

## Submission Assignment #1

*Instructor:* Thorsten Joachims*Name:* Student name(s), *Netid:* NetId(s)

**Course Policy:** Read all the instructions below carefully before you start working on the assignment, and before you make a submission.

- Please typeset your submissions in L<sup>A</sup>T<sub>E</sub>X. Use the template provided for your answers. Please include your name and NetIDs with submission. date and time on the first page.
- Assignments are due at the beginning of class at 2:55 pm on the due date on CMS.
- Late assignments can be submitted on CMS up to Sunday, Feb 17. This is also when the solutions will be released.
- You can do this assignment in groups of 2. Please submit no more than one submission per group.
- All sources of material must be cited. The University Academic Code of Conduct will be strictly enforced.

**Problem 1: Version Spaces**

(10+10+10+20=50 points)

| <i>Weather</i> | <i>Food</i> | <i>Meeting</i> | <i>Attend?</i> |
|----------------|-------------|----------------|----------------|
| cold           | full        | idc            | yes            |
| cold           | empty       | no             | no             |
| hot            | full        | yes            | yes            |
| cold           | full        | no             | yes            |
| hot            | empty       | no             | no             |

Table 1: Dataset  $\mathcal{D}$ 

- (a) Write your solution here
- (b)
- (c)
- (d)

**Problem 2: Decision Trees, Overfitting**

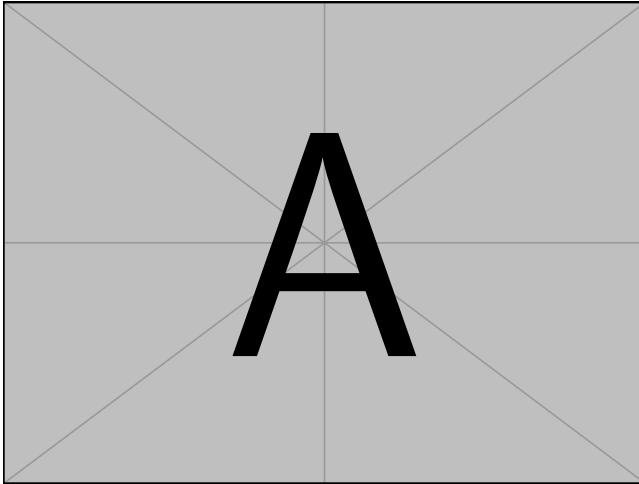
(5+5+10+5+10+10=45 points)

(a)

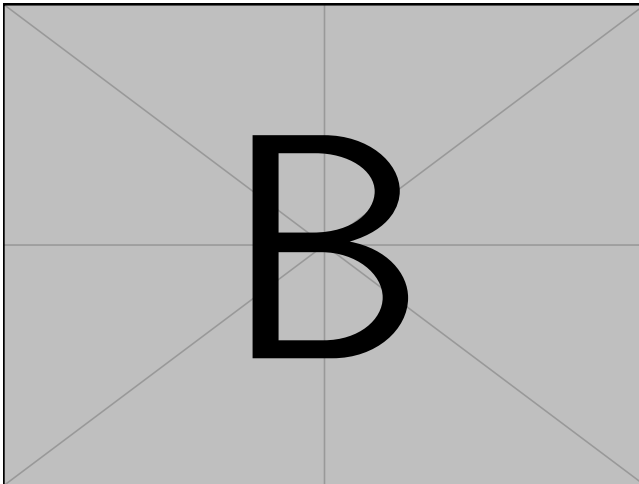
(b)

(c)

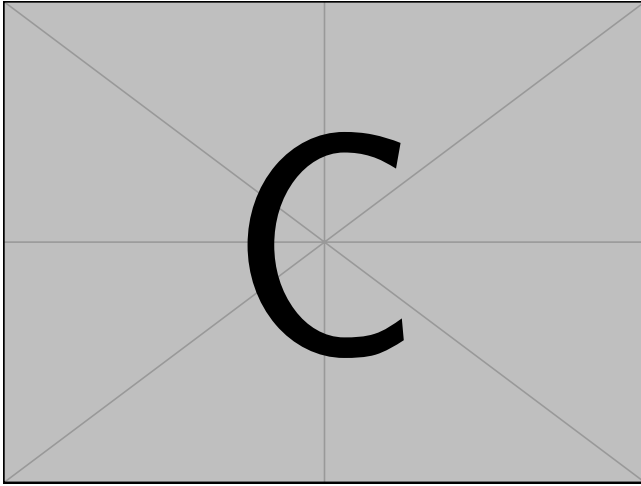
(d)



(e)



(f)



**Problem 3: Hypothesis Testing**

(15+10=25 points)

(a)

(b)