**Mobile Lock Pattern** 

Given the coordinates of  a lock pattern configuration, check whether it is a Valid Lock Pattern or not. A valid Lock pattern will be formed only by joining the adjacent neighbours.  If it is a valid lock pattern and if there is   
       1)   Above 75% coverage, print "Excellent",   
       2)  Above 50% coverage, print "Good",   
       3)  Above 25% coverage, print "Average",   
       4)  Else print "Poor".   
(Coverage need to be calculated with respect to the total grid size)   
        If it is an  invalid lock pattern, print "Invalid".   
**Assume** that the pattern grid will always be a square.   
**Note:**   
To make the problem less complicated the following relaxations are made:   
1) The testcases will not contain any overlap through a point in the pattern.   
2) The pattern will always end at a new point.   
3) The points given in the testcases always lie within the pattern grid. No need to check if the point is outside the grid.

**Input Format:**   
The first line is an integer that corresponds to the side length of the pattern grid.   
The second line is an integer that corresponds to the number of coordinates in the lock pattern, n.   
The following n lines have the following pattern : x-coor y-coor   
  
**Output Format:**   
Print "Invalid" if there is the pattern is not properly linked, else print "Excellent " or "Good" or "Average" or "Poor", based on the number of points covered.   
  
**Sample Input 1:**   
3   
5   
1 1   
2 1   
3 1   
2 2   
3 3   
**Sample Output 1:**   
Good   
  
**Sample Input 2:**   
3   
6   
1 1   
2 1   
3 1   
2 2   
3 1   
3 3   
**Sample Output 2:**   
Invalid

