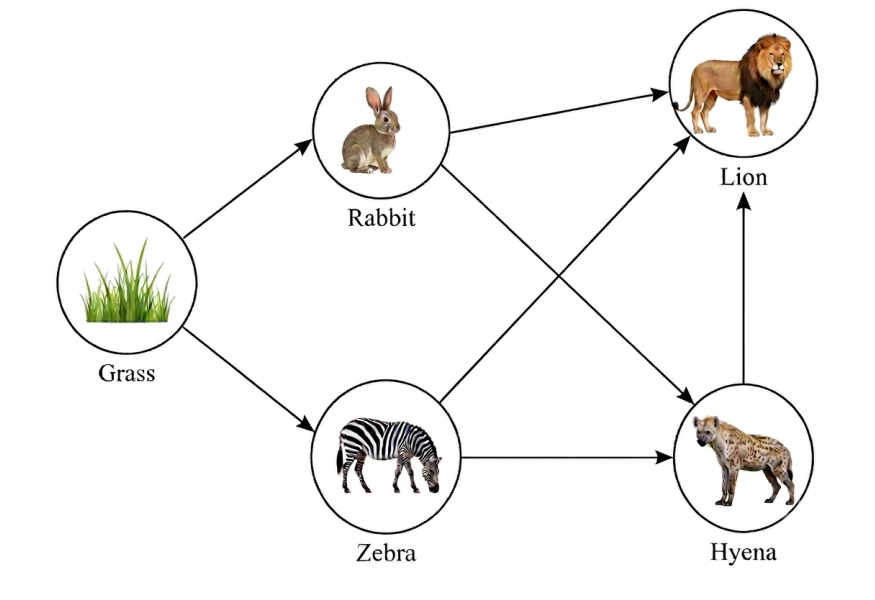


1. The diagram below represents a simplified food chain.

An arrow from one animal to another means that the first animal is eaten by the second animal.



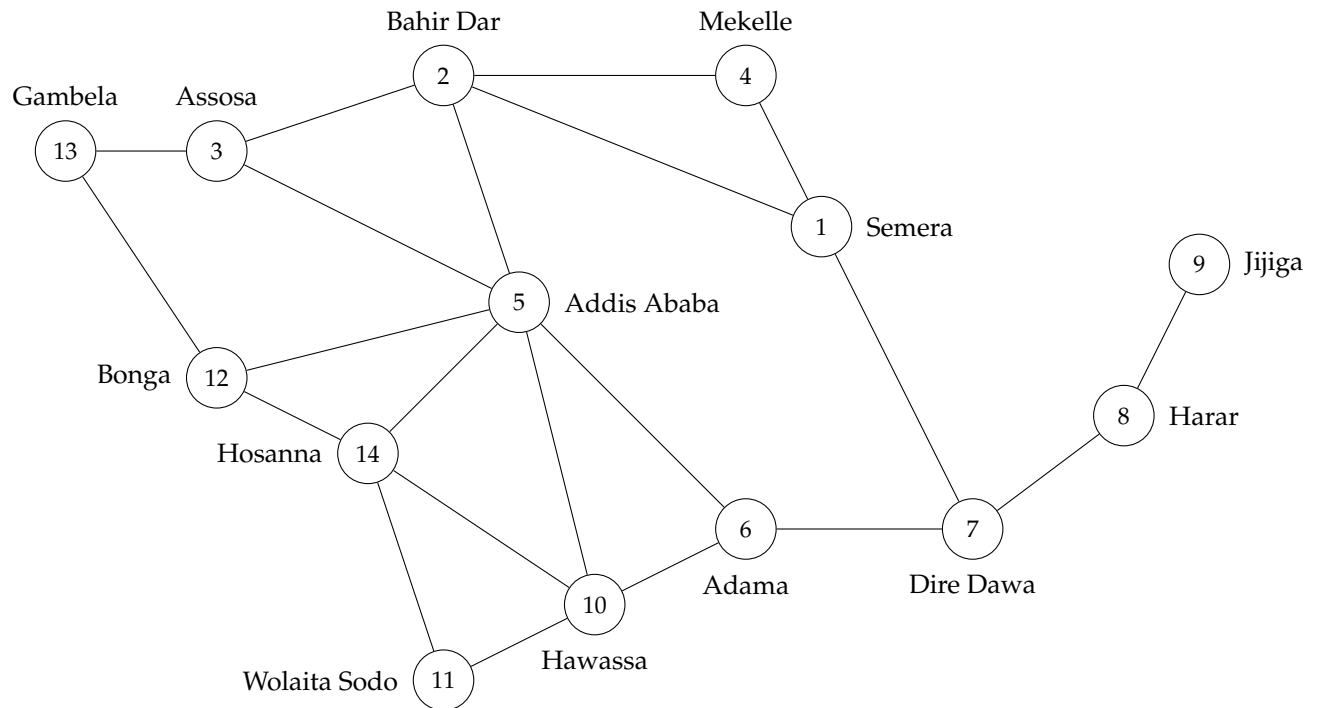
a. What are the vertices of this graph?

b. What are the edges of this graph? Write them in the following format: Grass -> Rabbit

c. Complete the table. For each vertex, find its in-degree, out-degree, predecessors, and successors.

Vertex	In-degree	Out-degree	Predecessors	Successors
Grass				
Rabbit				
Zebra				
Hyena				
Lion				

2. The diagram below represents a simplified road network connecting some major cities in Ethiopia. For this problem, assume that every road can be traveled in both directions.



e. Write the adjacency dictionary for this graph.

```
ethiopia_city_map = {
    1: [ 4, 2, 7 ],
    2: [ ],
    3: [ ],
    4: [ ],
    5: [ ],
    6: [ ],
    7: [ ],
    8: [ ],
    9: [ ],
    10: [ ],
    11: [ ],
    12: [ ],
    13: [ ],
    14: [ ]
}
```

d. Find a path that starts at Assosa and ends at Dire Dawa.