95.5204
Assignment 2

Must be handed in no later than April 12th before 23:59. Your assignment should be submitted online on Brightspace as a single .pdf file. The filename should contain your name and student number. No late assignments will be accepted.You can type your assignment or you can upload a scanned copy of it. Please, use a good image capturing device. Make sure that your upload is clearly readable. If it is difficult to read, it will not be graded.

Question 1: 20 points

Show via a set of illustrations and comments how the grid file construction would work on an object set of your choice with bucket size =3.
In particular, show the sequence of insertions, bucket splits, ... Then, show how the grid file would change after a set of deletions.

Question 2: 20 points

On a conceptual level, i.e., without going into the detail of the FP VD algorithm, describe how you would solve the following meeting scheduler problems: let n be the number of participants of a meeting scheduling problem. Provide the sketch of a solution and analyze its time complexity for:

- Determining if a meeting among all n participants is possible at all.

- Determining if a meeting is possible with $n - 1$ participants.

- Determining if a meeting is possible that is held as follows: For one 1 hour everyone meets, then, they all travel together to a second location and continue the meeting for another hour.

Question 3: 20 points

Suppose your task is to transmit a map over satellite, i.e., expensive and transmission size needs to be reduced. We want to first receive the entire map (in some resolution) and then decide which features we are interested in: rivers or roads both above 2000m, in best possible resolution, possibly restricted to a query region. What is the best way to achieve low cost transmissions?

End of Assignment .