

NPTEL

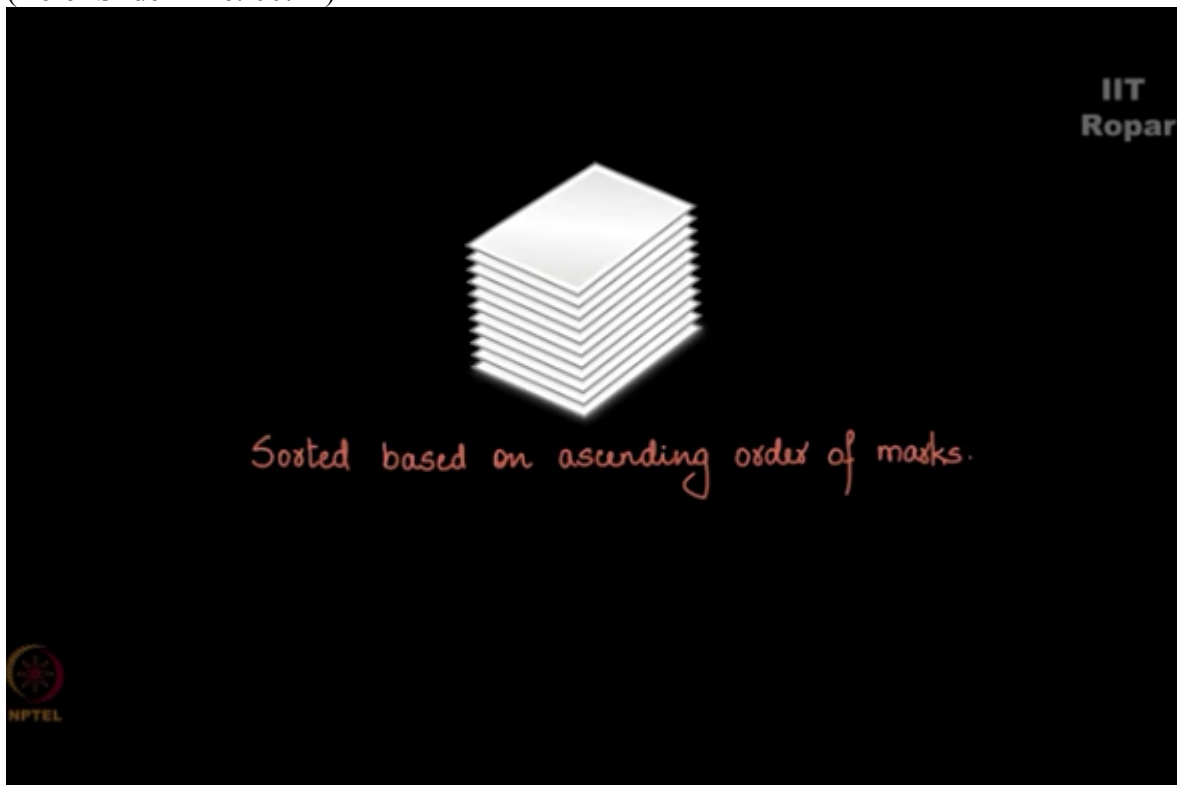
NPTEL ONLINE CERTIFICATION COURSE

**Discrete Mathematics
Recurrence Relation**

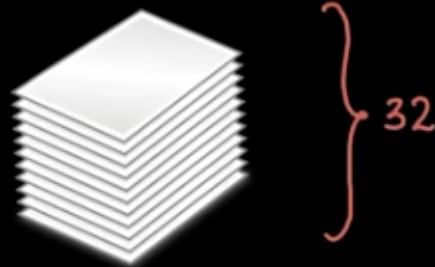
Introduction to Merge sort 1

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Let us consider a situation where a teacher is trying to keep her answer scripts sorted, sorted based on the ascending order of the marks that students have secured,
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the time being let's assume that the students have secured different marks, all right no 2 students have secured the same marks, so she has roughly let's say 32 on subscripts,
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Sorted based on ascending order of marks.
No 2 students have same marks.



