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Sistemas Baseados em Similaridade - SBS 2019/2020

### Mestrado Integrado em Engenharia Informática

![Uma imagem com pessoa, parede, propriedade, homem

Descrição gerada 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José Pinto

A84590

**T1**

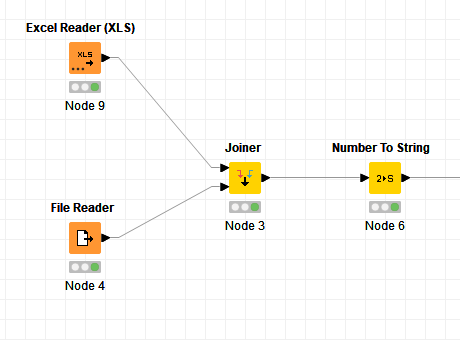


Figura - Subconjunto do workflow referente à T1

Foi necessária a seguinte configuração do nodo Excel Reader:



A agregação por “área code” e “phone” foi feito como pedido através do nodo Joiner que foi configurado da seguinte maneira:

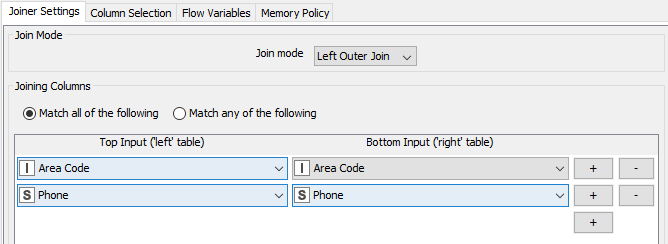


Figura - Configuração do nodo Joiner

E finalmente a transformação do atributo “churn” para nominal foi feita pelo nodo Number To String.

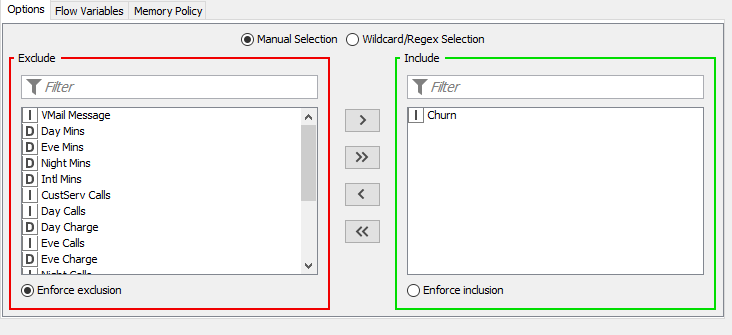


Figura - Configuração do nodo Number To String

**T2**

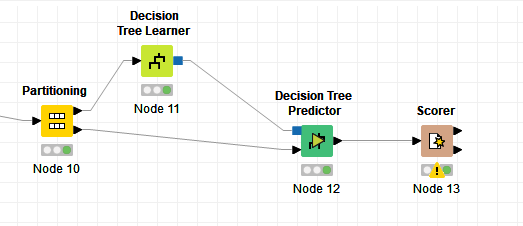


Figura - Subconjunto do workflow referente ao T2

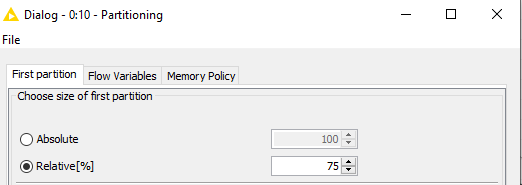


Figura - Configuração do nodo Partitioning

O modelo realizado apresenta uma precisão de 93.8%.

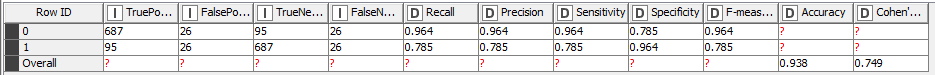


Figura - Accuracy statistics



Figura - Matriz de confusão

**T3**

Para a realização desta alínea foi utilizado o nodo Column Filter para remover iterativamente features do dataset.

Foi observado que a filtragem de features tinha uma de duas possíveis consequências sobre a precisão do modelo.

Sem filtragem -> 91.1%

Filtrar “state” -> 93.8% (subida)

+

Filtrar “ VmailPlan” -> 92.7% (descida)

+

Filtrar “Intl” -> 88.4% (descida)

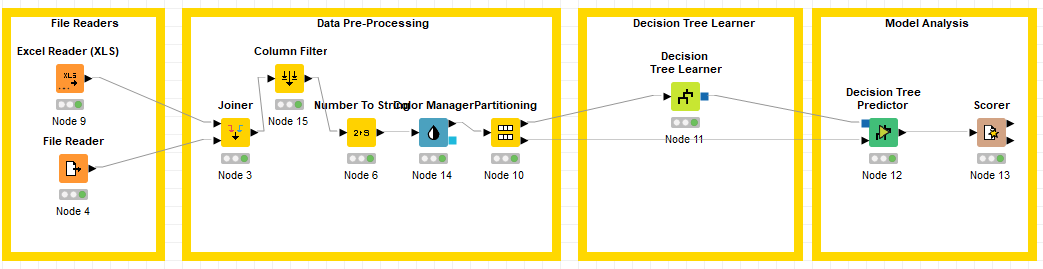
+

Filtar “Day mins” + “Night mins” -> 88.5% (subida)

+

Filtrar “Intls charge” + “Eve charge” + “Day charge” -> 79.3% (descida)

**T4**



**T5**

A imagem referente a esta alínea encontra-se dentro da pasta zip.

**T6**

Após a exploração dos datasets pude concluir que o principal fator de permanência ou cancelamento do contrato está no valor da taxa “day charge”. Quanto maior este valor menor é a probabilidade de um cliente se manter.

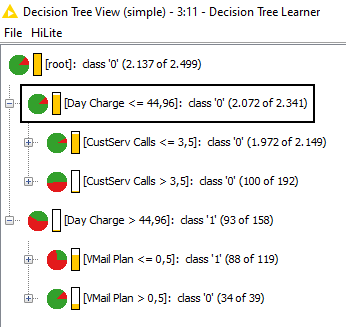


Figura -Decision Tree View

Foi ainda possível concluir que as elevadas taxas de precisão mesmo após a filtragem de várias features do dataset é dada pela desproporção entre os clientes que abandonam e permanecem na operadora.

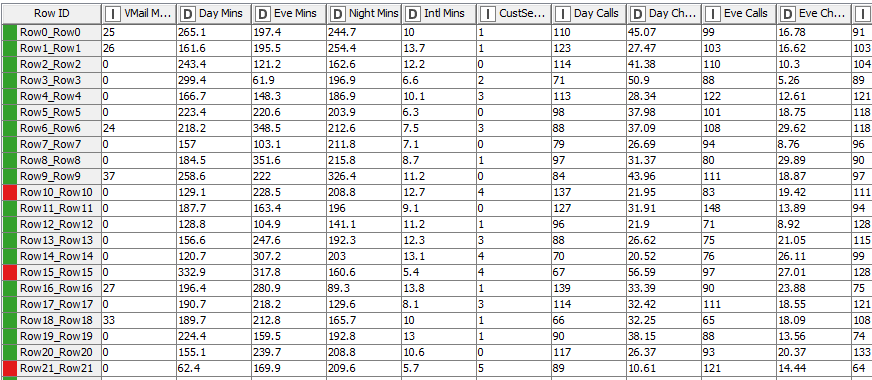


Figura -Excerto da tabela joined após color managment