

- 1) Use UPPAAL queries to check whether each of the conditions is reachable from the initial condition of the system. On your homework submission, write the query you used to check reachability of each.

these are the queries that I used, it also shows that Condition 1 is satisfiable while Condition 2 is not

Overview	
E $\Diamond$ sys1init.B && sys2init.F && x = 1 && y = 1	●
E $\Diamond$ sys1init.B && sys2init.G && x = 1 && y = 1	●

because condition 2 was not satisfied we can just ignore it and do condition 1

- 2) For each condition that you find to be reachable, find the shortest possible path (i.e. fewest jumps) from the initial condition to the target condition. For each jump on that path, provide the following information:
  - a. Does sys2 change its location during the jump? If so, what is the starting location and ending location of the jump?

in our simulation we find that there are 3 jumps,  
 jump 1 sys2 goes from f to g and sys1 stays at same node,  
 jump 2 has sys1 going from A to B and sys2 stays,  
 jump 3 we have sys2 going from G to F and sys1 stays

- b. What are the values/regions of the clock variables when the jump occurs? Include a plot to annotate these values/regions, as we've done in module 3. In your plot, x should be the horizontal axis and y should be the vertical axis.

Simulation Trace	
(A, F)	
c: sys1init $\rightarrow$ sys2init	
(A, G)	
sys1init $\rightarrow$	
(B, G)	
c: sys1init $\rightarrow$ sys2init	
(B, F)	

