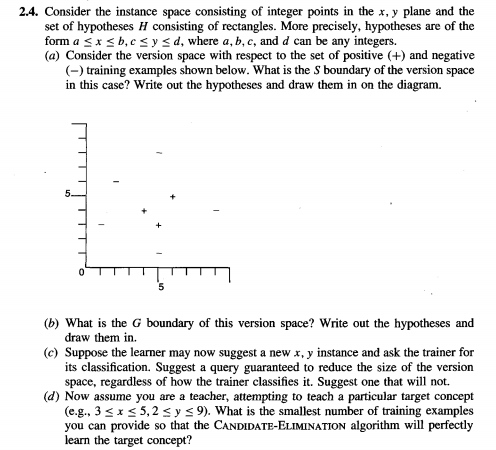
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| **Homework 1** |

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| Name(s):   1. S M Salah Uddin Kadir ID: 1800503 2. Rubayat Jinnah |

**Concept Learning**

Machine Learning by Tom Mitchell, Chapter 2.

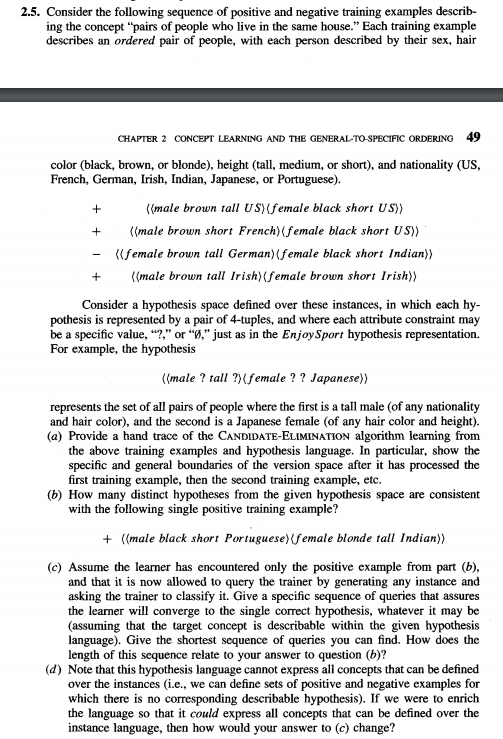
**Question 2.4. (25 points)**



**Solution:**

(a)

**Question 2.5. (25 points)**



**Solution:**

(a)

We have,

+ ((male brown tall US) (female black short US))

+ ((male brown short French) (female black short US))

- ((female brown tall German) (female black short Indian))

+ ((male brown tall Irish) (female brown short Irish))

Let the hypothesis,

S: ((0, 0, 0, 0) (0, 0, 0, 0))

G: (?, ?, ?, ?) (?, ?, ?, ?))

Adding the first pair which is positive,

S: ((male, brown, tall, US) (female, black, short, US))

G: ((?, ?, ?, ?) (?, ?, ?, ?))

Adding the second pair which is positive,

S: ((male, brown, ?, ?) (female, black, short, US))

G: ((?, ?, ?, ?) (?, ?, ?, ?))

Adding the third pair which is negative,

S: ((male, brown, ?, ?) (female, black, short, US))

G: ((male, ?, ?, ?) (?, ?, ?, ?) ), ( (?, ?, ?, ?) (?, ?, ?, US))

Adding the fourth pair which is positive,

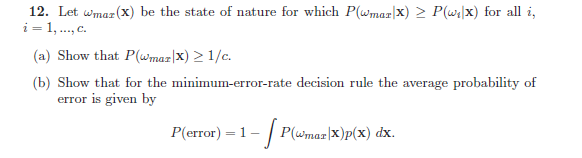
S: ((male, brown, ?, ?) (female, black, short, ?))

G: ((male, ?, ?, ?) (?, ?, ?, ?) )

**(b)**

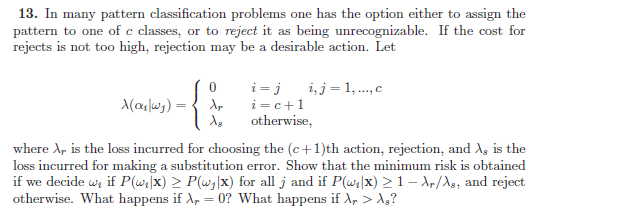
**Probabilistic Learning**

**Question 12 (a) and (b) only. (25 points)**



**Solution:**

**Question 13. (25 points)**



**Solution:**