how is she going to keep this thing in ascending order of their marks?
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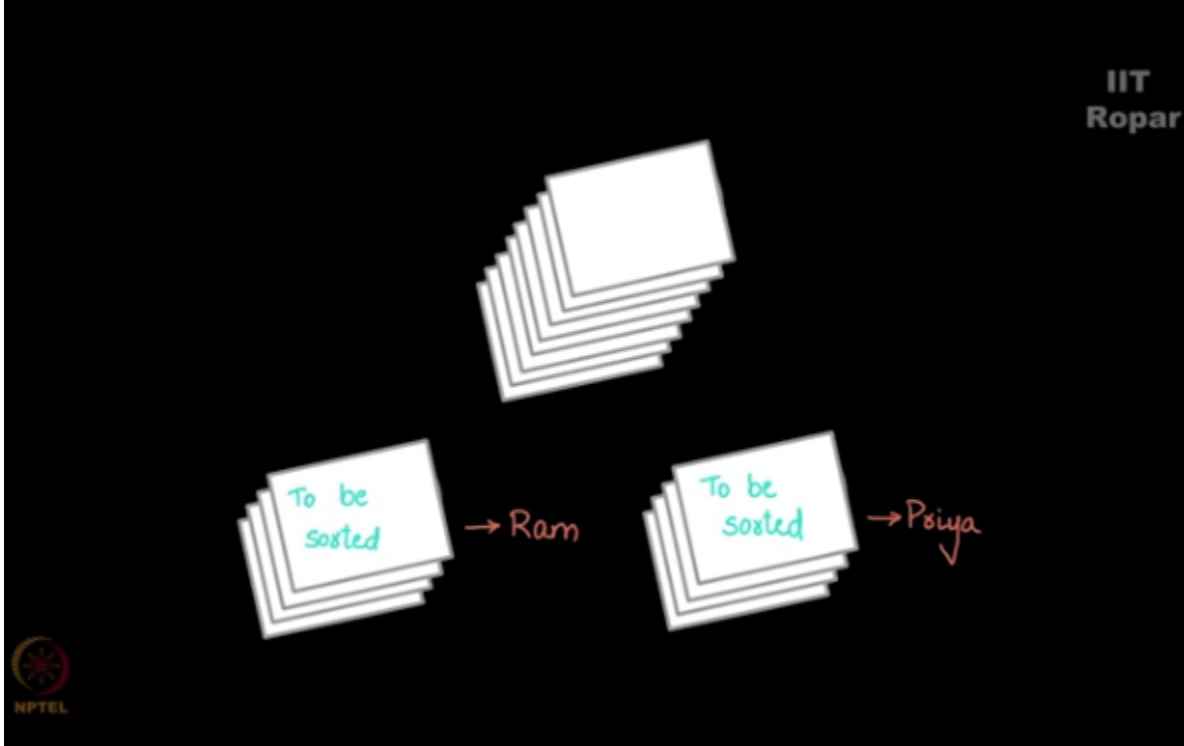


Sorted based on ascending order of marks.
No 2 students have same marks.

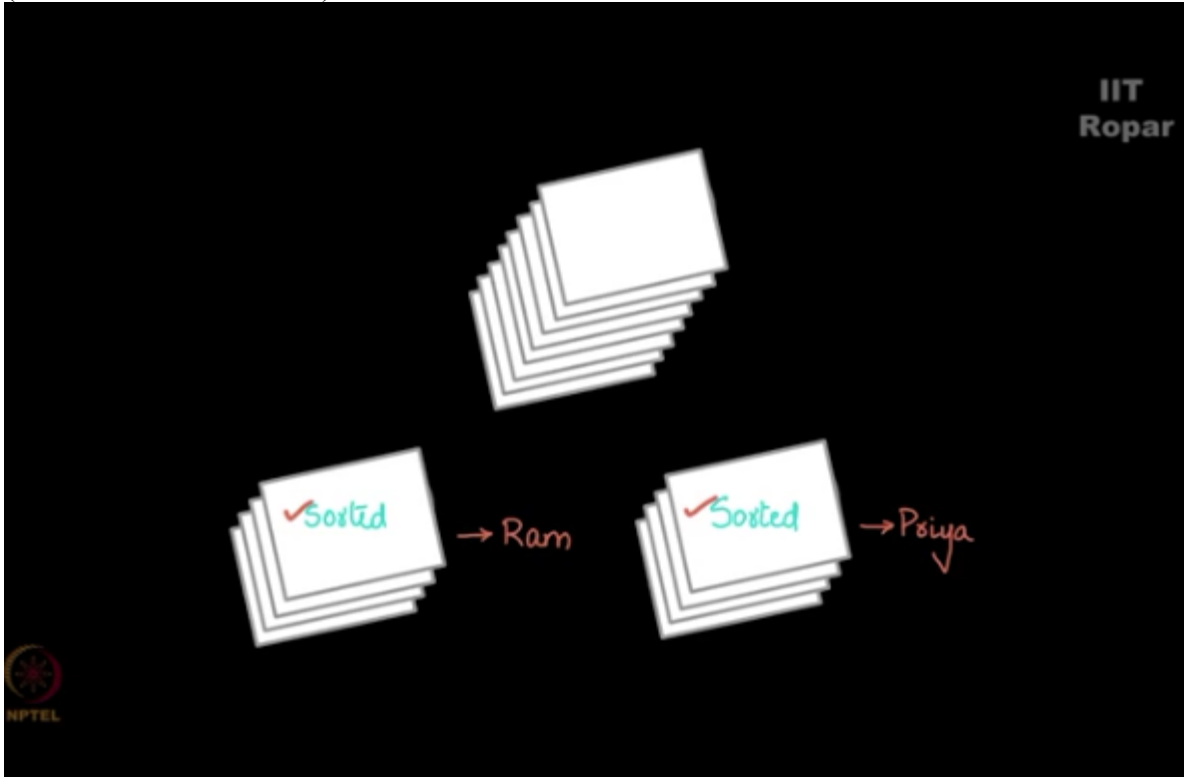
How will she keep it in ascending order?



