```
import java.io.*;
import java.lang.reflect.Array;
import java.util.*;
import java.lang.*;
class Main
{
  int n,m;
  public boolean check(Segment[]ss,int x)
  {
     int curLoc = 1;
     PriorityQueue<Integer> pq = new PriorityQueue<>();
     int i=0;
     while (curLoc < n)
       while (i < m \&\& ss[i].l <= curLoc)
          pq.add(ss[i].r);
          i++;
        int cur = curLoc;
       while ( cur == curLoc && !pq.isEmpty() )
          int r = pq.poll();
          curLoc = Math.max(curLoc,Math.min(r,curLoc+x));
        if( cur == curLoc)break;
     }
     return curLoc==n;
  }
  public void solve()
     FastScanner fs = new FastScanner();
     PrintWriter out = new PrintWriter(System.out);
     int test = fs.nextInt();
     while(test-- > 0)
     {
        n = fs.nextInt(); m = fs.nextInt();
        Segment[]ss = new Segment[m];
        for(int i=0;i< m;i++){
        int I = fs.nextInt(), r = fs.nextInt();
        ss[i] = new Segment(I,r);
      Arrays.sort(ss,Comparator.comparingInt(s -> s.l));
     int ans= -1, l=1, r=(int)1e9;
      while ( l <= r )
       int mid = (1+r)/2;
        if( check(ss,mid))
          ans = mid;
           r = mid-1;
      }else
       I = mid+1;
```

```
out.println(ans);
}
out.flush();
class Segment
   int l,r;
   Segment(int I,int r)
     this.l = l;
     this.r = r;
}
public static void main(String[]args)
   try
     new Main().solve();
   catch (Exception e)
     e.printStackTrace();
class FastScanner
   BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
   StringTokenizer st=new StringTokenizer("");
   String next() {
   while (!st.hasMoreTokens())
   try
     st=new StringTokenizer(br.readLine());
   catch (IOException e)
     e.printStackTrace();
   return st.nextToken();
String nextLine()
   String str = "";
   try
      str = br.readLine();
   catch (IOException e)
     e.printStackTrace();
   return str;
int nextInt() {return Integer.parseInt(next());
```

```
}
long nextLong() {return Long.parseLong(next());
}
}
```