**Statistical mathematics - Assignment 3**

1. P(A) is smaller than P(A|B). B is a necessary condition for A, so conditioning on event B increases the probability of event A.
2. a) Birthday on the first day of a month:

b) Birthday is in March:

c) Birthday is in February:

1. a) The person selected suffers hypertension given that he is overweight:

b) The selected person suffers hypertension given that he is not overweight:

c) Being overweight correlates to hypertension

1. If A and B are independent:

P(AC ∩ BC) = P(AC)\*P(BC) = 0.6\*0.7 = 0.42

1. P((S1 ∩ S2) ∪ S3)

= 1 – P((S1 ∩ S2)’ ∩ S3’)

= 1 – P(S1 ∩ S2)’ \* P(S3’)

= 1 – (1 – 0.88\*0.92)(1 – 0.90)

= 0.98096