**Mathematical Model:**

* Considering only the ‘race\_Caucasian', 'race\_AfricanAmerican' (8th and 9th index) feature of the data:

**KB Construction:**

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| --- |
| Pseudo Code: |
| For entry in train\_set:  FeaVals🡨 {entry[8],entry[9]}  Label🡨 entry[65] //last entry is the output label  S🡨 PowerSet(FeaVals)  For each key as an element of S:  If key is in counts then  Counts[key]🡨 Counts[key] + [1,label]  Else  Counts[key]🡨 [1,label]  For each key in counts:  P 🡨counts[key][1]/counts[key][0] //number of positives/total number of point  Insert “[P], POS V ~key” to K  Return K |

**Relevant KB Construction:**

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| Pseudo Code: |
| Query  FeaVals🡨 {Query[8],Query[9]}  S🡨 PowerSet(FeaVals)  For each key as an element of S:  For each clasue in KB  If clause contains key then  Insert clause to RKB  Return RKB |

**Solving for w (pos):**

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| --- |
| W (pos) can be solved using the equation (2-6) in Fan et al. If the Query is positive then we will minimize (2), if its negative we will use bounds such that the maximize (2) |