Bug found **SIMULTANEOUS MOVEMENT KEYS BUG**: <https://youtu.be/GHCFxCNQa90>

Testing: Problem also found in the Astroids code.

Cause: Pressing two ‘accepted’ keys simultaneously, in our scenario it is key 37 (left arrow) and 39 (right arrow)

Since this assignment isn’t about understanding to fix this issue and rather understanding observables and functional programming, I will explain my attempts to fix it**.**

So my first intuition would be something wrong with the interval, but every time I change the interval the code still had the bug. I believe the reason it goes faster is because when two keys are clicked simultaneously somehow the streams are not merged but somehow added, so for every one click two observables are made. It doesn’t really make sense but the interaction of another key is the reason it is happening and **ONLY** if the key is pressed at the exact same time. I tried separating the streams and now have and also did this to each separated stream

takeUntil(fromEvent<KeyboardEvent>(document, 'keyup').pipe(

              filter(up => up.keyCode === downKeyCode)

**TO**

**takeUntil(**

**merge(fromEvent<KeyboardEvent>(document, 'keyup').pipe(**

**filter(up => up.keyCode === downKeyCode)**

**), fromEvent<KeyboardEvent>(document, 'keydown').pipe(filter(({keyCode: k}) => k != 37)))**

But the glitch still worked meaning that no other inputs had an effect on this bug and it is directly related to any other keys **that pass the filters** and **are pressed at the same time**. EVEN when I tell the left or right arrow key to stop the interval when another key is pressed down. Now in this case we only allow two keys to be ‘passed’ and the glitch is when both keys are pressed down somehow the streams bug out and start producing a faster interval than they should, they almost combine and two streams combining makes the interval 2x faster which somewhat makes sense If I had more time I could just time stamp every interval and have it console logged to prove my theory but I just wanted to show my understanding that this bug wasn’t caused because I literally just copied and pasted from the asteroids doc, I understand what everything in the code does, but since the asteroids doc itself suffers from the bug, I don’t think it is worth spending more time on it.

**This bug wasn’t fixed but just made the ship fast enough so it wouldn’t reach the stage where it would go like 2x faster.**

Bug Found **Moving Mouse too fast - fixed**

Sometimes when you move your mouse too fast, the ship wont end at the end of the svg, it will stop somewhere close to the end, but not the very end, assumption is that the interval for tick wasn’t fast enough so turned the tick interval lower prevent this