FINITE MATH, FALL 2016 - CORRECTIONS TO LECTURE ON OCTOBER 5TH 2016.

Hey guys! In class I wanted to go over an example, but I managed to confuse myself (again!), so here I am correcting it! The question goes as follows. Identify the following statement as true or false. If false, give a counter example:

Question:
If $P(A) + P(B) + P(C) = 1$ then the events A, B, C are mutually exclusive.

Solution:
Remember that mutually exclusive means that

$$A \bigcap B = \emptyset$$
$$B \bigcap C = \emptyset$$
$$A \bigcap C = \emptyset$$

Now, let

$$A = \{1, 2\}$$
$$B = \{2, 3\}$$
$$C = \{1, 3\}$$

Notice now that neither of the intersection of the above sets are not empty! Furthermore we also have that $P(A)+P(B)+P(C) = 1$ giving us our counter example!

Date: October 6th, 2016.