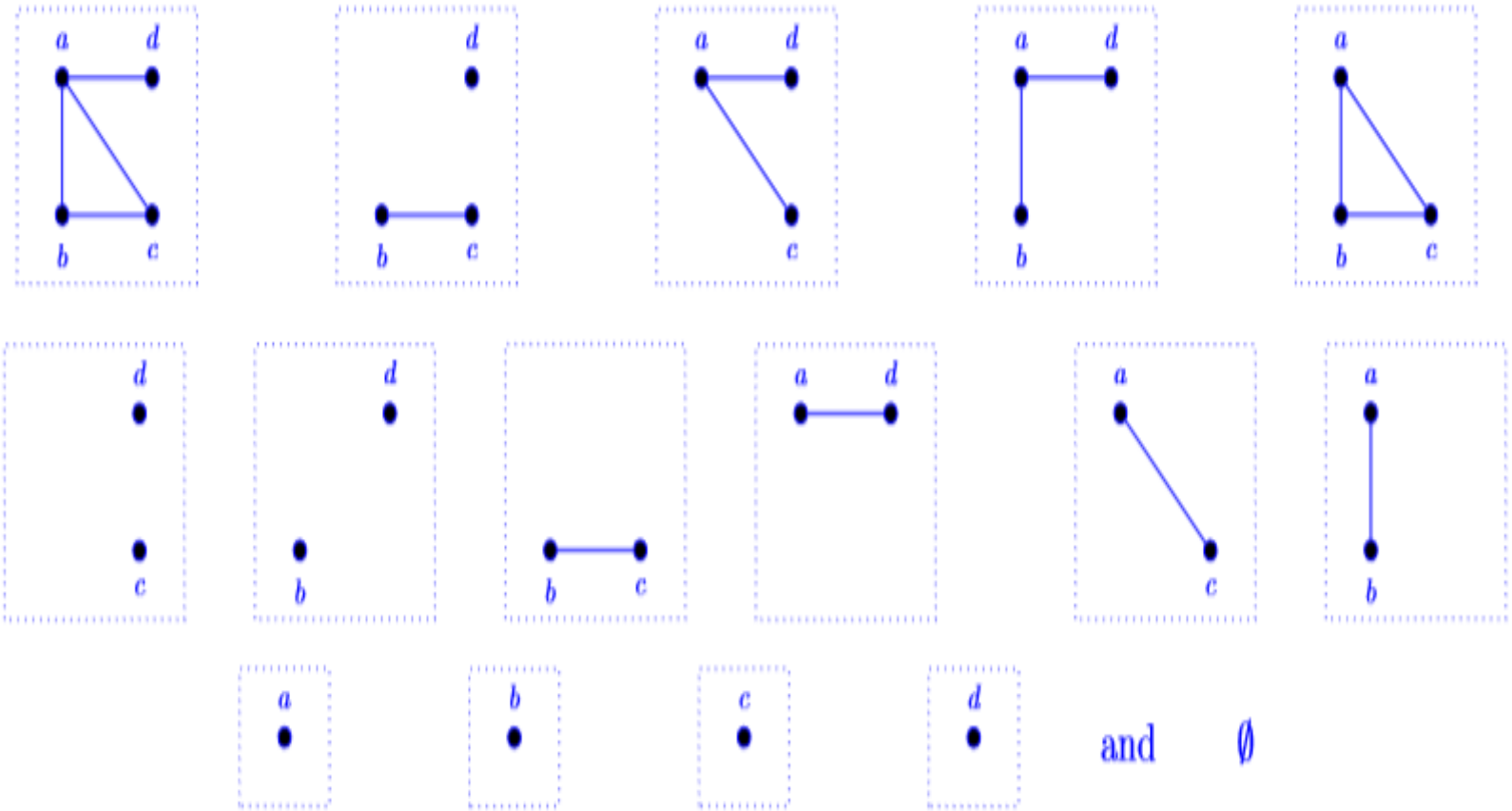
How many induced subgraphs does G have ? List them.



there are 2^4 induced subgraphs:

