Homework 2

1. Suppose you were interested in the achievement of students in your Bayesian statistics class. All N=30 students were asked to do a test of 20 items. The number of correct items of each student is as follows. What is your estimation about the probability that these students can pass this test?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 10 | 4 | 7 | 12 | 9 | 10 | 11 | 16 | 9 |
| 7 | 10 | 10 | 13 | 5 | 9 | 8 | 17 | 10 | 8 |
| 11 | 11 | 12 | 7 | 10 | 6 | 6 | 5 | 15 | 14 |

1. Again, suppose you had another class (N=15) and you tested them with the same 20 items. The number of correct items for each student is as follows. What is your estimation about the probability that these students can pass this test?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | 14 | 17 | 20 | 9 | 10 | 16 | 15 | 11 | 7 |
| 16 | 17 | 15 | 10 | 14 |  |  |  |  |  |

1. According to the results of your estimation, which class performed better?
2. Bonus item: Suppose we want to estimate the probability of success for each student in the first item. Please estimate the probability of success for each of them with Bayesian inference.