Use the data organized in Case 1.

Question

A telephone company wants predict which customers are most likely to respond to product offers in the future.

Data Description (case1.sav**):**

The data used is from the data warehouse for a telephone company. A subset of the customer base was selected at random and given 3 product offers, and their responses were recorded. Data contain information about responses to the special promotions by 5,000 of the company's customers. Three "target" fields show whether or not the customer responded to each of three offers. They could accept any of the offers or none (some customers accepted all 3 offers, some 2, some 1, and some none). The data also include a large number of fields containing customers' age, employment, income, and telephone usage statistics.

1. Using a decision tree, develop a model to help predict which customers are most likely to respond to the offers in the future. Only use variables that can be operationalized from a practical perspective and that make sense conceptually. Remember, the tree will still only select a subset of the included variables. Use a 10 fold cross-validation to select your tree. Note: SPSS does not automatically select the tree. Also, (post-)pruning and cross-validation cannot be jointly selected. You have to grow different trees and select your tree based on the cross validated Risk. Use CRT method in SPSS (while not necessary, you also can compare it with CHAID which uses multi-splits). Carefully explain your choices. [10 pts]

2. Critically evaluate the tree. Does the result make sense? Carefully explain. [6 pts]

3. The CEO needs to make a decision on a marketing plan to increase response rates. He knows nothing about machine learning or statistics. Carefully explain. [4pts]

The report (per group) should be submitted before the 14th of May at 11.30am by email to bernardo.costa@novasbe.pt. Late submissions will not be considered. Please make sure to identify the group number and all group members. The report should answer all questions and be at maximum 6 pages long (one and half spacing, 11pt font, 2.5cm margins). No appendix.