For each of the following predictive modeling scenarios, answer the following:

1. Give a qualitative description, in terms relevant to the application domain, for a false positive and a false negative.
2. Make an assessment on the relative costs of a FP and a FN
3. If you were in charge of deploying the model (assume the model is fixed), how would you design the deployment system to minimize expected misclassification costs?

Modeling Scenarios:

1. A medical screening test that classifies the presence of a brain tumor given fMRI images.
2. A fraud detection system that automatically freezes an account if it suspects suspicious activity.
3. A credit scoring system that automatically decides whether or not an applicant should receive a credit line.
4. An automatic face tagging system for images uploaded to a social network.

Bonus question: many online systems that make recommendations via some classification model use an “auto-suggest” mechanism as opposed to directly imposing a classification.

1. Why do you think product designers use auto-suggestion as opposed to just making a classification?
2. Why might this be better for the user?
3. Why might this be better for the data scientists who build and maintain the system?