

## Calculate the belonging of a pattern to a class

In this section, with a simple example, how to use Bayesian formula to classify students admitted to the university based on the score obtained in the entrance exam (a one-dimensional feature is considered) is used. Statistics at this university show that the probability of a student graduating in the first 5 years of study is 0.8. Students' scores follow a normal distribution with an average of 26 and a standard deviation of 2. The entrance exam score of students whose graduation period is more than 5 years also follows a normal distribution with an average of 22 and a standard deviation of 3. We denote these two classes of students by  $G$  and  $\bar{G}$ . If a student is accepted with a grade of 22, how likely is he / she to graduate in the first 5 years of study?