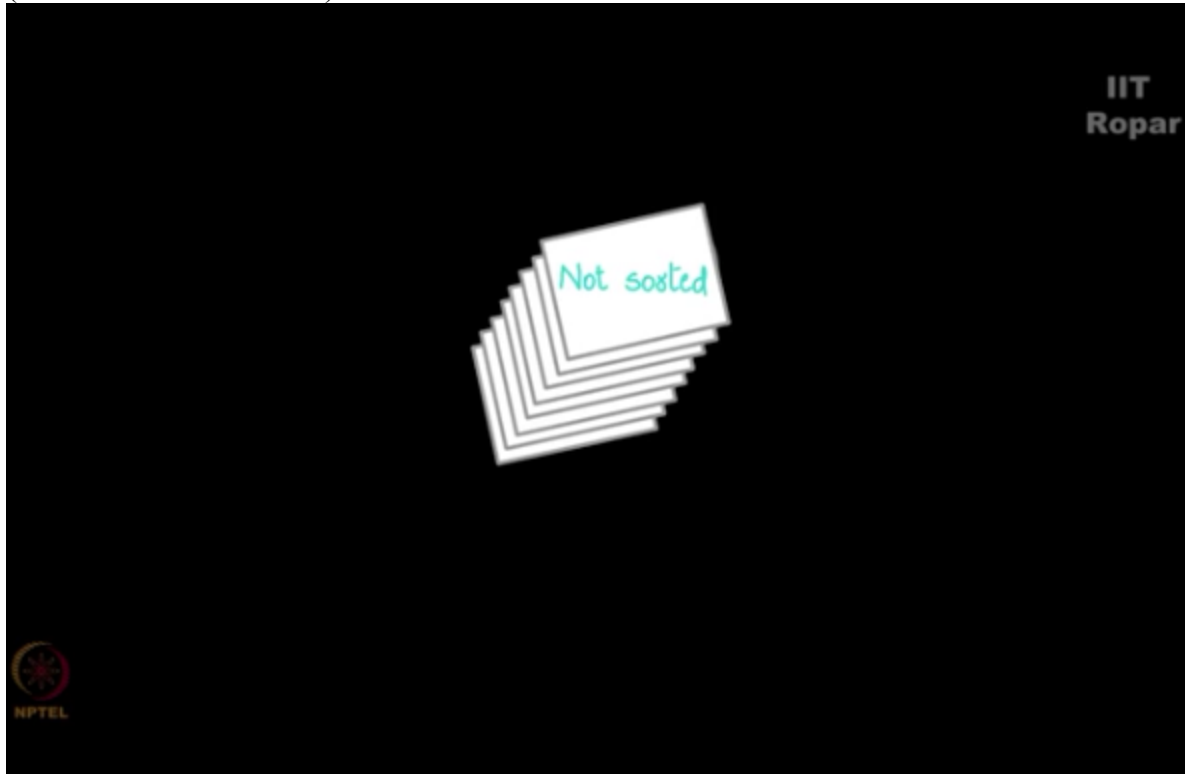
And what she does, she partitions the answer scripts into 16 and 16, and gives 16 to Ram, and 16 to Priya, the teacher says please sort them and give it back to me,
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Ram sorts these 16 answer scripts, Sita also sorts these 16 answer scripts,
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and they written it back to the teacher, and the teacher realizes oh I don't think all my answer scripts are sorted,
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partitioning making it half-and-half and giving it to 2 students and asking them to sort it doesn't solve the entire 32 bunch, now I have 16 sorted answer scripts, another 16 sorted answer scripts, but I do not have all my 32 on scripts sorted.

Now with these two bunch of $16 + 16$ answer scripts that are individually sorted, how would you finally sort these 32 answer scripts?
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How do we sort 32 answer scripts ?



Think about it.

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Ministry of Human Resources Development
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