1. Bank accounts.
2. Suppose *μ* denotes the average increase in interest profit on a savings account when offered this personalized service (4% of the average balance in the account). The cost of this service is $50. So, *H*0: *μ*≤ $50 (personalized service is not profitable) and *H*A:*μ*> 50 (personalized service is profitable).
3. A Type I error means that the bank rolled out the program, but it will not be profitable. A Type II error means that the bank should have rolled it out (rejected *H*0) but did not.
4. The average increase in the balances is $1500, earning an additional 0.04 × $1500 = $60profit. The SD of this gain is 0.04 × 3000 = $120. (Note here that one random variable (profit) has been defined as the function of a different random variable (balance) and the standard deviation is calculated accordingly).

The test statistic is *t* = (60-50)/ (120/sqrt (65)) =0.6719 with 64 degrees of freedom.

P-value=P(*xbar* > 60; *μ*≤ $50)= 1-pt(0.6719,64)≈ 0.25.

Hence we do not reject *H*0 since the *p*-value is larger than α.

Therefore, although the sample indicates that there might be an improvement in the profitability, there is not enough evidence to indicate that this improvement that the sample shows is a feature of the population and is not due to sampling variation alone.