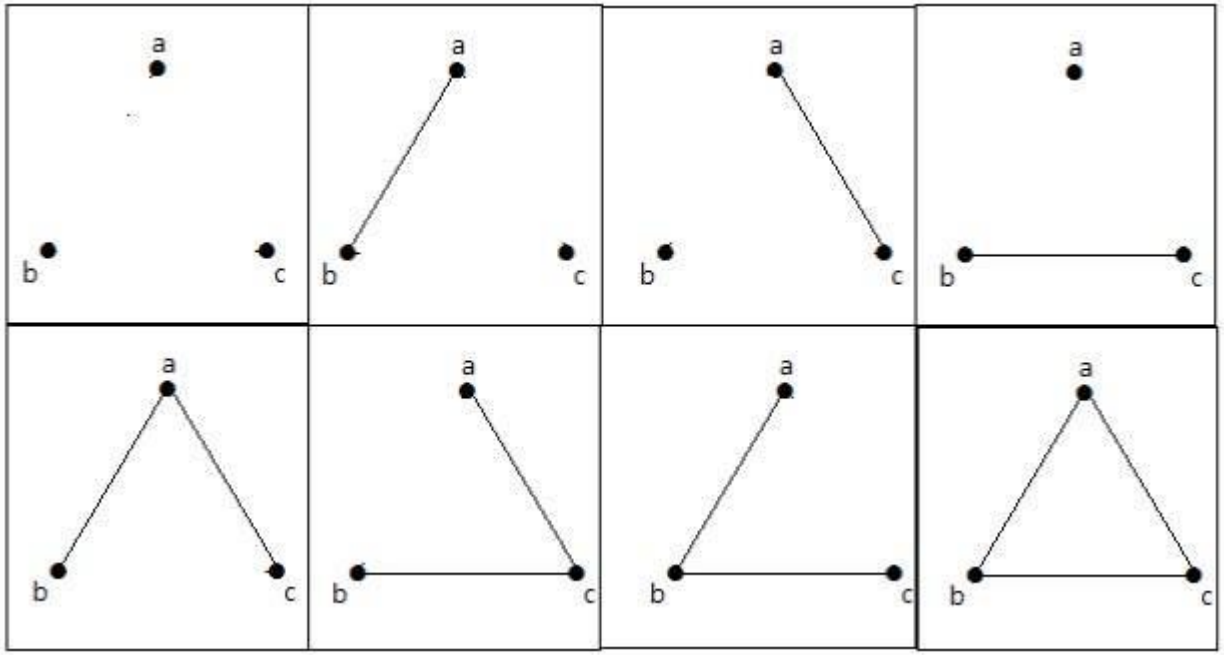
Exercises 6

Solution: There are 4 vertices, so there are 2^4 induced subgraphs:



Exercises 7

- Draw all the possible situation of simple graph of 3 vertices?



