Tutorial 6 On-site Questions

1. (Decision Trees)

Customer churn is the loss of clients or customers. Banks, telephone service, companies, Internet service providers, pay TV companies and insurance firms often use customer churn analysis and customer churn rates as one of their key business metrics.

This is because the cost of retaining an existing customer is far less than acquiring a new one. Companies from these sectors often have customer service branches which attempt to win back defecting clients, because recovered long-term customers can be worth much more to a company than newly recruited clients.

In this problem , a wireless telecommunications company wants to predict whether a customer will churn (switch to a different company) in the next six months. With a reasonably accurate prediction of a person's churning, the sales and marketing groups can attempt to retain the customer by offering various incentives. Variables of our concern are listed below.

(i) Age (years)

(ii) Married (true/false)

(iii) Duration as a customer (years)

(iv) Churned contacts -Number of the customer's contacts that have churned (count)

(v) Churned (true/false)—Whether the customer churned

(a) Build a decision tree for predicting customer churn, using the feature variables Age, Married, Cust_years and Churned_contacts.

(b) Consider the decision tree in part (a) to predict binary variable Churned. Use the tree to predict customer churn for the following observations.

	Age	Married	Cust_years	Churned_contacts
2821	26	1	2	2
96	23	1	3	3
5085	56	1	5	2
758	36	1	5	2
487	45	0	2	1
987	28	0	2	2
6061	22	1	3	0
3745	22	0	3	2
4709	60	1	2	1
2769	32	0	3	1