Medical adherence and blood pressure
With the Proteus system, we can detect when a person takes their medicine by embedding a chip in the actual medicine via a patch worn on the body. People can also input biometrics data, like blood pressure, via an app. In this example, we consider hypertension patients (high blood pressure patients) taking medication to control their blood pressure.

We would like to better understand the relationship between medical adherence and blood pressure. We have provided a dataset containing medical adherence and blood pressure for around 4000 hypothetical users. Please allot up to 2-3 hours to explore the data and work on this problem.

The Data

1) user_table.csv contains basic demographic information for each user.
2) blood_pressure.csv contains about two months worth of daily blood pressure measurements for each user. (dbp is the diastolic and sbp is the systolic blood pressure).
3) medication.csv contains about two months of daily adherence to blood pressure medicine. This is expressed as a simple Boolean flag denoting whether the Proteus system detected the patient taking their pill or not on a particular day.

Some questions to address (but feel free to explore other questions)

1) Is there a relationship between medical adherence (i.e., how often somebody takes their medicine) and blood pressure?
2) Users has about 2 months of data, and some of those users have probably changed their medical adherence during that span of this time. Do users that increase their frequency see a change in blood pressure? If so, how much does it change?

Please provide a brief description of your analysis process, assumptions and conclusions (preferably in pdf) and copy of your code (Python or iPython notebook).
If you have any questions, don't hesitate to mail me at tlauritzen@proteus.com. Above all, have fun. If you enjoy working on this you will like the types of projects we do at Proteus.

Best of luck,
Thomas