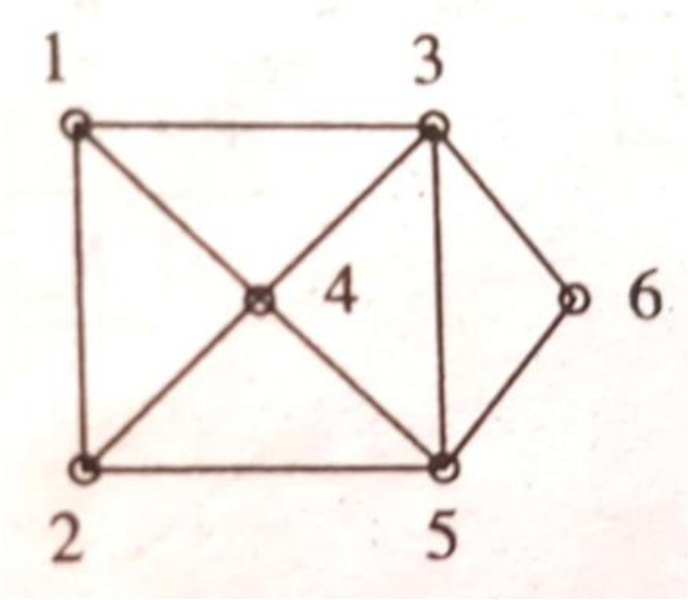
Exercises 8

- Consider the graph

The vertices represent the room of a house and edges between

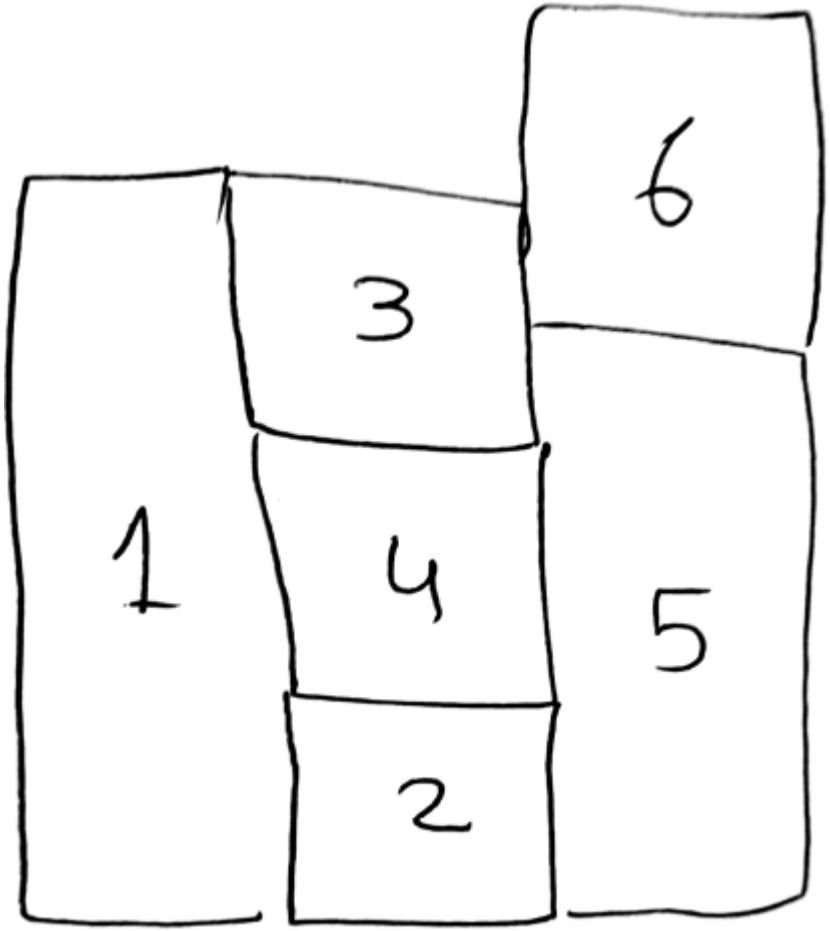
Vertices mean rooms have a wall in common

Draw possible plan for this house?



Exercises 8

- solution



Exercises 9

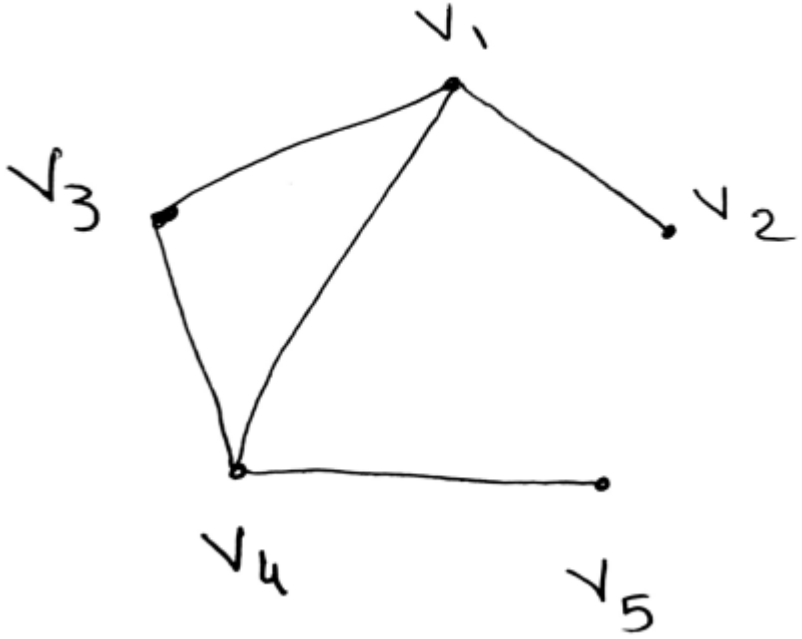
Draw a Graph with 5 vertices

Deg(v1)=3

Deg(v3)=2

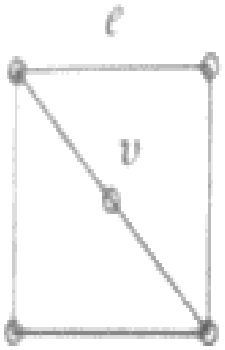
v2, with odd degree

V4,v5 are adjacent

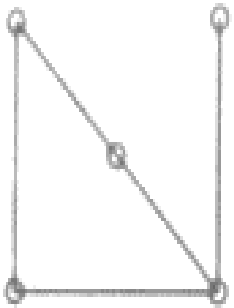


Exercises 10

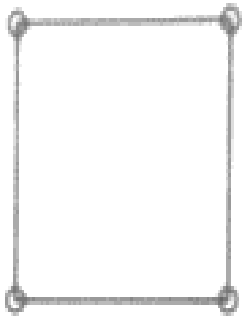
- Determine which graph is subgraph of G?



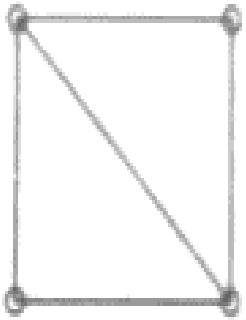
G



G1



G2



G3

THANK YOU

أعضاء الفريق

الفريق الدراسي

رغد موفق حداد

لين الحمدان

بتول المنصور

ابراهيم شبيب

هداية سكري

الفريق التدقيقي

هداية سكري

مأمون ديري

عبدالله المحمد

الفريق التقني

محمد بشر شهاب

لين الحمدان

قمر جلب

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ليلى وراق

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