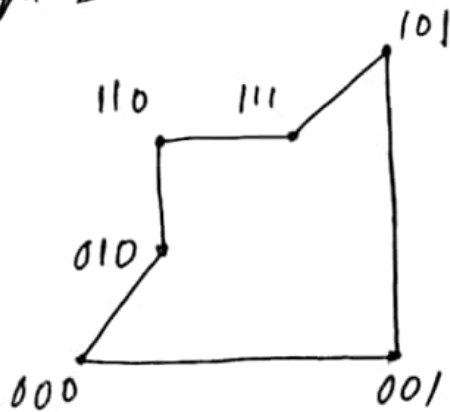


- ① (a) If we delete vertices 100 and 011, then the resulting graph is



a 6-cycle.

- (b) identify 000 and 011

$$000 \sim 010, 001, 100$$

$$011 \sim 010, 111, 001$$

Now if 000 and 011 are identified as  $w$ , then

$$w \sim 010, 001, 100, 111. \text{ Hence } \deg w = 4.$$

- (c) Note that  $Q_3$  is 3-regular.

Thus if we delete 3 edges all adjacent to a vertex, then the graph becomes disconnected.